



OFFICIAL NOTICE AND AGENDA
of a meeting of a City Board, Commission, Department
Committee, Agency, Corporation, Quasi-Municipal
Corporation, or Sub-unit thereof.

A Meeting of Wausau Water Works Commission will be held in the
Council Chambers, 1st Floor City Hall, Wausau, WI 54403 at 9:30 a.m. on
Wednesday, May 5, 2021.

Members: Katie Rosenberg (President), Dawn Herbst, Jim Force, Joe Gehin, John Robinson

AGENDA

1. Approve Minutes of April 13 and April 20, 2021 Meeting.
2. Director's Report on Utility Operations
 - DWTF Update.
 - LSL Funding Update.
 - WDNR to Reissue WPDES General Permit No. WI-B057681-05-0.
 - Incoming Locates.
 - WWTF Update.
 - Wastewater Treatment Plant Permit Limits.
 - Open Position for Wastewater Plant Mechanic and Sewer Maintainer.
 - Wastewater Moving into Administration Building.
 - Sludge Hauling.
 - Utility Financial Reports Through March 31, 2021.
3. Discussion and Possible Action Regarding the Purchase of a ½ Ton Pickup. Quotes opened at the 4/27/21 Board of Public Works Meeting. Staff recommends purchase of the vehicle from Fred Mueller GMC.
4. Discussion and Possible Action Partnering with WPS on the Proposed Solar Array at 1010 Bugbee Ave.
5. Discussion and Possible Action on Options Moving Ahead with LSL Replacement City Wide.
6. Discussion and Possible Action on 2021 Water & Wastewater CIP Projects.
7. Discussion and Possible Action on Disconnection of Water Main and Booster Station Serving the Village of Maine (Former Brokaw Area).
8. Discussion on PFAS/PFOS Compounds in Wisconsin.
9. Discussion and Possible Action regarding offer of settlement by Dean Prohaska, d/b/a A & D Contractors, LLC, tenant of Brownfield Investments, LLC, to resolve tax settlement received by City from Marathon County for forfeitures levied against 909 S. 60th Ave.
10. CLOSED SESSION pursuant to Section 19.85(1) (g), Wis. Stats., for the purpose of conferring with legal counsel for the governmental body who is rendering oral or written advice concerning strategy to be adopted by the body with respect to litigation in which it is or is likely to become involved, regarding offer of settlement to resolve potential litigation by Dean Prohaska, d/b/a A & D Contractors, LLC, tenant of Brownfield Investments, LLC, to resolve tax settlement received by City from Marathon County for forfeitures levied against 909 S. 60th Ave.
11. RECONVENE MEETING INTO OPEN SESSION for the purpose of acting upon Closed Session Item, if necessary.

Adjourn.

Next meeting scheduled for **June 8th 2021.*

THIS NOTICE POSTED AT CITY HALL AND EMAILED TO CITY PAGES AND DAILY HERALD: April 30, 2021 at 2:15 p.m.

Due to the COVID-19 pandemic, this meeting is being held in person and via teleconference. Members of the media and the public may attend in person, subject to the social distancing rules of maintaining at least 6 feet apart from other individuals, or by calling 1-408-418-9388. The Access Code is 187 737 4226 and the password is P6EfmfkEX92. Individuals appearing in person will either be seated in the Council Chambers or an overfill room, subject to the social distancing rules. Space available will be on a first come, first served basis. All public participants' phones will be muted during the meeting. Members of the public who do not wish to appear in person may view the meeting live over the internet at <https://tinyurl.com/wausaucitycouncil> on the City of Wausau's YouTube Channel https://www.youtube.com/channel/UC-Nigpdco_i8sq5FbbJD_aw and live by cable TV, Channel 981. Any person wishing to offer public comment who does not appear in person to do so, may e-mail michelle.weasler@ci.wausau.wi.us with "Water Commission public comment" in the subject line prior to the meeting start. All public comment, either by email or in person, will be limited to items on the agenda at this time. The messages related to agenda items received prior to the start of the meeting will be provided to the Chair.

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 (ADA), the City of Wausau will not discriminate against qualified individuals with disabilities on the basis of disability in its services, programs or activities. If you need assistance or reasonable accommodations in participating in this meeting or event due to a disability as defined under the ADA, please call the ADA Coordinator at (715) 261-6590 or ADAServices@ci.wausau.wi.us to discuss your accessibility needs. We ask your request be provided a minimum of 72 hours before the scheduled event or meeting. If a request is made less than 72 hours before the event the City of Wausau will make a good faith effort to accommodate your request.



Minutes of April 13, 2021

A meeting of the Wausau Water Works Commission was called to order at 10:30 a.m. in City Hall on Tuesday, April 13, 2021. In compliance with Wisconsin Statutes, this meeting was posted and receipted for by the Wausau Daily Herald on April 8, 2021.

Members Present: President Rosenberg, Commissioners Robinson-via Webex, Herbst, Force, Gehin. Others Present: Eric Lindman, Dave Erickson, Scott Boers, Valerie Swanborg, MaryAnne Groat- via Webex, Steve Opatik/Becher Hoppe- via Webex, Lisa/Clark Dietz, Chris Collins/SunVest Solar, Ann Jacobson, Toni Vanderboom.

1) Approve Minutes of March 2, 2021 Meeting.

Herbst moved to approve the minutes of the March 2, 2021 meeting. Seconded by Gehin.

Motion to approve the minutes carried 5-0.

2) Director's Report on Utility Operations.

Lindman advised on updates for the water and wastewater plants and operational matters and if any commissioners had any questions on what is on the director's report. There is an update on lead and copper rule that will impact us in the future.

Gehin asked what the results of the mercury test was and what we'll have to do to show compliance.

Erickson replied we haven't received anything from DNR but the limit is 3.8 and we are at 3.83. It's not much but it is over the limit.

Robinson asked if we knew the source.

Erickson replied saying sometimes we get spikes. We have an older system but it dropped after we put in the dental amalgam regulations and when we cleaned the sewers we disturbed sediments and/or historic materials so it comes through the plant and it was his intention to monitor and see how we are doing. The February results were 3.83 and March was slightly below that 3.8, so it's still elevated and we are anxious to see if it drops back to normal or if we've got some kind of elevated trend for some reason.

Force asked what is normal.

Erickson replied, we bounce around but he couldn't remember the last time we'd gone over the limit of 3.8 but in past have been about one, two, and three range.

Force asked if this was parts per billion and with the recent rain have we been able to put any black gold out on the farmer's fields or started emptying shed?

Erickson replied this is parts per billion, so it's a very small amount. We got started last week hauling out biosolids but were rained on so they were planning to start again Sunday because the weather report was looking good but then weather changed so it changed the plan.

New plan was to start Wednesday or Thursday whenever the fields dry up and hall on Thursday, Friday, and Saturday.

Force asked if we were hauling liquid or cake.

Erickson replied that we have a cake that we spread.

Force indicated that 22 Homeowner's have called expressing interest in lead line replacement, what is the per replacement cost about or around?

Lindman replied that the cost has been about \$3,500.00 within our construction project limits then outside projects where there are sidewalks costs get close to \$5,000.00.

Robinson asked for future discussion if anyone has looked at the American Rescue plan particularly on the allowance for investment in the water and sewer and how it might come into play with the instances of lead and copper line replacements.

Rosenberg replied yes, we're talking about it at the finance committee today but we are still waiting on guidance from the treasury and it's a good topic to hit in maybe the next couple months.

Robinson asked if this was also the infrastructure proposal.

Rosenberg stated no and that this is the first plan coming through and we haven't heard of the infrastructure yet.

Robinson asked if there's money in the rescue plan for the lead and copper line replacement.

Rosenberg states it had to do with the sewer or water.

Lindman reiterated that it is the Utility projects-Water Sewer and broadband specifically.

Robinson asked if he can elaborate on that and if it is available state by state.

Lindman stated there'll be different allocations. For state, we are not sure yet how to apply for them or how to reach out for those funds. A month or two ago we talked about preparing a plan on how to remove those lead service lines that we have or maybe different options for the commission to consider. We were proposing 450k this year but with 30,40,50 million dollar worth of work we have to do, we'd be at it for years. Putting a program together in the next couple years and trying to dovetail some of the funding and figure out how we can do better.

Rosenberg suggested if we want to put this on the agenda in the next few months maybe when we have a better idea.

Robinson stated that his understanding was that checks were going to come to the communities for the American Rescue Act and the city's allocation based on legislative fiscal bureau was \$15,747,334 but that's for a number of eligible activities including lost revenue and others, so there will be potential opportunities for the city. The county will receive \$26 million and all Marathon County Municipalities just under \$52 million that will be coming so there are opportunities ahead.

3) Presentation and Update on Proposed Solar Array at the New Water Treatment Facility.

Please refer to attached documents in the packet of the presentation by Clark- Dietz.

Lindman introduced Lisa from Clark- Dietz and Tonia via Webex as they will walk us through where they are at with the proposed solar project and answer any questions you might have.

Lisa states it has been a couple months since we've been here and wanted to update you with the solar project.

Last time we talked about the sighting and initial location north of the plant was not suitable for the solar. We investigated areas further to the North when the property on 1010 Bugbee became available, we shifted our focus to that property. Survey field work has been done, the city is pursuing purchase of that property and when that is finalized we will have the geotech done. Next step is preliminary sizing of the array and layout so we brought in a resource we

worked with in the past. SunVest and our company together have done a number of projects. They are going to help us with the constructability and cost estimating. I have Chris Collins here from SunVest Solar who will walk you through what he's done with some preliminary layouts.

Collins presented stating they are based in Milwaukee, WI. He is based out of the office in Madison, Wisconsin. We have been in business together since 2009. We are perennially the number one solar developer in the state, we're the 14th largest solar developer in the country. I am a Project Developer. So brief history, we have a development team that develops projects. We have a design and engineering team that figures out all the electrical schematics and drawings. Then we have an operations team that implements the projects and an assessment management team who follows up on the systems to see that they are performing the way they should. We had multiple discussions on where this array would go and where to put it and how big layout big of a layout would be at 1010 Bugbee. The goal of the water filtration plans was originally 3 million kilowatt hours a year. Goal was to get to 90% of that consumption. One of the challenges is that there's a limit to the efficiency of the panels so you need quite a bit of surface area to try to get to that 90%. We have looked at a fixed tilt array where the panels are fixed to the south then we have the single axis access array meaning the panel of rows run North/South and the panels turn during the day from east to west so we can gather more electricity that way. So we went with the Single Access tracking system. Every megawatt and every thousand watt, kilowatts of solar panel that goes up takes about 6 acres of land. We need to spread the rows out so one doesn't shade the other. The location at Bugbee Avenue is 1.23 megawatts. All these numbers are conservative because we haven't seen all the geotechnical results and we need to look at topography and things but we have a fair amount of play with topography and it could follow the terrain. For every kilowatt we install for a single access tracking array, it will produce 1405 kilowatt hours. We are taking the 3 million, knocking off to 90% of that usage and looking at how much the system can produce and how much it can offset. 1.23 Megawatt system will produce one million seven hundred and twenty two thousand kilowatt hours or more, about 57% of the estimated consumption of that facility. Estimated cost of that is about 15 hundred and sixty dollars per kilowatt installed. We are coming in more conservative but as we know more about the particulars we can chip away at the numbers. Estimated cost of the electricity and value of that solar every month and every year and divide that with what the system is going to use by the value of that solar and the return on the investment is about 13.9 years. We will know more and perhaps the installed price drops that return on investment will also lower. On the next page you can see the preliminary layout. Oblong where there are no panels was a very steep heel we cannot put panels on. This layout uses 410 watt panels. That is one technology in this industry that is constantly changing. Next year we could be looking at a 450 or 470 watt panels. This could affect how much of the offset there is and what is the cost of the panels at that time. Panel prices have been dropping the last several years. Design would be a 1.92 megawatt system. Estimated cost \$2,977,300 and ROI would be 14.7 years- all very preliminary and conservative. Panels capture photons from the sun and convert those into direct current which is captured throughout the array that runs to the inverters placed on the array that changes that direct current to usable ac current. Then it's just a matter of building blocks you start with a panel then you have an array and all that electricity is collected to one spot then through electrical wiring and conduits is sent to the area of interconnection for the plant which is the next step.

We need to talk to WPS as to how you want us to interconnect this and with Clark- Dietz and the electrical service at the water filtration facility determined by our design and what it means to interconnect this with the electrical service there. It could be that it never touches the

facility, it just hits a transformer and the power goes to WPS and they offset it in billing or would it be behind the meter that hits their electrical service and instantaneously offsets what the facility is using at that time. Field would be pile driven steel vertical posts they are GPS located. It takes a minute and half to drive a post. Then they follow behind to install racking between the posts, then the tracking motors that turn those panels. Then dc wiring to the inverters and ac wiring to whatever point transformer or combiner panels. Collins presents on current projects they were working on as examples. Different types of arrays. Picture of a fixed array see page 9. What's becoming more popular with the larger arrays are Pollinator arrays. It creates a habitat for butterflies and bees, some people are even looking at sheep but we haven't explored that yet because we'd have to let people in to tend to the sheep where there is high power flowing. Page 11 shows the pile driving machine that posts go in. We would do a pull test to see how much pressure it takes to pull it out again because we want to make sure these are rated for 110 mile an hour tornado type winds. Then they go out in order again. Page 12, next step where you follow behind with the angle racking. Page 13, Inverters installed right on the array. All conductors/panels flow to one collection point then gets into electrical design how we will tie into water construction plant. Timeline we are looking into getting everyone trained and doing this is about 6 months depending on time of the year and weather. Any questions.

Force asked what kind of energy saving procedures we have in the new plant and if we are doing everything we could to reduce energy consumption.

