



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 11:00 a.m. on
Tuesday, December 3, 2024.

Members: Doug Diny (President), Sarah Watson, Jim Force, Joe Gehin, John Robinson

AGENDA

1. Approve Minutes of November 4, 2024 Meeting.
2. Director's Report on Utility Operations
 - Update on Water Treatment Facility 2020 WDNR Safe Drinking Water Loan
 - Update on Wastewater Treatment Facility 2020 WDNR Clean Water Fund Loan
 - Update on Granular Activated Carbon (GAC) at the Water Treatment Facility
 - Wastewater Update on Leachate Acceptance Plans and Schedule Moving Forward
 - Wastewater Operations Technician Interviews Scheduled
 - Wastewater Collection System Interviews Scheduled
 - Wastewater TV Van sold on Govt. Auction
3. Discussion and Update with Presentation on the Final Results of the GAC Pilot Study.
4. Presentation on Fluoridation in Drinking Water.
5. Update on Financial Operating and Capital Budgets.
6. Update on Meter Replacements and Schedule Moving Forward into 2025.
7. Update on the Lead Service Line Replacement for 2024 and the Proposed 2025 Schedule.
8. Discussion and Possible Action Approving a Sole Source and Contract with Asterra for Leak Detection Satellite Imagery and Leak Location.
9. Discussion on the WDNR, Bi-Annual Wastewater Treatment Plant Inspection and Class A Exceptional Quality Biosolids Final Determination.
10. Recognition of Award Recipient Brad Wendtland, Wastewater Plant Operations Supervisor. WWOA Operator of the Year.

Adjourn.

Next meeting scheduled for **January 7th 2025 @ 11:00 AM.*

Signed by: /s/ Doug Diny, Mayor
Presiding Officer or Designee

THIS NOTICE POSTED AT CITY HALL AND EMAILED TO CITY PAGES AND DAILY HERALD: December 2nd, 2024 at 10:45 a.m.

This meeting is being held in person. Members of the public who do not wish to appear in person may view the meeting live over the internet, cable TV, Channel 981, and a video is available in its entirety and can be accessed at <https://tinyurl.com/wausaucitycouncil>. Any person wishing to offer public comment not appearing in person may e-mail gina.vang@wausauwi.gov 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) 261-6622 or ADAServices@wausauwisconsin.gov 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.



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ADDENDUM

11. Discussion and Possible Action Approving a Sole Source with Kocourek Ford for Cargo Van.

Adjourn.

**Next meeting scheduled for January 7th 2025 @ 11:00 AM.*

Signed by: /s/ Doug Diny, Mayor
Presiding Officer or Designee

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Minutes of November 4, 2024

A meeting of the Wausau Water Works Commission was called to order at 11:00 a.m. in City Hall on Monday, November 4, 2024. In compliance with Wisconsin Statutes, this meeting was posted and receipted for by the Wausau Daily Herald on October 30th, 2024.

Members Present: President Diny, Commissioners Robinson, Gehin, Force, Watson
Others Present: Eric Lindman, Scott Boers, Ben Brooks, MaryAnne Groat, Laura Scudiere, RN/Health Dept., Stacey Morache/Wausau Resident, Matthew Balgord/Wausau Resident, Dr. Jeremy Hoffman, DDS/Dental Vision-Weston

1) Approve Minutes of October 1, 2024 Meetings.

Watson motioned to approve minutes. Seconded by Force.

Force questioned if Equiflow website was made more prominent and easier to find and requested operating budget summary be compared against prior year, current year and actual because what's provided in the packet didn't reflect that.

Lindman replied equiflow is updating their website and we'll be updating ours with additional public outreach and information. Groat is here and will go over the budget at that time.

Motion carried 5-0.

Public Comment

Morache began that she shared an EPA webinar with some members of this commission concerning fluoridation in drinking water. The webinar was presented by the Children's Health Protection Advisory Committee of the National Institute of Environmental Health Sciences, a division of translational toxicology. Dr. Kyler Taylor & Dr. Andrew Rooney who works with NIEHS Toxicology risk assessment gave the most recent toxicology programs monographs summarizing 19 studies deemed high quality, 18 finding adverse effects from fluoride in children's IQ's, 53 studies found 46 with just some negative effect on fluoride in children's IQ, in conclusion they found higher fluoride exposure is associated with lower IQ in children as well as low confidence and other neurodevelopmental and cognitive effects in children. 15 studies assessed with this confidence rating, 8 of 9 found association in learning, memory impairment, neurobehavioral effects in infants, learning disabilities such as ADHD. They explained fetal and developing brains are vulnerable in addition, formula fed babies were at higher risk of fluoridation toxicity on a per body weight basis than exclusively breastfed infants. After their presentation, a question to Dr. Taylor was asked, "What are the recommendations to a pregnant friend?" In which she replied, "She'd need to purchase unfluoridated water during her pregnancy." On Sept. 24, 2024, a federal district Judge found that 0.7mg/L dose in drinking water, considered optimal, based solely to avoid discoloration of the teeth posed unreasonable risk in IQ loss in children, under the toxicology law that requires a response. How do we protect those suffering from kidney disease as they are not able to remove excess fluoride from their bodies and in the elderly that causes brittle bones. Adding fluoride to water provides limited benefit as compared to 50 years ago, rather than the 25% reduction in tooth decay, the review showed it only reduced tooth decay by ¼ of 1 baby tooth. Clearly the risks outweigh the benefits unless you

devise a plan to inform the public about the health risks, I ask that you remove it.

Balgord commented that fluoride has been researched by experts but wanted to bring to light, the logic and reasoning. One thing to learn from history is so that we don't repeat the mistakes in the past. We've had a lot of toxic chemicals in the past, tobacco, DDT, mercury, lead. There was a lot less politics with everything back then but now there's a lot of politics in this fluoride whether your liberal or conservative, no one wants to be poisoned if this is what it's been identified. Dentists would say what about the economically, disadvantaged children, you could fix the tooth but are we creating damaged brains through this. Dentist would say it's safe, we've seen less cavities but has there been any research regarding effects to the brain, kidneys, thyroid? There's a warning on back of toothpaste, do not swallow. I think some fluoride is damaging the stomach, is it accumulation of this chemical. I had a leak in the water service on the city side, what ate that lead pipe, was it accumulation of that chemical that is known to go through glass, steel, concrete, lead. Share quote from Thomas Jefferson, "Man once surrendering his reason, has no remaining guard against absurdities the most monstrous and like a ship without rudder, is the sport of every wind. With such persons, gullibility, which they call Faith, takes the helm from the hand of reason and the mind becomes a wreck." We need to use reasoning when making a decision.

Dr Hoffman, Dentist practicing at Dental Visions in Weston and past president of Central Wisconsin Dental Society and currently sit on the board of trustees. Community water fluoridation is under threat but this protects teeth from cavities. In young children and adults, even that topical fluoridated water benefits them. This topic was citing issues of autonomy. As a Dentist, when I think of Public Health, what water fluoridation is part of, doing the most good for the most people with the least amount of money, fluoridated water fits this to the T, benefits everyone in the community regardless of income, age, race, education or access to dental care. Lifetime cost of one person drinking fluoridated water throughout their lifetime is less than the cost of one filling. There was a report released from the national toxicology program that reviewed 18 reports linking fluoridated water to children's IQ scores, keep in mind 15 out of 18 are not from North America, they're from China and India where their water levels with fluoride are much higher than here. Is this an apple-to-apple comparison, 2 were from Mexico, and the last was from Canada with challenges to their methodology who wouldn't share their data with researchers regarding their finding. This is a water commission meeting, but on the 1st page after the title page, in bold print- "This monograph and addendum do not address whether the sole exposure to fluoride added to drinking water in some countries IE Fluoridation at 0.7mg per liter in the US and Canada is associated with the measurable effect and IQ." There's been talk about toxins and toxicity but it's the dose that makes the poison for example: Warfarin is a blood thinner to reduce heart attack, too much, then it's rat poison, it's the dose that makes the poison. Every bit helps our most vulnerable populations and strongly ask that you continue water fluoridation.

Received email comment- attached at the end of minutes.

2) Director's Report on Utility Operations.

Lindman began there's an EPA Fact sheet in the packet that provides brief overview of some of the major, significant type changes that we are going to see that will impact our resources, money, budgets. These rules were finalized and will become enforceable in 3 years. Does anyone have any questions on those, we've talked about them previously but now they're finalized.

Robinson questioned in light of our past discussions, subject to availability of resources, would there be a problem with attaining the compliance with the new lead and copper rules.

Lindman replied we'd have to reprioritize some work and have quite a bit of additional testing. Right now, we test 1st liter, but with this it would require 1st and 5th liters and don't think it's as intuitive to get that 5th liter sampling, we'd have to have staff go in and do that. We'll have to double the number of tests to 2x a year, quadrupling the tests needed and would require significant set of

resources annually. We've already begun the lead service line replacement plan this 1st year; the goal was 553 but we'll end up about 600 replacements this year. This morning, we got the funding list, total request was \$14.9 million, \$8.8 million is principal forgiveness, \$6.1 million is loan. The principal forgiveness will cover the private side replacement 100%, so that's good news. The \$6.1 million loan would be to cover the public side replacement. Next year, we're proposing 1900 replacements.