Boers replied saying it was looked at considerably all throughout our design, electrical engineers have looked through our lighting options, our LED occupied room sensors to vfd's on our motors, high efficiency motors, through the whole process. We looked at this. I don't know if there is something specific you are looking for?

Force replied no, he was just thinking if the consumption number that SunVest is using is a number as far as what we'd expect the plant to consume.

Lisa replied that they calculated this based on actual plant load.

Force stated, if we were to go with that construction that would occur a year from now, do we expect any change in the price of panels and the other solar apparatus between now and then.

Collins replied that panels are as low as he has ever seen them but there is talk they could drop for next year. He replied he gets nervous about making a claim. He states as a company, when we purchase panels, purchasing 20 megawatts of panels so about 30k panels, we might be able to realize some savings but we don't know till November what will have next year and what price will be.

Force asked if they have ever upgraded panels on existing installation as new technology comes along.

Collins replied they have not done that but explains that the panels carry a manufacturer's warranty to deliver 80% of their rated output at 25 years. Now they are coming out with bifacial panels and that warranty is 30 years. There's a 10 year workmanship warranty, the rest of the 25 years is the performance of the panels. That technology is always evolving there are people in labs all over the world trying to get a little more efficiencies out of the panels but we are still hovering just below 20% efficiency on the panels.

Force asked how the weather may impact the efficiency of the panels and the maintenance of the system.

Collins replied that they had design tools which factor in 30 years of weather data for the exact location where they set up the future arrays. The National Renewable energy laboratory in Colorado studies the weather patterns. We are compensating for snow cover, cloud cover, cloudy days, semi-cloudy days, and sunny days is where we get that estimate for what it will

produce. We'd set up some kind of regular maintenance that's part of our asset management team.

Force asked if that would be a contract with SunVest to provide maintenance.

Collins replied it could be if they did the work.

Force asked how this ROI compared with other facilities SunVest has installed and mentioned what he thought was an incentive through WE Energies and WPS now as he believed is now part WE Energies, are there any incentive available locally.

Collins replied that ROI is about the same. The challenge here would be if there is a tax credit available for people that buy solar but we can't monetize the tax credit here being that you're a public entity. The solar now program went to the public service commission to apply for that program and the queue for that is full. I don't know if they're going to expand it. Until now WPS and WE Energy have been operating separately even though they are kind of the same company. I wouldn't want to speak to that.

Rosenberg suggested to stay tuned for the next agenda item.

Robinson stated he was just going to ask whether the new infrastructure bill has a number of incentives for the development of solar and if we had a chance to look at that to see if there was any potential programs that would benefit this project?

Collins replied there were a round of office energy innovation grants that came around but is currently closed, there is no information if they will open that up again- that was one potential funding source. There is some money from Focus and Energy but the amount that they gave out wouldn't have any effect on this.

Robinson asked if SunVest has looked at the proposed infrastructure bill on the federal level.

Collins replied no. He says they were talking about it, but in his world unless something is in writing and exists, he'd normally wait to see how it sort of flush out on what exactly is available.

Gehin stated most of his questions were answered but asked what the amount of budget we would need to have to maintain it and says he'd like to think the first year would be low but as the life of the solar array goes on if Collins could give us what his experience has been on an annual budget for him. If he puts a unit in, what that would cost?

Collins replied their asset management team has only been around 3 or 4 years, he was afraid to guess. He'd like to get a solid answer and get back to Gehin.

Gehin asked if it is possible for our own staff to take care of it.

Collins replied they can train staff on site on what to look for and larger issues, sometimes we will do it as an a la carte item, an inverter is bad, inverters are typically covered under 10 year warranty by the manufacturer so if you need to replace an inverter we would discuss the manufacturer how much of that truck roll would cover. Solar arrays are inherently low maintenance. We are talking about the tracking array here so we are looking at some regular maintenance that I think staff here can do.

Gehin asked if there were any means to remove the snow or do you just live with it and get less production.

Collins replied that the proposed single axis arrays have a snow shedding tool in them, that causes them to tilt as far as they could to shed some of the snow right off of them but if you have freezing rain and snow then of course it's going to stick. The panels don't produce heat but will get warm in the sun.

4) Update on Solar Partnership with WPS.

Lindman updates the Commission that as we entered into this contract with Clark-Dietz

for the design, we weren't sure of the size of the facility. Initially we were talking 300 kilowatts 400 kilowatts but now that we are up to one megawatt or more. WPS approached me about the possibility of partnering with us for some of the capital cost in helping get some of those credits in WE Energy. WPS is still working through a possible partnership proposal and with the PSC, this would be the first one that WPS on their territory. Kelly and Dave Schneider are proposing to come in May to discuss what their contribution could be to the project and have expressed that they would love to partner with us, whether it's just this one or future ones as well. They approached us and it was a positive conversation so I'm looking forward to having more detailed information from them.

Gehin asked if we would be projecting the 57% or if we would try to go larger?

Lindman replied that they talked about economy at scale but at that time didn't know exactly, we were hoping to get a megawatt and we are a little bit over. The survey that will be done will include an area a little north of 1010 Bugbee and hopefully there's a space there we could use. This was just a start for them, but they could look at other areas in the city to put it up even if it doesn't go directly to a facility, they could just connect it into their grid and we could get credits for that. This could be a small step into the potential that we could partner with WPS.

5) Discussion and Possible Action Subsidizing the Rain Barrel Program for 2021.

Lindman states that our main focus was that we've got the third party vendor involved and they have a draft website put up. Lindman stated that Robinson and Force have both seen it. We have a setup of the rain barrel in the lobby here for people to see as well so now it's just deciding if the Commission wants to subsidize the rain barrels and to what level, then we can go live with the public so residents can actually begin to purchase. We are proposing a June delivery timeline and we'll establish a pickup area and everything as well. A couple months ago there was discussion with the subsidy on the sewer side that's locally controlled but on the water side its PSC controlled if water rate revenue is used. There's a process with the PSC on the water side if we want the water to help subsidize through use rates, we'll have to go through and get their permission to do so. Staff could walk through those steps with the PSC to move that forward. Even if it's the sewer that comes forward and subsidizes initially and then once we get authorization they can reimburse the sewer for full or half or however you would want that to be distributed.

Force asked if that would be time involved and if it would be an issue here if we are on a tight timeline to get this in place by June. Would the authorization of that subsidy take a long time or would we be able to get it quickly.

Lindman replied he didn't know what the PSC's timeline would be and requested Swanborg to see if she had any idea.

Swanborg answered that the information looked up on the PSC had two options. We could do it as a regular rate study or a stand alone application but either way they have a number of items we would have to include. I know the rate studies were taking 6-8 months. If we did stand-alone applications with some of the Covid process that municipalities are applying we are seeing it take 3-4 months, so we are outside of that timeline.

Gehin implied we had seen someplace that we might subsidize at \$25/barrel.

Force replied that was a number that was discussed.

Gehin stated okay well if it was \$25 and there was 500 barrels are we looking at \$12,000 or \$125,000 or I don't know what I did, I did my math real quick so I don't think it's a real big dollar amount.

Rosenberg states that the issue was to get PSC's permission to use rates that we collect for water service as the Subsidy.

Lindman replied to keep things moving, we could use the sewer utility and then reimburse the water utility if that's how the Commission wanted to do it as well, it seems like that's the way to go, otherwise, we've got a time issue.

Rosenberg asked if there were any more discussion or is there a motion we'd like to entertain.

Force replied he'd move for \$35/barrel subsidy through the sewer commission but there's a question if someone wants to put in two or three barrels, do they get two or three subsidies? I don't know the answer but I would propose \$35/barrel subsidy.

Rosenberg stated so we have a \$35/ barrel is there a second?

Robinson replied Seconded.

Rosenberg asked if there were any other discussion here.

Force replied that he would move to amend to put a limit to it of no more than two barrels per property.

Rosenberg states so we have an amendment to no more than two barrels per property

Gehin replied with accepting it.

Groat asked if the subsidy we were thinking of was from the sewer utility to the water utility because of cash flow problems and expressed concerns that someone could say sewer rates are to fund sewer activities and this was not a sewer activity correct.

Force stated if you could connect with a storm sewer.

Groat suggested that maybe it's something we want to research with legal and stated she knows we are not governed by the PSC, but feels we'd still have to support the users by just using sewer funds for doing sewer related functions.

Force says we could fund it out of the storm sewer and then reimburse the storm sewer from the water utility once we get permission from the PSC.

Groat says she was thinking we were meaning the waste water.

Lindman clarified earlier he was talking about sanitary but storm sewer is funded out of the levy but could we advance it out of the levy from storm sewer and then reimburse storm sewer once we get approval from the PSC.

Groat says we do not have a storm sewer reserve but we could do this it out of the general fund.

Lindman states we can research whichever one is cleaner for us and we can move forward with that.

Groat replied with a yes.

Rosenberg asked if there were any other questions.

Gehin stated he would be more supportive if it were \$25/barrel and would like to cap it, let's say to the first 200 but that doesn't mean we couldn't continue it down the road. He didn't know if that would push people to hurry up and do it and these are just comments he wasn't looking to offering amendment.

Force had a question if this would be a one-time subsidy or an annual subsidy?
Robinson states we'd want to look at this as a potential pilot project to see how it works.

Rosenberg recapped previous discussion on looking at a one time for now at \$35/barrel at no more than two barrels per household.

Gehin states to make it the first hundred as part of our pilot and that it would have to come back to us for approval or if we didn't want to do that.

Robinson states that his concern with the hundred is that they estimate maybe a one percent take rate and if we are doing this we should be prepared and he was not adverse to a two hundred barrel cap but thinks one hundred is a bit low.

Gehin states we can make an amendment that the pilot includes not to exceed 200 barrels subject to further ratification by this body.

Rosenberg states we have a couple of things here viewing her parliamentarian, we should first vote on the amendment of no more than two per household. Motion carries 5-0.

We have \$35/barrel to no more than two per household entertaining a motion by Gehin to cap the program at 200, do we have a second? Seconded by Herbst.

Gehin says he would call it a pilot program.

Force states as we are already going full steam with this we want to encourage people to do this, they might not do it the first time around but they might see others doing it in their neighborhood and a year from now they may want to come in and do it. A \$25/barrel subsidy, if we did 500, which is very generous, estimate would be \$12,000 a go, in our world here in waterworks is not a lot of money. There's something about pilot that means temporary or experimental and doesn't have the same general broad appeal.

Rosenberg states we've done several pilots and task force as far as marketing goes. We have input from the city attorney.

Jacobson asked through what date are we were authorizing these changes. The first 200 or when they get to 200 or after they get to 200 then the pilot's subsets something like that.

Rosenberg replies yes that would be the indicator.

Jacobson follows with a question of then it would need to come back to the Committee for further authorization?

Rosenberg replies yes.

Lindman states that would be the subsidy that you're looking at because we can still sell more barrels at the price that's online, they just won't be subsidized so just the first 200 barrels sold is my understanding. We hadn't talked about limiting the number of barrels to get subsidized. We talked about the cost of the subsidy we anticipated \$12 to \$15 thousand dollars which would be maybe four to six hundred barrels sold but I'd have to check with the third party vendor so just the first 200 barrels sold those names would be the only ones getting the subsidy? Everybody else would have to switch over on the website to purchase them fully so I don't know how they do that.

Force stated he would think it could cause paperwork issues and keeping track and number 199 and number 201, are they going to argue about the subsidy as to who was first? Are we getting ourselves into something that will make this more difficult than it needs to be? I'd want to consult with our partner here rainwater solutions to see what they thought about

this approach. They might have had other customers that either do it or have thought about doing it or don't do it.

Lindman states the way it's set up is just one time for 2021, then once selling the rain barrels is done, then it's done for the year. So for next year if the commission wants to do it again, they would come back for approval. So I think for now it is set up to be just a one-time event and not recurring, at least that's how I've portrayed it.

Robinson moves to say if we could deal with this as part of the budget for next year and budget it in. I think it would benefit from an evaluation at the end of the year which would be one of the reasons why you would have a pilot and I'm not opposed to a pilot. He wants to see if we could move our May 4th meeting to a morning as well due to scheduling conflicts of another meeting he has to attend.

Rosenberg states we can look at calendars to see if we can move something around. So right now we are looking at 200 barrel cap. Motion carried 3-1. We are at \$35/barrel no more than 2 per household with a cap at 200.

At this time, Commissioner Robinson left the meeting.

6) Discussion and Possible Action of Water Distribution Maintainer and Relief Operator.

Boers starts with the position we proposed a while back, the commission approved it a year ago to be implemented. We've been looking at different ways to classify this position and Toni has classified this for us and this was her recommendation.

Force asked who does this position now.

Boers answers saying we have an open distribution maintainer right now and we'd like to incorporate this position into the plant as well and about five years ago under a different director this position was eliminated, but this position will help us out with the plant for weekend operations. We have three people we are rotating weekends and we just added a mechanics/ tech position that would make it four and this person would make it a five weekend rotation.

Force clarified that this position was eliminated and you're proposing we reinstate it correct?

Gehin questioned if this would be adding duties to the water maintainer.

Boers replied this would be adding on all the operator duties on to the maintainer so the maintainer will need to be able to operate the plant, be safe with chemicals, fix pumps, run through any issues that may occur during their responsibility at the plant.

Gehin replies so we are not adding additional staff, we are just beefing up the one we wanted filled in the first place?

Boers replied yes.

Rosenberg stated we have a motion to approve this job description change by Gehin and second? Seconded by Herbst.

Motion carries 4-0.

7) Discussion on PFAS/PFOS Compounds in Wisconsin.

Agenda item tabled until May.

8) Discussion and Possible Action on Completing Smoke Testing as the Next Phase of the I&I study.

Lindman begins with reconciliation from the last meeting where Strand and Associates presented and in their recommendation for smoke testing, with our staff reviewing, it seems like it's a reasonable cost to really get a good handle on some of our problem areas on potentially where we could identify some I&I fixes. The scope of services and opening up of the manhole seems to be efficient for them to do the inspections on those also and then set up their format on the inspection forms which our staff really liked and we can continue when the project is done. We would have some new staff members along with them during those inspections so they can get trained at the proper inspections of those manholes as well.

Force asked if in total the cost is \$65,000.00.

Lindman replies \$65,500.00 is correct.

Force moved to proceed with this completion of the smoke phase. Seconded by Herbst.

Gehin asked if we have a timeline, sees November 30th.

Lindman replies they wanted to try to do it during some dry weather along with the inspections during the wet weather.

Motion carries 4-0.

Force asked a question regarding the PFAS discussion, this has been moved to next month but are there any directives coming from the DNR yet on the PFAS.

Erickson replied he was training the other day and they had a draft interim guidance and laid out some numbers applying to our bio solids, there are some numbers of how much could be put in the farm field or restrictions if they were higher but not sure if that was official yet. It might not apply to us until our permit gets updated.

Force asked if we had any PFAS content in our bio solids.

Erickson replied we haven't tested the bio solids, the DNR tested our effluent and I'm expecting those results anytime but we haven't seen those results.

Adjourn.

There being no further business to discuss, the meeting is adjourned.



Minutes of April 20, 2021

A meeting of the Wausau Water Works Commission was called to order at 10:00 a.m. in City Hall on Tuesday, April 20, 2021. In compliance with Wisconsin Statutes, this meeting was posted and receipted for by the Wausau Daily Herald on April 15, 2021.

Members Present: President Rosenberg, Commissioners Robinson, Herbst, Force, Gehin.
Others Present: Eric Lindman, Dave Erickson, Scott Boers.

1) Reconsideration of Limiting the Rain Barrel Subsidy to 200 Barrels.

Lindman described implications of the restrictions of the limiting of the rain barrels as this would limit everyone as a rate payer to take advantage of the subsidy. If we didn't limit it, the expectation is around 500 barrels from feedback from different areas in the city. It might have a negative perception on utility if we don't allow the subsidy for everyone. Upon application to the PSC, they wanted to make sure everyone had the opportunity as well as the DNR encouraging conservative and efficient water usage. He'd like the Committee to reconsider not limiting the number of barrels and keeping it open for this year and maybe any advancement in the future can come back to Committee for consideration if we'd want to continue with the program.

Gehin would like to make a motion to rescind the cap and allow for the year.

Robinson commented if the motion would be a reconsideration of the action, then once you reconsider then you can take a motion.

Gehin states he would move to reconsider this motion.

Force seconded.

Rosenberg requested if there were any other discussion and recaps that this is a reconsideration of the 200 barrels. After questioning the Committee who agrees to reconsider this passes unanimously.

Gehin stated he would move to have this program throughout this year.

Rosenberg reiterated that the motion is to have a rain barrel subsidy through the year with no cap on the rain barrels, is there a second.

Herbst Seconded.

Force questioned if the subsidy was still \$35/barrel.

Robinson stated he would like to discuss this because we had talked about \$25 and then we jumped to \$35 subsidy, if we were concerned about the fiscal impact. He thinks the \$25 subsidy would work if we were going to try to limit the exposure to the city if we were going to leave it open ended. He would like to see what others thought of that.

Robinson moved to amend and set the subsidy to \$25.

Gehin seconded.

Rosenberg asked if there were any additional discussion on amendment. So we will vote on the amendment to set this at \$25 subsidy per barrel. This passes unanimously. So now we have an amended rain barrel with no cap at \$25 subsidy.

Force wanted to clarify if there was still a 2 barrel per household.

Rosenberg replied yes because we are still sticking with that from the original resolution.

Gehin asked if this was inclusive of the motion since we voted on the amendment.

Rosenberg replied we are now at the resolution as amended.

Robinson requests that a report be provided in October so we could consider for next year's budget.

Rosenberg states yes, we will have to put this on the calendar to remind ourselves. Any further discussion or are we ready to vote on a resolution as amended.

Herbst asked to clarify as we originally approved residents were going to pay \$40 per barrel with a \$35 subsidy on a \$75/ barrel. Now residents are going to pay \$50 per barrel as we are going to subsidize \$25/barrel on a \$75/barrel, if this was correct?

Rosenberg replies yes.

Force questioned Lindman if this was in the press at \$35.

Lindman replied yes because that was what was approved and voted on.

Rosenberg states that we could send the press an update of all the information

Force wanted to clarify that the \$35 was out in the public domain.

Rosenberg replied with affirmative and asked if there were any other discussion. We are ready to vote on the resolution as amended no cap on barrels, \$25/barrel and two barrels per household. This passes unanimously.

Robinson thanked Force for his work and researching this to pull this together as part of the Savvy Program.

2) Discussion and Possible Action Classifying the Position of Water Distribution Maintainer and Relief Operator.

Rosenberg stated we voted on the description but not the classification of position.

Lindman reiterated that in the staff memo from Toni, we had three different pay options in how we could structure this position moving forward. Staff recommends that we classify this position and pay this as option one as there will be time when this position will be filling in for vacation or medical leave. This is part of the succession planning, having more than one person understand the daily operation of the plant and what needs to happen. This is coming back as there was no specific motion of the classification or pay structure option of the position.

Robinson stated he would like to make a motion to set the pay grade at 18 for this position.

Seconded by Gehin.

Motion carries 5-0.

Adjourn.

There being no further business to discuss, the meeting is adjourned.



MEMORANDUM

TO: President Rosenberg
Commissioner Herbst
Commissioner Force
Commissioner Gehin
Commissioner Robinson

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

SUBJECT: Director's Report – April 2021

WATER DIVISION

1. Drinking Water Treatment Plant Update.
2. Spring LSL Funding Update, as of 4/29/2021: 343 letters sent, 73 customers have contacted us with interest, of those we have 12 for which estimates were received and funding approved.
3. WDNR to reissue WPDES General Permit No. WI-B057681-05-0. This general permit is applicable to short-term point source discharges of pollutants to a water of the state from operational and maintenance activities of municipal water systems. Operational and maintenance activities of municipal water systems include:
 - Cleaning, disinfecting, and/or flushing water distribution or storage systems
 - Hydrostatic testing of water distribution or storage systems
 - Development, installation, and/or purging water supply wells
 - Pigging/swabbing water distribution systems

The new permit requires additional monitoring and reporting. (see Attached)

4. Staff has been extraordinarily busy completing locate requests. We have received 1,626 locates since the first of the year with 954 of those being received/completed in April.

WASTEWATER DIVISION

1. We conducted a tour of the Wastewater Plant for Utility Commission and City Council representatives on April 27, 2021.
2. The Wastewater Treatment plant is on track to meet permit limits for April.
3. Our most recently hired plant mechanic left after one week to return to his previous job. We are back to having one open position for a Plant Mechanic and one open position for a Sewer Maintainer.
4. Wastewater employees are in the process of moving into our new administration building.
5. Sludge hauling went very well this spring. We appreciated the help from DPW in trucking the sludge out to the fields.

UTILITY FINANCIAL REPORTS – MARCH 2021

Wausau Drinking Water Treatment Facility - Project Status

May 4, 2021

A site tour was given to City Council Members, Utility Commissioners, and staff on Thursday April 22. The tour was well attended.

All the interior masonry walls for the water plant have been completed and the pre-cast roof panels are scheduled to be installed on the second story in the next 2 weeks. The contractor has begun laying the exterior split face block on the south side of the building. The roofing membrane has been installed on the lower roof level of the building and roofing will pick back up after the second story plank is placed. Interior painting will be starting this week.

The mechanical contractor continues to install treatment equipment and process piping. The underdrains for the water filters have been installed and concrete cap is being poured. The electrical contractor has started receiving electrical panels and switch gear and setting them into place.

Approximately 75% of underground piping is complete and construction of the 500,000 gallon storage tanks is scheduled to begin in May.

Footings for the administrative building will be completed this week and wall construction will follow. The west wall of the garage, which doubles as a retaining wall, is nearly complete. In May, the contractor will focus on masonry walls and begin setting the structural steel for the garage area.



Exterior split face block along the south wall of the drinking water treatment facility

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

PUBLIC NOTICE OF INTENT TO REISSUE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES) GENERAL PERMIT NO. WI-B057681-05-0

General Permit Name: Operation and Maintenance of Municipal Water Systems

Receiving Water and Location: Point source discharges to waters of the state of Wisconsin.

Brief Description of Facilities Covered under the General Permit: This general permit is applicable to short-term point source discharges of pollutants to a water of the state from operational and maintenance activities of municipal water systems. Discharges from operational and maintenance activities include: flushing water from cleaning, disinfecting, and/or flushing water distribution and storage systems; hydrostatic test water from hydrostatic testing of water distribution and storage systems; well development water from the development, installation, and/or purging water supply wells; and pigging/swabbing water from the pigging/swabbing water distribution systems to groundwater.

Proposed Major Changes from Previous Permit:

- The general permit name has changed from “Hydrostatic Test Water or Water Supply System Water” to “Operation and Maintenance of Municipal Water Systems”. This name change was made as this permit is now applicable to discharges from municipal water systems.
- Application for Permit Coverage requirements have been added to the permit under Section 2 to provide instruction and guidance to applicants on how to apply for coverage under this general permit.
- Effluent limitations and monitoring for total residual chlorine have been added to the permit under Section 3. Monitoring for total residual chlorine is depending upon if the permittee adds chlorine-based additives to the water prior to discharge or the water supply system already contains chlorine or chlorine compounds for disinfection.
- Monitoring for total phosphorus have been added to the permit under Section 3. Monitoring for total phosphorus is depending upon if the permittee adds phosphorus containing additives to the water prior to discharge or the water already contains phosphorus or phosphorus compounds for corrosion control or sequestering.
- A sampling protocol has been added to the permit for fire hydrant flushing discharges under Section 3.2.3. Also sampling frequency and reporting reduction requirements has been added to the permit for fire hydrant flushing discharges under Section 3.2.4.
- The permit now requires that monitoring results be submitted on an electronic discharge monitoring report (eDMR) instead of a paper annual report under Section 5 or being exempt from reporting as stated in the previous permit. The monitoring forms are due 21 days after the end of the reporting permit. The eDMR shall be submitted regardless if there is a discharge or not during any reporting period.
- Information on the policy and regulations on water treatment additives has been added to the permit in Section 6.
- Information and policy on antidegradation, impaired waters, total maximum daily loads, and wetlands have been added to the permit under Section 7.

Note: For specific details and information about proposed changes from the previous permit, please see the permit fact sheet.

Permit Drafter: Trevor J. Moen, DNR, 625 E County Rd Y STE 700, Oshkosh WI 54904-9731, phone: (920) 410-5192 or email: Trevor.Moen@Wisconsin.gov

The Department has tentatively decided that the above specified WPDES permits should be reissued.

Persons wishing to comment on or object to the proposed permit action, or to request a public hearing, may write to the Department of Natural Resources at the permit drafter’s address. All comments or suggestions received no later than 30 days after the publication date of this public notice will be considered along with other information on file in making a final decision regarding the permit. Anyone providing comments in response to this public notice will receive a notification of the Department’s final decision when the permit is issued.

The Department may schedule a public informational hearing if requested by any person and shall schedule an informational hearing if a petition requesting a hearing is received from 5 or more persons or if response to this notice indicates significant public interest pursuant to s. 283.49, Wis. Stats. Requests for a public informational hearing shall state the following: the name and address of the person(s) requesting the hearing; the interest in the proposed permit of the person(s) requesting the hearing; the reasons for the request; and the issues proposed to be considered at the hearing.

Information on file for this permit action, including the draft permit and fact sheet may be reviewed on the internet at <https://dnr.wisconsin.gov/topic/Wastewater/PublicNotices.html> or by contacting the above-named permit drafter’s e-mail

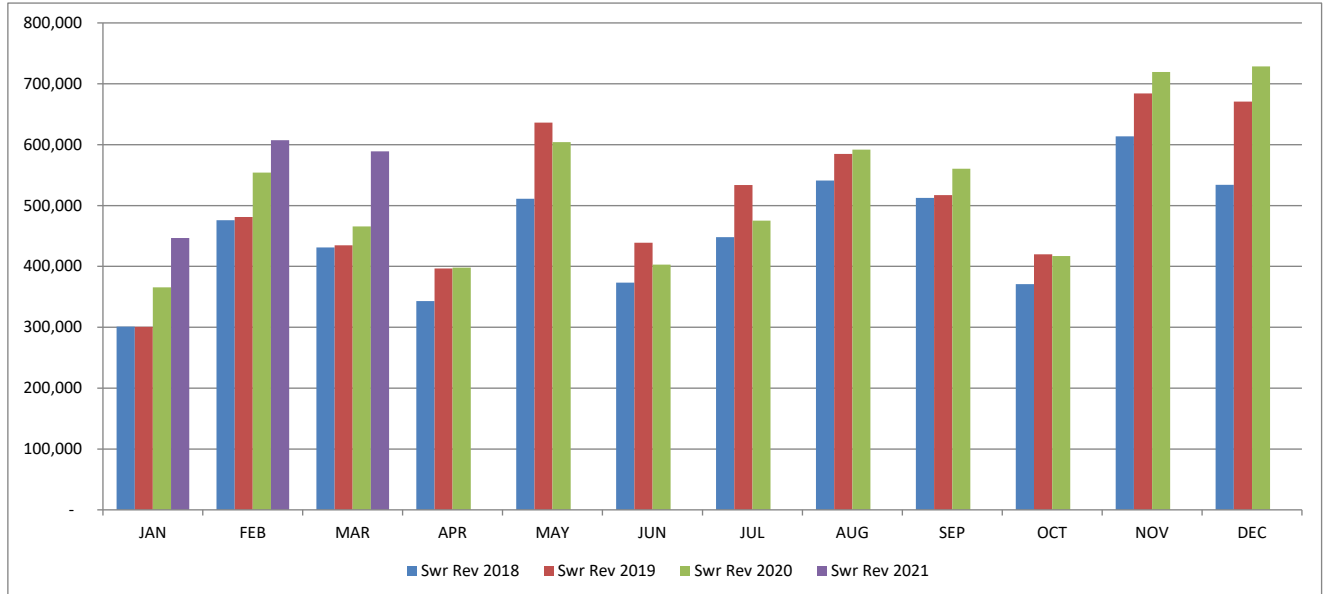
address during normal business hours Monday through Friday (except holidays). Note that DNR staff have limited access to permit hard copy files during this time as they are working from home, but much of the permit file is available electronically by e-mail request. Pursuant to the Americans with Disabilities Act, reasonable accommodation, including the provision of informational material in an alternative format, will be made to qualified individuals upon request.

Publishing Newspaper: WI State Journal, PO Box 8056, Madison, WI 53708-8056

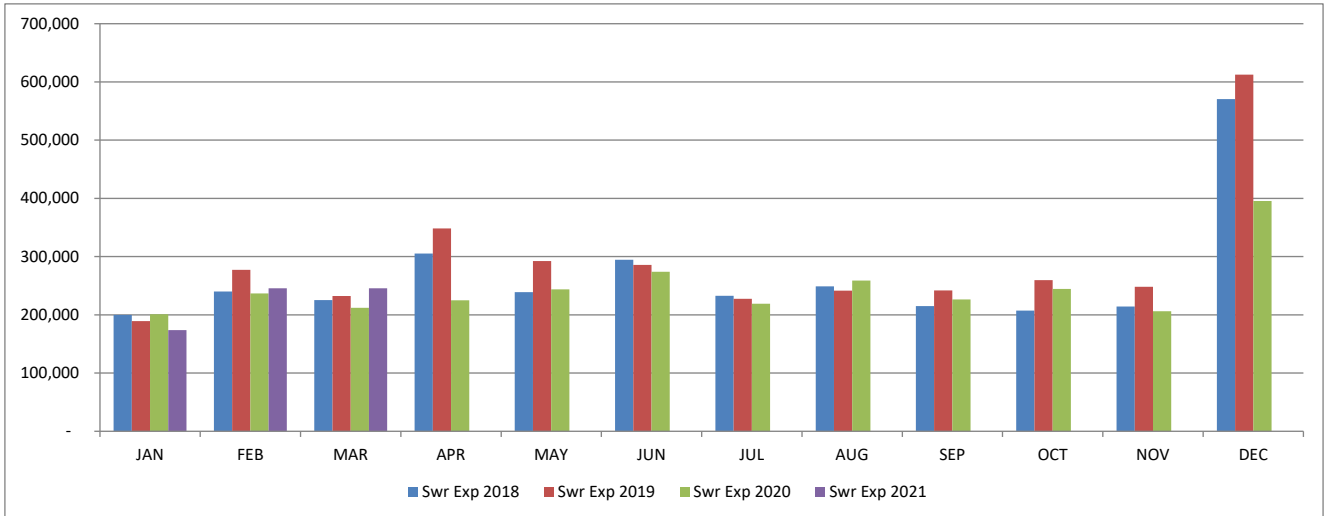
Date Notice Issued: April 22, 2021

WAUSAU SEWER UTILITY REVENUE & EXPENSE ANALYSIS
4 YEAR COMPARISON AS OF MARCH 31, 2021

SEWER UTILITY REVENUE 2018, 2019, 2020, 2021



SEWER UTILITY O&M EXPENSE 2018, 2019, 2020, 2021



SEWER REVENUE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Swr Rev 2018	301,205	475,813	431,153	343,019	511,048	373,395	447,960	541,053	512,411	371,017	613,820	534,078	5,455,973
Swr Rev 2019	300,631	481,028	434,643	396,415	636,115	438,814	533,542	584,840	517,217	419,839	684,077	670,837	6,097,998
Swr Rev 2020	365,677	554,026	465,526	397,838	604,296	402,841	475,298	591,839	560,313	417,010	719,327	728,469	6,282,461
Swr Rev 2021	446,439	607,209	588,942										1,642,590
Change over Prior Yr	22.1%	9.6%	26.5%										18.6%

2020 Rate
Incr

SEWER OP&MAINT EXP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Swr Exp 2018	200,090	240,192	225,336	305,188	238,844	294,728	232,575	248,929	215,114	207,301	214,232	570,689	3,193,217
Swr Exp 2019	189,059	277,260	232,249	348,348	292,492	285,586	227,457	241,503	242,073	259,724	248,202	612,461	3,456,415
Swr Exp 2020	200,999	236,715	212,016	224,784	243,581	274,074	219,117	258,807	226,306	244,661	206,232	395,359	2,942,652
Swr Exp 2021	173,668	245,507	245,781										664,956
Change over Prior Yr	-13.6%	3.7%	15.9%										2.3%

2016
BldgMtrl,
SwrRprs

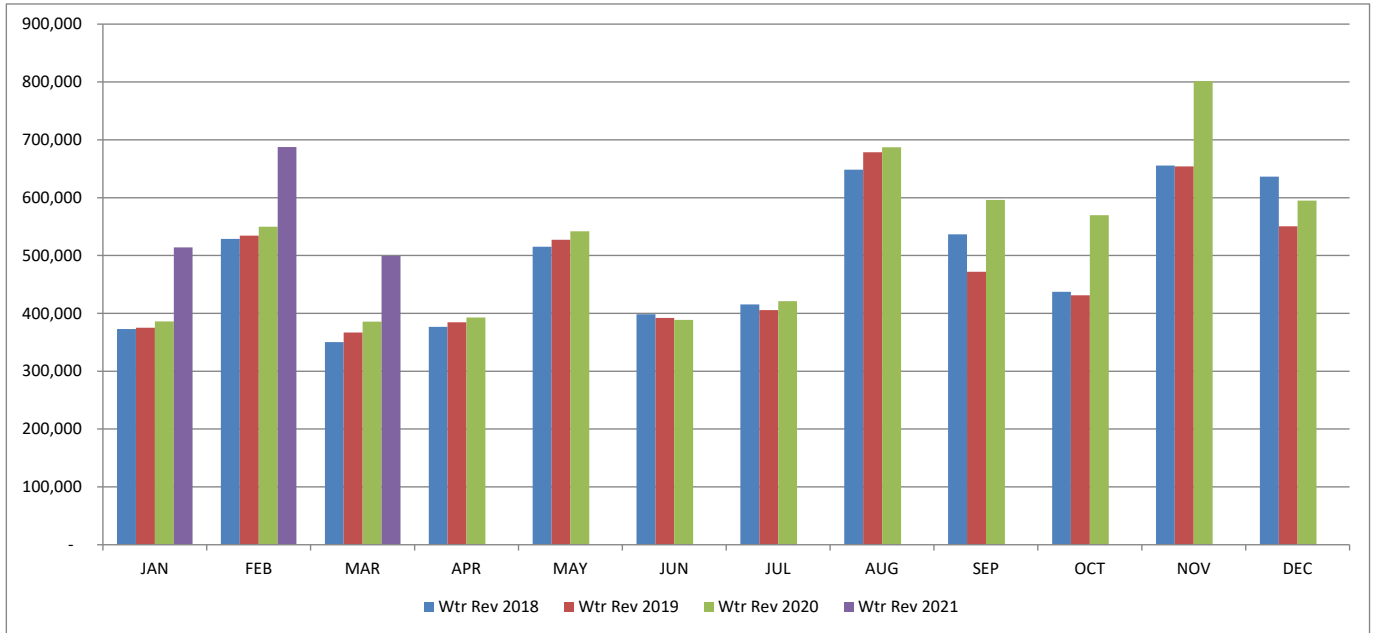
2016 Sldg
Hndlg

Notes:

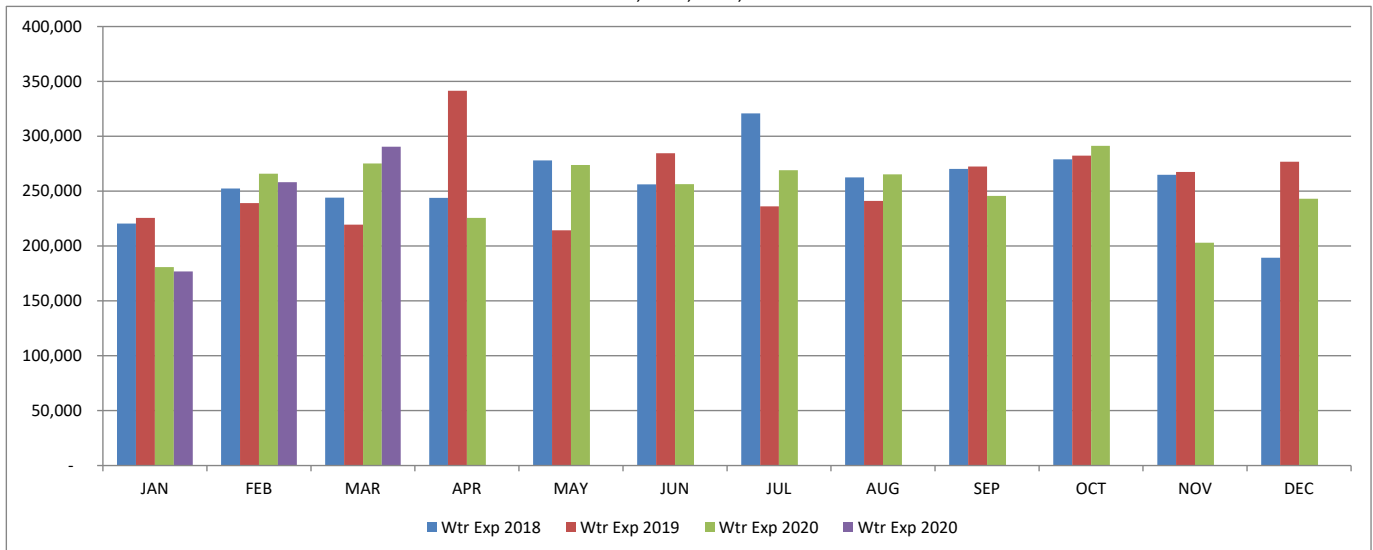
* Expenses for all years have been adjusted for monthly allocation of annual meter expense and annual central services cost

WAUSAU WATER UTILITY REVENUE & EXPENSE ANALYSIS
4 YEAR COMPARISON AS OF MARCH 31, 2021

WATER UTILITY REVENUE 2018, 2019, 2020, 2021



WATER UTILITY O&M EXPENSE 2018, 2019, 2020, 2020



WATER REVENUE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Wtr Rev 2018	373,006	528,830	350,419	376,733	515,013	398,562	415,415	648,201	536,710	437,367	655,459	636,379	5,872,093
Wtr Rev 2019	374,991	534,366	366,893	384,442	527,047	392,107	405,744	678,575	471,771	431,064	654,108	550,559	5,771,666
Wtr Rev 2020	385,935	549,673	385,789	393,017	542,047	388,720	421,028	687,279	595,954	569,614	801,538	595,054	6,315,647
Wtr Rev 2021	514,201	687,468	499,401										1,701,070
Change over Prior Yr	33.2%	25.1%	29.4%										28.7%
2021 Jan Rate Incr							2020 Jul Rate Incr	2019 Aug Rate Incr	2019 -558K Mfam&irr		Tax Roll		

WATER OP&MAINT EXP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
Wtr Exp 2018	220,397	252,366	244,175	243,978	278,071	256,150	320,847	262,632	270,192	279,018	264,964	189,331	2,497,400
Wtr Exp 2019	225,698	239,131	219,540	341,466	214,321	284,521	236,079	241,050	272,508	282,351	267,475	276,782	3,100,922
Wtr Exp 2020	180,879	266,005	275,178	225,683	273,876	256,450	269,170	265,225	245,725	291,297	203,107	243,005	2,995,600
Wtr Exp 2020	176,909	258,184	290,433										725,526
Change over Prior Yr	-2.2%	-2.9%	5.5%										0.5%
							2020 Rate Stdy, Sensus prgm						

Quote Summary for ½ ton Pickup:

Price with Trade

Kocourek Ford	\$ 27,873.63
Fred Mueller GMC	\$ 27,120.00
Kocourek Chevy	\$ 28,976.63



City of Wausau Water Works Commission Solar Partnership Opportunity

May 5, 2021

Introductions

Wisconsin Public Service team

Kelly Zagrzebski

Local and Governmental Affairs Leader

David Schneider

Senior Service Manager

Chad Koch

Principal Market Strategist

Jeff Klarer

Market Strategist

Aaron Cassidy

Manager — Process Management and Integration



Agenda

1. Overview
2. Estimated costs
3. Next steps
4. Q&A



Unique opportunity and partnership to make a bigger impact: leave a smaller footprint

When you join WPS' NatureWise renewable energy program, you're making a bold commitment to environmental stewardship. That's because the energy you purchase through NatureWise comes from clean, safe, locally sourced wind, biogas and solar. It's an affordable way to invest in a sustainable future, with no need to make significant changes or purchase equipment.



Joining NatureWise helps to:

- Reduce reliance on fossil fuels.
- Cut down on greenhouse gas emissions.
- Preserve resources for future generations.
- Earn LEED (Leadership in Energy and Environmental Design) certification points.
- Support continued production and expansion of local renewable energy resources.

Overview

How would NatureWise renewable energy program work for City of Wausau Water Works Commission?

WPS would enter into a land lease with Wausau Water Works for development of a 1-MW solar field.

- Lease term of at least life of facility, plus extended life and/or facility decommissioning.
- Negotiated land lease terms similar to lease terms of other solar facilities.

WPS would:

- Work with developer on engineering, procurement and construction of solar facility.
- Own solar facility within NatureWise renewable energy program.
- Operate solar facility.
- Be responsible for ongoing operations and maintenance costs through life of project using utility best practices.

Overview

How does NatureWise renewable energy program compare to owning the solar field?

	Ownership	NatureWise
Capital Expense	Yes	No
Contract Management	Yes	No
Tax Credit Benefit	No	Yes
O&M Obligation	Yes	No
Lease Revenue	No	Yes
Matches Load Profile	No	Yes

Estimated costs

What are the estimated costs for City of Wausau Water Works Commission?

Wausau Water Works would enter into a contract under the NatureWise tariff for roughly the annual output of the solar facilities (~2 million kwh/12 months).

- Suggested term of at least 20 years.
- Current rate is \$2.40 per 100 kWh per month.
- Annual cost to Wausau Water Works ~\$48,000.

Net cost to Wausau Water Works = \$48k – negotiated land lease payment

Next steps

What are the next steps for City of Wausau Water Works Commission?

- Notice of Interest in leasing property
 - Term, rate, escalator
- Notice of Interest in NatureWise program
 - Full 20-year minimum commitment of water utility (i.e., facility, wells, etc.)
- Execution of both commitments
 - Execute lease agreement
 - NatureWise program enrollment/contract

Question & Answer





TO: Wausau Waterworks Commission

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

DATE: May 5, 2021

SUBJECT: Organizational Structure Options – Removal of LSL’s City Wide

Staff has been working on possible ways to structure removal of lead service lines throughout the water distribution system; both public and private side. Currently staff is performing the following functions to meet the new Lead/Copper Rule (LCR) and also prepare for a city wide plan to remove the lead.

1. Performing inventory of private side service line materials. Each line needs to be field verified and documented. Staff is completing this at the same time meters are being replaced. We have reduced the number of meter changes over the past year due to social distancing restrictions but are planning to move ahead with meter change outs and notices starting in June 2021. As of April we have ordered meters but have not been given a timeline for delivery as available meters are limited according to the supplier. We did not order meters earlier as we did not want them sitting on the shelf and losing warranty.
2. Staff is sending out notices to homeowners directly for them to participate in the LSL service line replacement grant, we continue to have a low response rate from homeowners as this is a voluntary program. For 2021 we just waiting on final clearance from the State Historical Society as it relates to environmental clearance.
3. The Commission will need to consider making it mandatory for the City to change out the public side of a LSL if the homeowner will be replacing their side of the LSL. As a safe practice the utility has been replacing our side as recommended by the WDNR. There is data that shows disturbing an existing LSL is likely to elevate the risk of lead leaching into the water. It is good practice for us to replace our side if the owner is replacing their side. This is a cost to the utility and we need to begin showing a budget for these replacements moving forward.
4. The Commission will also need to put thought into creating a mandatory replacement ordinance for the private side. If the utility is replacing our side will it require the owner to replace their side?

There are different ways to approach replacement of LSL’s throughout the City. This would include both the public and the private side. Currently we are estimating about 8,500 private side LSL’s and about 4,500 public side LSL’s. The estimated costs today to replace these lines:

Location	# Services (Estimate)	Cost per service	Total cost
Public Side LSL	4,500	\$5,000	\$22,500,000
Private Side LSL	8,500	\$4,500	\$38,250,000
Total Estimate =			\$60,750,000

Our current process, using grant funds, replaces about 100 lines annually. This means it would take us about 80+ years to remove the LSL's. From a public health perspective this is unacceptable and from an organization perspective we need to establish a program that will remove the LSL's from the distribution system within a reasonable timeframe. Through discussions and some possible scenario's staff believes a realistic goal would be 10-12 years. We have outlined three separate options to consider and discuss.

1. **Owner procured contract, our current program.** Utility provides homeowners with all of the information they need to hire their own plumber and perform the work. Utility pays the plumber directly up to the approved amount (currently \$3,000 or \$5,000) and the homeowner is responsible for the remainder. Best case scenario I believe we could do up to 250 LSL replacements each year. This would equate to 30+ years for full replacement.
2. **Utility established annual contract.** Pricing for the contract is established as unit prices (per foot of pipe, sq ft blacktop/concrete, etc). Contract can be established as being renewed annually. Utility is responsible for all work and coordination and inspection. We would also be assisted by the City Plumbing inspector for each permit issued. I believe we could do up to 400 replacements per year under this scenario. This would equate to 20+ years.
3. **Utility performed Work.** It is anticipated the utility would need to hire 3-new employees and their sole responsibility would be LSL replacement. They would dig likely 7 to 8-months of the year. They would be responsible for coordination of the following year and scheduling during the winter months. They would also be on call during the year for breaks and other emergencies and duties as needed. Staff anticipates being able to replace 300 LSL's annually which puts full replacement at less than 15 years.

I have outlined pros and cons to each of the above programs for your review and comment/feedback, they are attached to this memo.

Currently the City/Utility is not required to establish an ordinance for mandatory replacement. With the new LCR changes/additions it is beginning to push utilities to establish a program and criteria to remove all LSL's from the distribution system, both public and private side. It will be beneficial for the utility to begin discussions about how to structure a program to remove LSL's and complete the removal in a reasonable timeframe.

Current funding availability:

- A. WDNr grants for private side LSL replacement. The EDNR has funds for LSL replacement and we are receiving \$450k in 2021 to replace about 100 private side LSL's. Currently the commission has approved \$3,000 per LSL within the limits of street reconstruction projects and \$5,000 for LSL replacement outside street construction limits. Any costs above this amount is the responsibility of the owner. We will again be applying for 2022 as the WDNr has remaining funds available.
- B. Water Rate Revenue Funds. The PSC has authorized utilities to use rate revenue for private side LSL replacement. They have authorized the utility to pay up to 50% of the cost of replacement, the other 50% is the owner responsibility.
- C. Utility Loans. The utility has the ability to set up low/no interest loans for the replacement of these lines if the commission would like to move ahead in this direction.
- D. Federal/State Water grants. We anticipate some additional funding availability through the feds as it relates to water infrastructure and mitigating public health risks, LSL's would be eligible. We are not sure at this time when we can request these funds and if these funds will be given directly from the feds or routed through the WDNr for disbursement. It is also unclear if these funds can be used to pay for salaries/benefits for FTE's if they are hired to complete LSL replacement (option 3 above).

As we move forward staff has established the following priorities, in order of precedence:

- A. Complete and categorize inventory, public and private side
- B. Request/maintain grant funding and expenditures of grants timely
- C. Establish mandatory LSL replacement ordinance
- D. Prepare and set up a long range program to remove LSL's, both public and private

LSL Replacement Program Options			
Program Type	Pros	Cons	Anticipated Annual Costs
Owner Procured Contracts	Owner responsibility to manage their own contract Less staff administrative time for construction & follow-up Direct payments to plumbers for utility portion With mandatory ordinance this could be required on our street projects annually	Requires owners to follow through and commit Volunteer program, owners have option to participate Difficult for owners to get bids from plumbers Productivity is limited to owners participation & plumbers bidding Very long term, 80+ years at current replacement rate	\$750,000; based on current replacement costs and the ability to replace about 100 private & 50 public side LSL's per year. This estimate does not include staff administrative time.
Utility Established Annual Contract	Larger contracts and may get more bids Establish contract amount annually based on grants Pay plumbers directly, amount approved by commission The utility could establish contracts with multiple contractors, depending on funding available and complete more services per year With mandatory ordinance this could be required on our street projects annually	Utility has to upfront funding Many administrative project/contract management hours Must follow Davis-Bacon with grant funds, may increase project cost Must rely on plumbers to complete work Volunteer program, owners have to participate Estimated 35 year program for replacement	\$1,700,000; this is based on replacement of 250 private and 50 public LSL's annually. We estimate the replacement cost would be what we are paying currently. This estimate does not include staff administrative time.
Utility Performed Work	Utility controls all aspects of work and scheduling Staff will provide adequate public outreach and scheduling Maximize use of grant dollars No Davis-Bacon required No outside contracts Estimated 30 year program for replacement Replacement would take place 7 months of the year	New FTE's required and equipment as well Would require mandatory replacement ordinance Would require annual budget Utility responsible for any work issues Difficult to expand program or shrink program if needed. Once the program is in place it is a long term commitment of funds	\$1,950,000 annually; \$400,000 based on hiring 4 FTE's, annual equipment cost \$50,000, material replacement cost for 300 services annually is \$3,000 public and \$2,000 private; \$1,500,000.

WAUSAU WATER WORKS - WASTEWATER DIVISION

DATE 10/02/2020

2021-2025 CAPITAL PLAN

IMPROVEMENTS/PROJECTS	COST EST 2021-		FUND	2020	2021	Comments
	2025	SOURCE				
SEWER LIFT STATIONS						
Airport Lift Station Bar Screen, pumps, and generator		\$0 BORROW				07/01/20 add funding source 'BORROW'
Northwestern LS Check Valves, Electrical, Pumps, Pigging		\$0 BORROW				
Greenwood Hills LS Access, Check Valves		\$0 BORROW				Currently locating FM near storm sewer
Evergreen Lift Station replace/repair Forcemain	\$75,000	BORROW			\$75,000	
Crocker Street LS Rehab		\$0 BORROW				Part of Engineering RFP
Cherry Street LS & FM Upgrades	\$60,000	BORROW			\$60,000	
Stettin Dr LS Rehab		\$0 BORROW				
Packer Drive		\$0 BORROW				
24th & 44th Ave LS Upgrades		\$0 BORROW				
Trails End LS Forcemain, Control Panel		\$0 BORROW				
Lift Station Cellular Communications	\$25,000	BORROW			\$25,000	Part of Engineering RFP
SCADA Upgrades	0	BORROW		0		05/19/20 pushed to future year
Lift Station Ind Park Pump and Controls \$600K	0	BORROW		600,000		Project is complete, minor punchlist remains
Industrial Park LS Parallel Force Main	0	BORROW		0	0	05/19/20 Removed from CIP, only engineering currently RFP proposed for design, done in 2019?
Crocker St. \$200K	0	BORROW		0		
Townline Lift Station	0	BORROW		0		
Subtotal	160,000			600,000	160,000	760,000
TRANSPORTATION/EQUIPMENT						
Jetter	-	BORROW		650,000		new jetter is in operation
Loader	-	BORROW			0	2021 moved to Op Funds
Fork Lift	-	BORROW			0	
Rodder Truck	-	BORROW			0	Delete if Class A
Dump truck	-	BORROW				
TV truck	-	BORROW				
Slinger	-	BORROW				
Subtotal	-			650,000	-	
Street Projects						
Kickbusch St (Bellis to 13th St)	-	BORROW		213,123		Actual costs \$177k
3rd Ave (Randolph to Bos Creek)	235,000	BORROW			235,000	
5th Ave (West St to Garfield Ave)	130,000	BORROW			130,000	Actual costs \$126k
Rosecrans (17th Ave - 22nd Ave)	20,000	BORROW			20,000	This project was changed to McIntosh St, not yet bid out
2nd Street (Short to Dekalb)	110,000	BORROW			110,000	
4th St (McClellan St- Scott St)	-	BORROW				
Bugbee Ave (Burek Ave - Tiernaey Rd)	-	BORROW				
4th Ave (Bridge St - Knox St)	-	BORROW				
Emerson Street, EauClaire to Kent	-	BORROW				
Mount View Blvd., EauClaire to Kent	-	BORROW				
Pied Piper Lane, EC to Kent	-	BORROW				
Eau Claire BLVD	-	BORROW				
Jackson St (Rrtrackes to 12th St)	-	BORROW				
10th Ave (Bridge to West Wausau)	-	BORROW				
Grant St (6th St to 7th St)	-	BORROW				
Stark St (5th St- 122th St)	-	BORROW				
Hennrietta St (Bellis St - 13th St)	-	BORROW				
Burek & Campus	60,000	BORROW			60,000	Possibly 2022 or 2023
Fulton Street (1st St to 6th St)	-	BORROW				
Subtotal	555,000			213,123	555,000	Estimated 2024 thru 2026
Proposed Developments/Extensions						
Northwestern Avenue (Higgenbotham)	-	BORROW				in 2019 added \$120K to 2022
Greenwood Hills Phase 2- Developer schedule unknown	-	BORROW				Developer Schedule unknown
Subtotal	-			-	-	
Sewer Collection System Projects						
Slipline Sewers (Cured in Place)	-	BORROW		0		in 2019 plan to do in 2023 if get State money else do in 2021
Stewart Avenue Force Main	-	BORROW				
River Crossings Construction	-	BORROW		2,177,417		in 2019 inrcd project cost
Unanticipated Sewer Projects	-	BORROW		232,583	0	05/19/20 Reduced amount 2021-2025
Subtotal	-			2,410,000	-	
TOTAL PLANNED CAPITAL EXPENDITURES	715,000			3,873,123	715,000	

WAUSAU WATER WORKS - WASTEWATER DIVISION
2021-2025 CAPITAL PLAN

DATE 10/01/2020

DATE 10/01/2020

IMPROVEMENTS/PROJECTS	COST EST 2021-2025	FUND SOURCE	2020	2021	Comments
SEWER TREATMENT PLANT					
Asset/O&M Management	\$50,000	OP FUNDS	0	50,000	
Subtotal	50,000		-	50,000	Proposed to advertise RFP in 2021
SEWER LIFT STATIONS					
LS Engineering & facility plan	\$0	OP FUNDS	180,000		LS Engineering Study
Lift Station Access - Greenwood Hills	\$70,000	OP FUNDS		\$70,000	Need easement out layout
Backup Generator Upgrades	0	OP FUNDS	75,000		2021 project for trailer mount genset & pumps
Lift Station Forcmain Cleaning \$100K	0	OP FUNDS			FM access points to be installed, done in 2019?
Subtotal	70,000		255,000	70,000	325,000
TRANSPORTATION/EQUIPMENT					
Loader	175,000	OP FUNDS		175,000	Currently determining need with motorpool
Fork Lift	20,000	OP FUNDS		20,000	Getting bids/quotes
Rodder Truck	60,000	OP FUNDS		60,000	Pushed to future year, 2023?
Subtotal	255,000		-	255,000	
Street Projects					
Cedar Street, 7th Ave t 14th Ave	-	OP FUNDS	126,704		05/04/20 incr 6K
Emerson Street, Eau Calaire Blvd to Kent	30,000	OP FUNDS		30,000	CISM pushed this project to future year, 2024?
Mount View Blvd, Eau Claire Blvd to Kent	25,000	OP FUNDS		25,000	CISM pushed this project to future year, 2024?
Ethel Street (Grand Ave - Zimmerman St)	-	OP FUNDS			05/19/2020 Moved to 2024
4th St (McClellan St - Scott St)	-	OP FUNDS			05/04/20 move 60K frm 2021 to 2022
Bugbee Ave (Burek Ave - Tierney Rd)	-	OP FUNDS			05/19/20 Moved to 2022 with the DWTF completion
4th Ave (Bridge St - Knox St)	-	OP FUNDS			05/19/20 Moved to 2025
Rosecrans (17th Ave - 22nd Ave, 24" intrcpt)	-	OP FUNDS			05/19/20 Moved to 2022
Subtotal	55,000		126,704	55,000	Estimated 2024 thru 2026
Proposed Developments/Extensions					
Subtotal	-		-	-	
Sewer Collection System Projects					
Slipline Sewers (Cured in Place)	-	OP FUNDS	425,000	0	On-going, 2021 see borrowing plan
Forcmain Pigging and Cleaning	120,000	OP FUNDS	250,000	120,000	Will be completed once access points are installed
Interceptor Line H2S Rprs	-	OP FUNDS	500,000		Interceptor line cleaning and video near completion
I&I Grouting and Repairs	100,000	OP FUNDS	100,000	100,000	Will be used for smoke testing & MH inspection
Subtotal	220,000		1,275,000	220,000	
TOTAL PLANNED CAPITAL EXPENDITURES					
	395,000		1,656,704	650,000	
TOTAL PLANT & COLLECTION ONLY					
			1,530,000	340,000	
CUMULATIVE FULL UPGRADE					
			1,656,704	2,306,704	
SEWER CIP FUNDING					
			2020	2021	
OP FUNDS			\$1,656,704	\$650,000	
BORROW			\$0	\$0	
TOTAL			\$1,656,704	\$650,000	

WAUSAU WATER WORKS - DRINKING WATER DIVIS		4/20/2021					
2021-2025 CAPITAL PLAN (CAPITAL ASSETS)							
IMPROVEMENTS/PROJECTS	COST EST 2021-2025	FUND SOURCE	2021	2022	2023	2024	2025
WATER TREATMENT PLANT							
PLANT ENGNRG/DESIGN/BIDDING/MNGMT	\$0	BORROW					
DWTF CONSTRUCTION	\$0	BORROW					
Cost Allocations	\$0	BORROW					
LAND ACQUISITION-1010 BUGBEE AVE	\$125,000	OP FUNDS	125,000				
SUBTOTAL	\$125,000		\$125,000	\$0	\$0	\$0	\$0
TOWERS/RESERVOIRS/BOOSTER STATIONS							
GENERATOR - ONSITE (\$240K)	\$240,000	BORROW		240,000			
SCADA UPGRADES - BOOSTER STNS (\$360K)	\$360,000	BORROW	0	0		360,000	
MONROE BOOSTER STATION RECONSTRUCTION	\$500,000	BORROW			500,000		
SUBTOTAL	\$1,100,000		\$0	\$240,000	\$500,000	\$360,000	\$0
WELLS							
FUTURE WELL	\$650,000	BORROW					\$650,000
SUBTOTAL	\$650,000		\$0	\$0	\$0	\$0	\$650,000
TOOLS, SHOP AND GARAGE							
BACKHOE REPLACEMENT	\$125,000	BORROW		125,000			
SUBTOTAL	\$125,000		\$0	\$125,000	\$0	\$0	\$0
DISTRIBUTION/SUPPLY MAINS							
Street Projects							
Kickbusch St (Bellis to 13th St)	\$0	BORROW					
Cedar Street, 7th Ave to 14th Ave	\$0	BORROW					
3rd Ave (Randolph to Bos Creek)	\$242,000	BORROW	242,000				
5th Ave (West St to Garfield Ave)	\$267,000	BORROW	267,000				
Rosecrans (17th Ave - 22nd Ave)	\$20,000	BORROW			20,000		
2nd Street (Short to Dekalb)	\$90,000	BORROW	90,000				
4th St (McClellan St- Scott St)	\$40,000	BORROW		40,000			
Bugbee Ave (Burek Ave - Tiernaey Rd)	\$293,000	BORROW		293,000			
4th Ave (Bridge St - Knox St)	\$345,000	BORROW		345,000			
Emerson Street, EauClaire to Kent	\$20,000	BORROW			20,000		
Mount View Blvd., EauClaire to Kent	\$20,000	BORROW			20,000		
Pied Piper Lane, EC to Kent	\$40,000	BORROW			40,000		
Eau Claire BLVD	\$510,000	BORROW			510,000		
Jackson St (Rrtrackes o 12th St)	\$225,000	BORROW				225,000	
10th Ave (Bridge to West Wausau)	\$210,000	BORROW				210,000	
Grant St (6th St to 7th St)	\$120,000	BORROW				120,000	
Stark St (5th St- 122th St)	\$1,200,000	BORROW					\$ 1,200,000
Hennrietta St (Bellis St - 13th St)	\$260,000	BORROW			260,000		
Burek & Campus	\$550,000	BORROW	\$0	550,000			
Fulton Street (1st St to 6th St)	\$280,000	BORROW			280,000		
SUBTOTAL	\$4,732,000		\$619,000	\$1,228,000	\$1,130,000	\$555,000	\$1,200,000
General Distribution Projects							
STEWART AVE LOOPING-12"-60/68 AVE	\$315,000	BORROW				315,000	
LOOPING MAIN 10"- FRANKLIN ST TO HAMILTON	\$200,000	BORROW					200,000
Looping main Stettin Dr. Stewart to the Park	\$160,000	BORROW			160,000		
LOOPING MAIN STETTIN DRIVE, 48TH AVE TO 52	\$260,000	BORROW			130,000	130,000	
ELM ST (14TH- 17TH AVE) 17th Elm N. to HWY	\$450,000	BORROW	450,000				
17TH AVE LINING (ELM South to Stewart)	\$220,000	BORROW					220,000
LSL REPLACEMENTS	\$750,000	BORROW	150,000	150,000	150,000	150,000	150,000
SUBTOTAL	\$2,355,000		\$600,000	\$150,000	\$440,000	\$595,000	\$570,000
TOTAL CAPITAL							
	\$9,087,000		\$1,344,000	\$1,743,000	\$2,070,000	\$1,510,000	\$2,420,000
CUMULITIVE CAPITAL							
			\$47,074,714	\$48,817,714	\$50,887,714	\$52,397,714	\$54,817,714
WATER CIP FUNDING							
			2021	2022	2023	2024	2025
		OP FUNDS	\$125,000	\$0	\$0	\$0	\$0
		BORROW	\$1,219,000	\$1,743,000	\$2,070,000	\$1,510,000	\$2,420,000
		TOTAL	\$1,344,000	\$1,743,000	\$2,070,000	\$1,510,000	\$2,420,000

WAUSAU WATER WORKS - DRINKING WATER DIVISION		DATE 04/20/21					
2021-2025 CAPITAL PLAN (OPERATING)							
IMPROVEMENTS/PROJECTS	COST EST 2021-2025	FUND SOURCE	2021	2022	2023	2024	2025
TOWERS/RESERVOIRS/BOOSTER STATIONS							
RESERVOIR INSPECTIONS	\$40,000	OP FUNDS				40,000	
RESERVOIR INTER/EXTER COATINGS & MAINT	\$1,000,000	OP FUNDS	180,000	310,000	180,000	180,000	150,000
SUBTOTAL	\$1,040,000		\$180,000	\$310,000	\$180,000	\$220,000	\$150,000
BUILDINGS AND STRUCTURES							
WELL HOUSES - UPGRADES	\$40,000	OP FUNDS	40,000	0	0	0	0
BOOSTER STATIONS - UPGRADES	\$330,000	OP FUNDS	30,000	75,000	75,000	75,000	75,000
SUBTOTAL	\$370,000		\$70,000	\$75,000	\$75,000	\$75,000	\$75,000
METERS & RADIO READ BOXES							
METER & RADIO BOX REPLACEMENT (ON-GOING)	\$2,100,000	OP FUNDS	420,000	420,000	420,000	420,000	420,000
SUBTOTAL	\$2,100,000		\$420,000	\$420,000	\$420,000	\$420,000	\$420,000
TRANSPORTATION EQUIPMENT - VEHICLES							
LIGHT DUTY TRUCK	\$215,000	OP FUNDS	55,000	40,000	40,000	40,000	40,000
SUBTOTAL	\$215,000		\$55,000	\$40,000	\$40,000	\$40,000	\$40,000
TOOLS, SHOP AND GARAGE							
Forklift	\$40,000	OP FUNDS		40,000			
HURCO (ADDITIONAL AND REPLACEMENT)	\$0	OP FUNDS	0				
SUBTOTAL	\$40,000		\$0	\$40,000	\$0	\$0	\$0
TOTAL CAPITAL			\$725,000	\$885,000	\$715,000	\$755,000	\$685,000
CUMULATIVE CAPITAL			\$1,345,000	\$2,230,000	\$2,945,000	\$3,700,000	\$4,385,000
WATER CIP FUNDING							
			2021	2022	2023	2024	2025
		OP FUNDS	\$725,000	\$885,000	\$715,000	\$755,000	\$685,000
		BORROW	\$0	\$0	\$0	\$0	\$0
		TOTAL	\$725,000	\$885,000	\$715,000	\$755,000	\$685,000

Department of Public Works



Eric Lindman, P.E.
Director of Public Works and Utilities

TO: Wausau Waterworks Commission

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

DATE: March 5, 2021

SUBJECT: Village of Maine Water Online – Disconnect City Water

The Village of Maine has their new water supply wells up and running starting April 26, 2021. Wausau shut down our booster station and closed the valve to our system and the Village is now providing their own water.

The agreement with the Village utility is Wausau would keep our system connected with the valve shut off until at least May 10, 2021, after which we would schedule a complete disconnection from the distribution system. Since this booster station is no longer needed staff is looking into the capability of the pump skid being used in the Monroe booster station. If this is feasible we would upgrade the Monroe station with the pump skid from this booster station.

OPPORTUNITIES NOW

An Analysis of Priority Issues and Actions
for Wisconsin's Natural Resources



2021
2023

**PFAS – Forever
Chemicals in Wisconsin**

PFAS – Forever Chemicals in Wisconsin

Wisconsin's Green Fire

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About this Work:

Opportunities Now is an issue paper series published by Wisconsin's Green Fire that summarizes the science and background of key conservation and environmental issues and makes policy recommendations that support pro-conservation outcomes. Each of the papers in our Opportunities Now series is the product of an analysis of current literature, interviews with agency staff and experts, and the consensus of our subject matter teams. Policy makers, conservation organizations, and concerned citizens are all welcome to use and distribute Opportunities Now papers without restrictions.

Direct inquiries on this paper to WGF Science Director Sarah Peterson, at speterson@wigreenfire.org

Cover photo: Aqueous Film Forming Foam containing PFAS at use in a fire at a city of Madison electric substation in July, 2019. Photo credit: Wisconsin State Journal.

Foam containing PFAS
found in Starkweather
Creek, Madison, Wisconsin.
Photo Credit: WDNR.



PFAS – Forever Chemicals in Wisconsin

Countries across the world are grappling with the long-term health and environmental impacts related to the manufacturing and use of the large family of chemicals known as PFAS, or Per- and Polyfluoroalkyl Substances. PFAS are often called “forever chemicals” due to a molecular structure that gives them extraordinary persistence in the environment and the ability to resist decomposition.

PFAS as a group includes thousands of individual chemicals, many of which have been in production and use in a wide variety of products since at least the 1950s. PFAS are especially valued for their ability to resist grease, stains, oil, water, and heat and are found in many everyday products such as firefighting foam, carpeting, coated paper, chrome metal plating, nonstick cookware, dental floss, and a wide variety of food packaging. Due to their widespread use in so many consumer products, PFAS are now being detected in the environment and in humans, animals, and other organisms in every part of the world.

Exposure to high levels of PFAS has been linked to a myriad of human health issues including increased risk of some cancers, decreased vaccine response in children, changes in liver enzymes, and fertility and pregnancy complications in women.¹

In the last 15 years PFAS have been found in groundwater, surface water, drinking water wells, as well as in biosolids, soils, and aquatic sediments in Wisconsin. In the absence of a comprehensive federal approach to PFAS, Wisconsin, along with other states, is now grappling with how to regulate these chemical contaminants while working to better understand their health effects.

Like many other states, Wisconsin currently lacks enforceable standards for PFAS in surface water, groundwater, and drinking water.

*Johnson Controls - Tyco
Fire Products Stanton
Street Facility located
on the Menominee River
in Marinette has been a
documented source of
PFAS contamination. Photo
Credit: Fred Clark.*



The lack of state enforceable standards is compounded by the lack of federal standards – the United States Environmental Protection Agency (EPA) currently has not established enforceable standards* for any PFAS chemical. The EPA has established non-regulatory health advisory levels for drinking water of 70 parts per trillion (ppt) or two of the most tested-for PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), combined.

One of the earliest PFAS chemicals to be studied, PFOS, was voluntarily phased out of use in 2002 in the United States. U.S. Manufacturers voluntarily eliminated PFOA emissions and their use in products by the end of 2015. Despite these actions numerous other PFAS known as “short chain PFAS” are still in use.²

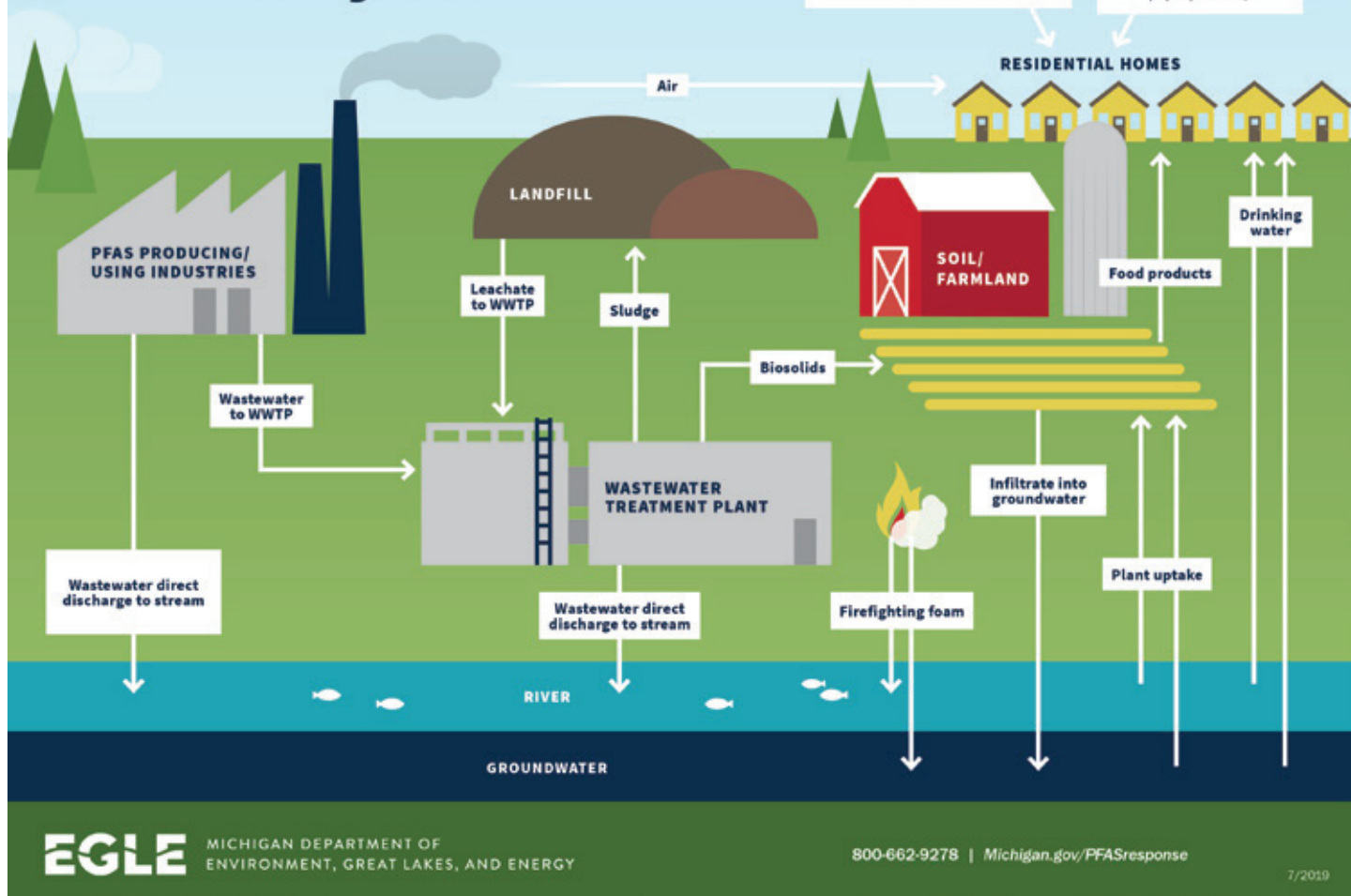
Short chain PFAS contain fewer fluorine atoms than long chain PFAS and have been reported in manufacturers' studies to be safer and less likely to bioaccumulate.³ Recent toxicity studies however show that second generation short-chain PFAS chemicals have comparable toxicity with longer chain chemicals, affecting the same organ systems, similar to the effects of the older longer chain PFAS.⁴

In the absence of federally enforceable standards for PFAS, states are left to devise their own standards and response. The Wisconsin Department of Health Services (WDHS) has recommended a health-based standard of 20 ppt for PFOA and PFOS combined, in groundwater. As of December 2020, a Wisconsin Department of Natural Resources (WDNR) rulemaking process is underway to develop statewide standards for PFAS in drinking water, ground, and surface waters.

*Enforceable Standards are regulatory limits for contaminants that require corrective action when exceedances occur. Health advisory levels are non-regulatory thresholds that trigger public advisories.

This report provides a look into sources of exposure, health effects, and known releases for PFAS in Wisconsin, as well as state agency involvement. Recommendations in the report point to improved environmental management of PFAS grounded in the latest science, methods to reduce exposure and devise clean up procedures for spills that occur.

PFAS Cycle



How PFAS cycle through the environment, their fate and transport. Credit: Michigan Department of Environment, Great Lakes, and Energy

Background

Routes of Exposure

PFAS have a unique chemical structure that contributes to their persistence. PFAS molecules contain a hydrophobic (or water repellent) fluorine-saturate carbon chain and a hydrophilic (attracted to water) functional group. This structure gives PFAS their desirable water and fat repellent quality that makes them perfect for nonstick and water repellent products, but it also contributes to their exceptional persistence in the environment.⁵

Detecting and managing PFAS is complex, in part due to the numerous points within the manufacturing and distribution systems and the waste streams where PFAS and products containing PFAS enter the environment. Human exposure may occur at any of these points.

Homes, work places, hospitals and even schools can also be sources of PFAS exposure because of commonly used items, which may include:⁶

- Stain-free carpeting, draperies, and furniture
- Grease and moisture-resistant paper products such as fast-food wrappers, dry goods packaging, and medical gowns and curtains⁷

- Non-stick pans and cookware
- Building products such as plumbing tape, house wraps and paints
- Outdoor rain-resistant fabrics and gear
- Personal care products like lotions, cosmetics, and dental floss
- Fabric softeners

Through their regular use, humans become exposed to PFAS that leach from cooking pans or by breathing PFAS-laden dust loosened from fabrics. As these items are discarded, they enter the environment, either through the solid waste stream, or directly to air or water. Whether recycled, landfilled, composted, or incinerated, PFAS remain in the air, water, and soil because of their persistent nature.

PFAS have been found in wastewater effluent and in industrial and municipal waste system biosolids (the solid fraction that remains after wastewater treatment). Biosolids from wastewater treatment plants (WWTPs) are often land-spread on farm fields as a soil amendment or sent to solid waste facilities for management. PFAS can be

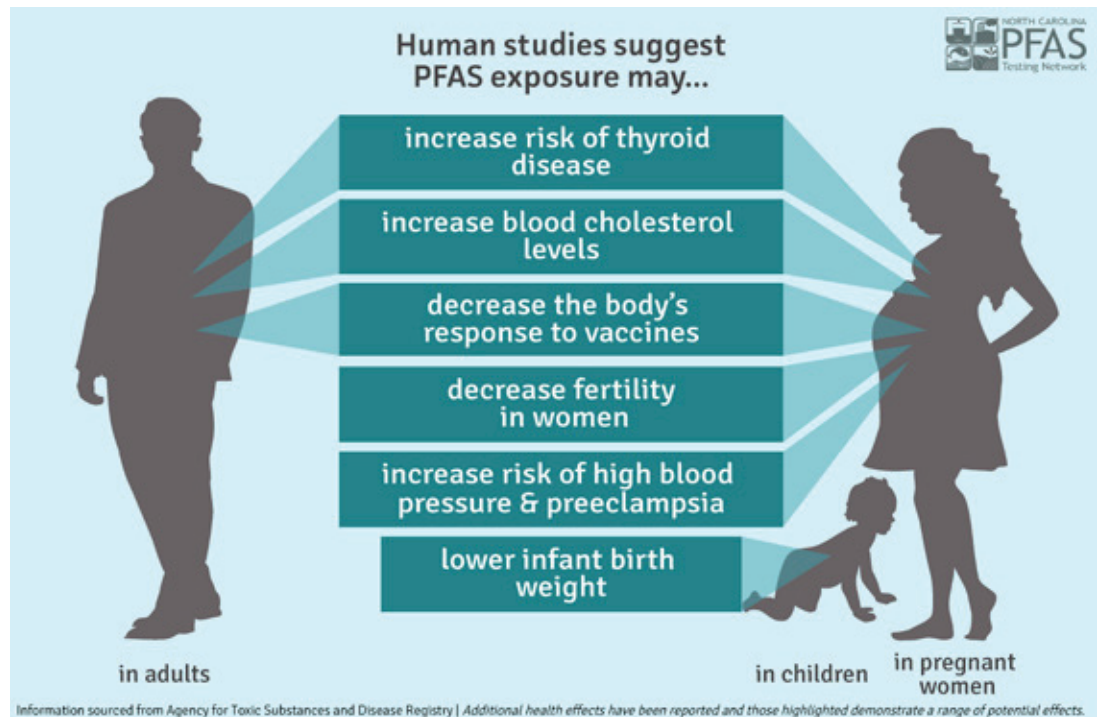
reintroduced back into the environment when present in biosolids. Studies have also shown that plants have the ability to uptake PFAS from PFAS-laden soil.⁸

Another common entry point for PFAS to the environment is through the use of aqueous film-forming foams (AFFFs) used in municipal airport and airfield firefighting. Firefighting training exercises at military air bases have commonly led to releases of PFAS to surface and groundwater. Documented releases have occurred across the state at all three of Wisconsin's Air National Guard bases.

Health Effects

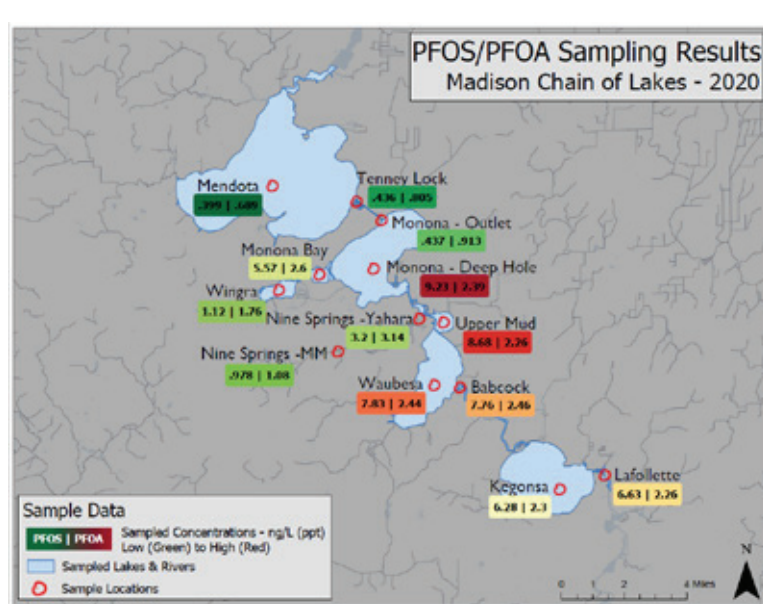
PFAS chemicals bind to proteins, particularly in the liver and blood.⁹ Preliminary research suggests that high levels of PFAS may increase cholesterol levels, decrease how well the body reacts to vaccines, result in changes in liver enzymes, increase the risk of certain cancers, increase the risk of pregnancy complications such as pre-eclampsia and lower average birth weights in newborns.^{1, 10} Reducing human exposure to PFAS is difficult, however, due to

Research suggests a variety of human health impacts from PFAS exposure. Credit: Agency for Toxic Substances and Disease Registry.





Lake Monona shoreline anglers fish next to a fish consumption advisory notice in Madison, WI. Photo credit: Midwest Environmental Advocates.



Map based on 2020 sampling showing elevated levels of PFOS and PFOA compounds in the Madison Chain of Lakes. Credit: WDNR.

multiple sources of exposure and the widespread use of PFAS in everyday life.

Due to their resistance to degradation in the environment, PFAS compounds have high potential for bioaccumulation and biomagnification and toxicity to organisms.⁵ Fish advisories are commonly issued following known releases of PFOS to the environment or in areas where PFAS has been a persistent problem.¹¹ A recent WDNR study also found PFOS in the livers of deer near the Johnson Controls International (JCI)/Tyco site in Marinette.¹²

The manufacture, incineration, and disposal of PFAS chemicals has inordinate impacts on vulnerable communities.

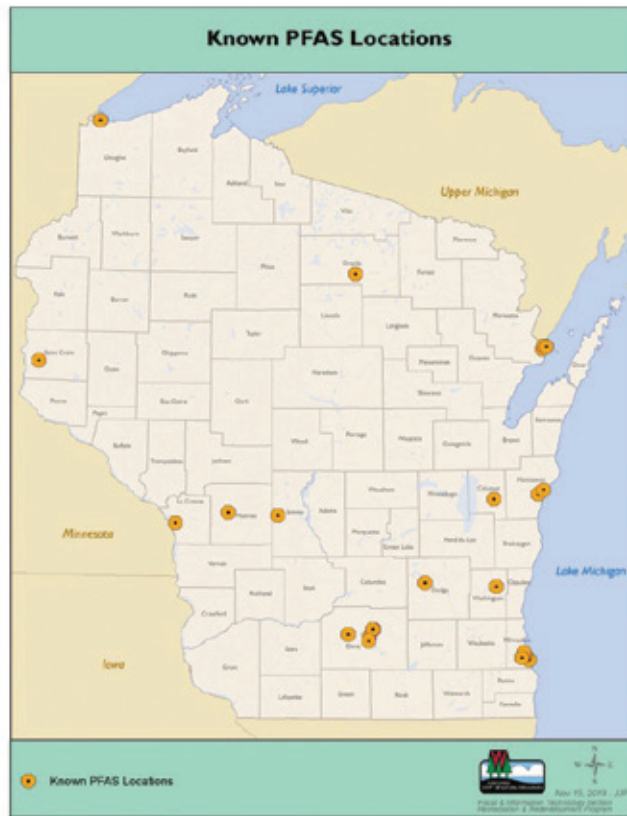
Multiple studies have shown that low-income communities and communities of color are more likely to live near PFAS-contaminated areas and face exposure to bioaccumulating PFAS toxins found in fish due to a higher reliance on subsistence fishing activities.^{13, 14}

Known Areas of Contamination in Wisconsin

Notable sites with high-profile releases include:

- MIRRO Plants in Manitowoc and Chilton: former manufacturing facilities
- JCI/TYCO site in Marinette: manufacture and testing of firefighting foam
- 2018 Husky Energy Refinery in Superior: use of firefighting foam to suppress an explosion and fire
- 2019 MG&E Substation Transformer in Madison: use of firefighting foam to suppress an explosion and fire
- Truax Field in Madison: use of firefighting foam in training exercises requiring fire suppression
- Volk Field at Camp Douglas and Fort McCoy: use of firefighting foam in training exercises requiring fire suppression
- General Mitchell Airport in Milwaukee: use of firefighting foam in training exercises requiring fire suppression
- Refuse Hideaway Landfill in Middleton and Junker Landfill in Hudson: leachate containing PFAS

As of October 2020,
there were 47 documented
releases of PFAS into the
environment in Wisconsin



Known PFAS locations in Wisconsin. Source: Wisconsin Department of Natural Resources.

The known PFAS releases in Wisconsin have resulted in impacts to public and private water supply wells at several sites including wells in the Peshtigo/Marinette area (JCI/TYCO), Rhinelander Municipal Well #7, La Crosse Municipal Wells 23 & 24. In August 2020, Madison Water Utility reported PFAS in all 22 of its active wells with total PFAS concentrations ranging from 2.5 to 47 ppt.¹⁵

Due to concerns over the uptake and bioaccumulation of PFAS in deer livers from grazing on fields impacted by PFAS runoff or landspreading of biosolids, the WDHS and the WDNR have recommended that hunters do not eat liver harvested from deer within the PFAS advisory area around the JCI/TYCO site.¹³



Aqueous Film Forming Foam containing PFAS at use in a fire at a City of Madison electric substation in July, 2019. Photo credit: Wisconsin State Journal.

The lack of information relating to the historic use and release of PFAS is one of the biggest limitations in effectively managing this threat. Our understanding of the extent and distribution of PFAS contamination in Wisconsin is still incomplete but growing as additional sampling occurs and new information becomes available.

Monitoring in Wastewater Treatment Plants Wisconsin

Current monitoring for PFAS in Wastewater Treatment Plants (WWTPs) is incomplete and insufficient, partly due to the lack of enforceable environmental standards and the lack of adequate agency authority. Most of the monitoring that has occurred at WWTPs to date has either been done by the WDNR or done by WWTP operators on a voluntary basis.

Understanding the level of PFAS in influent, effluent, and biosolids at WWTPs is critical to developing regulations and water quality standards. This information would help provide an understanding of the potential routes for human exposures through the consumption of fish, wildlife, and drinking water.

Treatment, Containment, and Remediation

Effectively treating and destroying PFAS is an area of emerging research. Membrane bioreactors, granulated activated carbon, ion exchange resins, ultrafiltration, reverse osmosis, electrochemical oxidation, electrocoagulation, and concentrators are all methods being evaluated and some are in early stage use.¹⁶ None of these methods achieves complete remediation however as each method leaves residual PFAS in filters, membranes, and resins. Methods for destroying PFAS through incineration also result in incomplete remediation and leave behind residual PFAS.

All of the known remediation methods for PFAS also carry high costs and available funding is nowhere near adequate to address the known problem areas today. The U.S. Department of Defense (DOD) estimated that the cost to cleanup PFAS contamination at DOD installations alone would exceed \$3 billion.¹⁷

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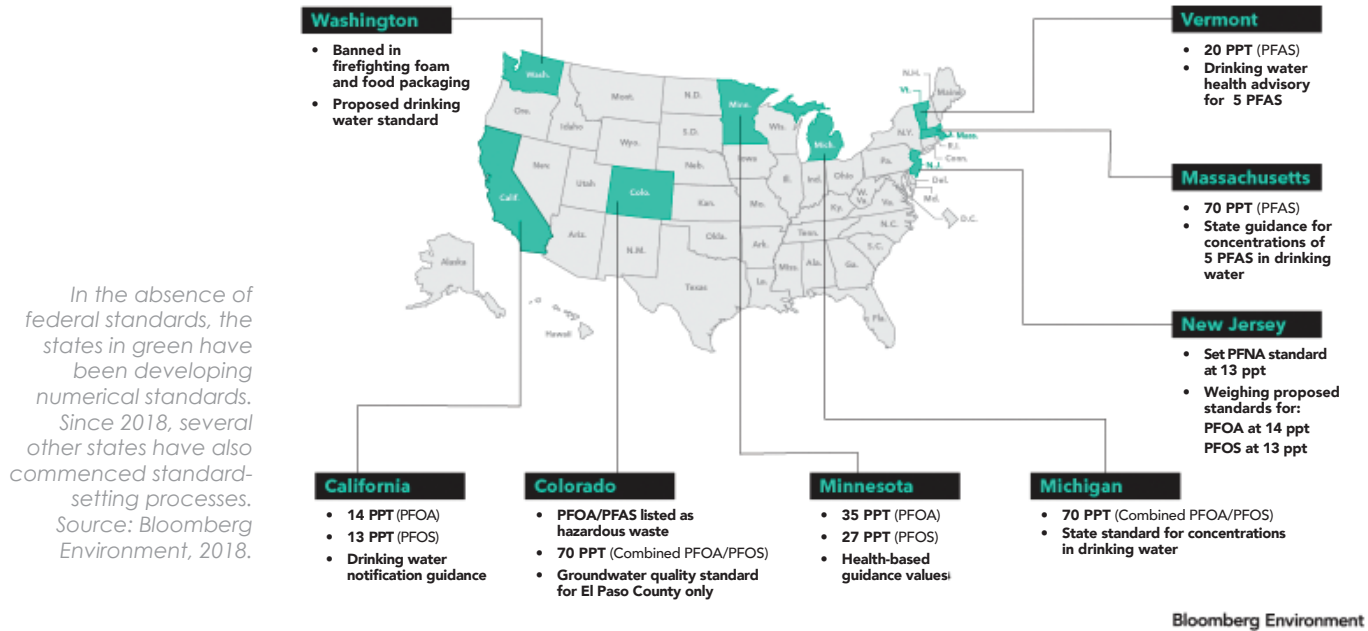
PFAS were identified as a priority issue during multiple public hearings hosted by the 2019 Wisconsin State Assembly Water Quality Taskforce.¹⁸

Only one of the proposals introduced during the 2019-2020 legislative session was enacted into law. 2019 Wisconsin Act 101 limits the use and discharge (with limited exceptions) of Class B firefighting foams that contains intentionally added PFAS. A WDNR emergency rule to implement Act 101 was approved on December 9, 2020 by the Wisconsin Natural Resources Board. On December 18th, the Wisconsin Legislature's Joint Committee on Review of Environmental Rules (JCRAR) voted to eliminate key provisions from the rule that addressed containment of PFAS contaminated material, rendering an important intent of the legislation ineffective.

In August 2019, Governor Evers issued Executive Order 40, which established a Wisconsin PFAS Coordinating Council, (since renamed the Wisconsin PFAS Action Council, or WisPAC). The Council was tasked with developing statewide standards for drinking water, ground water, and surface waters.

On December 16, 2020 WisPAC released a PFAS Action Plan that included a broad set of recommendations for environmental and health standards, pollution prevention, engagement and communication, research, bans and the phasing out of PFAS chemicals,

States With Numerical PFAS Limits



program funding, environmental justice issues, and addressing the historic legacy of PFAS discharges and exposures.

WDHS has recommended health standards of 20 ppt for PFOS and PFOA. WDNR is in the process of incorporating the proposed standards into drinking and groundwater standards. WDNR is also developing surface water quality standards for other PFAS chemicals. The agencies are seeking input from the public through stakeholder meetings.

All of the efforts to develop administrative rules and standards are processes that can take as much as three years, however delays caused by COVID-19 restrictions

Marinette, Wisconsin residents voice their concerns around PFAS exposure and cancer at a public listening session in January 2020.
Photo Credit: Susan Bence.





Madison, Wisconsin residents organize to urge the Wisconsin Air National Guard to investigate and clean up PFAS chemicals in 2018. Photo Credit: Steve Apps/Wisconsin State Journal.

on meetings may cause further delays. Given the urgency of human health aspects of PFAS, WDNR may use the emergency rule process to provide guidance for enacting drinking water standards sooner.

Conclusion

Although PFAS have been known in Wisconsin for at least 15 years, the issue is gaining increased attention as an important public health concern. In the absence of federal action, the Wisconsin environmental and public health community is beginning to understand the reach and scope of the problem.

In order to properly address PFAS in the environment and protect human health, Wisconsin must take a holistic, comprehensive, and science-based approach to managing these forever chemicals. This will require collaboration in the ways that PFAS are managed, working closely with all the players in the PFAS cycle from manufacturing to disposal, educating the public on limiting exposure, and using the best available science to guide decision-making and passing necessary legislation.

Recommended Actions



= Executive Action



= Budget



= Policy

Contamination by PFAS is known to have disproportionate effects on low-income communities and communities of color. PFAS action should adopt a “no-harm” approach that avoids placing additional burden on these communities and giving priority to sampling, monitoring, and abating PFAS contamination in communities with known releases.

Wisconsin Department of Natural Resources will be the primary agency in regulating PFAS use and remediation. Wisconsin Department of Health Services (WDHS) will play a supporting role.

1. Identify sources of PFAS exposures and releases

- a.  Require that all public water supplies begin testing for multiple PFAS compounds no later than the 2021-2022 state fiscal year and the results of those tests should be publicly available.
- b.  Require statewide sampling of PFAS in the influent, effluent, and biosolids of municipal and industrial wastewater treatment facilities no later than the 2021-2022 state fiscal year.
- c.  Use the results of the sampling of public waste supply systems and wastewater treatment systems to identify PFAS clean systems and the systems with risk.
- d.  Collect, assemble and make available representative data from a subset of Wisconsin dischargers as part of the rule development process. This action will support the ongoing administrative rule processes for drinking water Ch NR 809 Wis. Admin. Code, groundwater Ch NR 140 Wis. Admin. Code, and surface waters/wastewater Ch NR 102 to NR 211.
- e.  Expand understanding of the prevalence of PFAS in the environment, through the collection of randomized data in watersheds and ecosystems in Wisconsin. The data can serve as the basis for development of environmental

standards. Wisconsin can look to neighboring states such as Minnesota and Michigan to compare and evaluate standards.

2. Develop science-based statewide standards that are protective of human health and the environment

- a.   Establish science-based environmental standards for drinking water, groundwater, and surface waters for PFOA and PFOS. In a second phase, establish standards for other PFAS compounds.
- b.   Support expediting cleanup standards by using the emergency rule process for soil, groundwater, and drinking water standards. Establish science-based standards for biosolids application to cropped fields and other lands, for solid waste and soil, and sediment associated with remediation/cleanup projects.
- c.  Support additional research into PFAS in drinking water, surface water, wastewater, and groundwater across the state, as well as studies on health and environmental impacts. This includes sampling fish tissues and blood serum from wildlife near suspected sources.



= Executive Action



= Budget



= Policy

3. Manage environmental PFAS contamination and devise cleanup procedures for PFAS-containing media

- a.  Build off WisPAC recommendations on disposal, and direct research dollars towards encouraging the development of innovative approaches to understand how PFAS can be safely destroyed.
- b.  Provide funding for PFAS remediation efforts for fire departments, municipalities, small businesses, and waste water treatment plants.
- c.  Amend the Cooperative Agreement between WDNR and the Department of Defense (DOD) to ensure a full evaluation of the fate and transport of PFAS associated with contaminated DOD sites across the state.

4. Control sources of PFAS and identify methods to reduce exposure to contamination

- a.  Incentivize voluntary and regulatory approaches to control PFAS at the manufacturing source by limiting or eliminating their distribution and use in the supply chain. Consider phasing out the use of short-chain and new generation PFAS from food packaging.
- b.  Develop legislation to encourage product stewardship and extended producer responsibility – closing the loop on management and end-of-life care of PFAS wastes. Producers, wholesalers, retailers, and users of PFAS products, need to share the costs of disposal and cleanup.
- c.  Fund a clean sweep program for collection and disposal of unused PFAS Class B firefighting foam.

5. Lead an educational campaign to inform the public on how they can act personally to reduce their exposure to PFAS

- a.  Support consumer groups and partner organizations in their ability to properly dispose of household materials containing PFAS.
- b.  Assist consumer groups and partner organizations in making informed decisions about the products they buy and whether PFAS may be found in those products.
- c.  Support efforts to create a PFAS single point of contact to coordinate communication both within the WDNR but also within state agencies to develop targeted and consistent messaging on PFAS. A designated person who can champion the issue is critical.
- d.  Coordinate state agency development of PFAS-related educational material for the classroom.
- e.  Encourage WisPAC to host a PFAS summit to provide a forum for sharing information and the latest research.



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