Force questioned likelihood of completing this job within 10 years and how many lead service line replacements we had left?

Lindman corrected, it would be about 13 years because the LCRI doesn't become enforceable for 3-years. The proposed schedule is 5 years but there are residents who are not voluntarily replacing their lines and that's when we'll have to get back to the ordinance potentially. We had people not allowing us into their homes so we'll see more of that but it's a small number. We're estimating somewhere around 7,300 left. There's going to be an economic impact but we'll have to determine what that economic impact is on a year-to-year basis and where the funding would be coming from whether it be utility rates or city funding general obligation?

Diny stated the ordinance was passed by this committee and taken to the committee of the whole who's since tabled it.

Lindman stated we talked about resources, the commission and council did include adding staff to the water utility which would be beneficial for us, these are some of the regulations coming down that will significantly strain our resources. I've been working in the water and sewer industry in public works for well over 20 years and in the last 3 to 4 years, I've seen more legislation come out then in my previous 20 years, it has been incredibly intense, we felt some of that here at the commission and at council level. I don't think we are done yet, there may still be some additional legislation and regulations coming in the next 2 to 3 years that may require additional resources moving forward.

Boers updated that construction of the Granular Activated Carbon (GAC) Treatment facility has one vessel left before startup. The contractor has been struggling to get a safe sample on the last vessel, they started a caustic soak this morning, hoping to have safe samples turned into the lab by Thursday this week to start up by Friday afternoon.

Robinson questioned what a safe sample meant and if the residual was how it was brought in or if it was the manufacturing and installation?

Boers replied, it means the tank is struggling to get a safe Bacteriological sample on it, so they'll do a caustic soak, we can't use chlorine because it would wreck the carbon, the soak would raise the pH of the water and hopefully kill the bacteria. I would suspect that it was probably the material brought in or how it was pumped into the tanks, they're doing some investigation but I don't know that we'll find the actual cause but the tanks were all safe tested prior to the carbon being placed and one this tank failed a safe test.

Force questioned when we'll be solely relying on the carbon units and not the resin?

Boers replied, the resin would be running in front of the carbon, so if everything goes as planned with safe samples, we'd have the carbon after the resin, so any PFAS passing through the resin would be picked up by the carbon, we should be online completely Friday afternoon if all goes to plan. The water changeout in the system usually takes about 3 days. In the packet, there are some results from our quarter 3 testing that shows we are under the DHS recommended 20 parts per trillion for PFAS, we have some shorter chain breaking through that ion exchange resin, the carbon will pick those up. The resin wasn't designed to remove PFAS, it's intended to remove TOC, we could regenerate it but we won't have to replace once the carbon is online.

Lindman stated there's an update on our discharge of quality effluent at Wastewater and the Northwestern lift station if anyone else had any other questions.

Director's Report Placed on File.

3) Presentation by the Marathon County Health Department Regarding Fluoridation in Drinking

Water.

Diny stated Marathon County Health Department Nurse Laura Scudiere is here to present on fluoridation in water. See Presentation at 31:18 via [YouTube](#) and starts on page 26 of the packet.

Robinson questioned if Scudiere was aware of any studies relative to bioaccumulation in tissue relative to fluoride intake from multiple sources as it relates to brain health or other tissue and if there were any study that looked at the whole issue of total bioaccumulation relative to all sources instead of just in water.

Scudiere replied after speaking with Wisconsin Oral Health Team, there have been no studies that provide scientifically convincing evidence of any negative effects of fluoride exposure overtime at the recommended level but the best person to answer that would probably be Dr. Dunkl at the State Oral Health Team.

Force stated the city of Portland had a public referendum, years or months ago and fluoride was no longer added into their water.

Diny questioned how dosage was determined?

Hoffman replied there's a difference in adults vs infants. The American Academy of Pediatrics (AAP) had some guidelines about reducing the amount of tap water used when making formula because there were some concerns but not positive about the exact amount, that was guidance a few years ago. In terms of adults, 0.7mg/L added, back in dental schooling in 2000, you'd have to drink a bathtub full of water to overdose on fluoride in the water. It wouldn't be the fluoride but the fact that you diluted your electrolytes so much from drinking that much water at once.

Lindman replied, we would rely on the Department of Health and other medical agencies to provide us information, even with the court ruling in California, we haven't heard from our regulatory authorities, the EPA or the DNR, so we'll reach out to the DNR statewide or EPA nationwide on this issue. If there are recommendations from DHS or otherwise, we would reach out to our contacts in public health and reach out to public with our newsletters.

Gehin stated there is natural fluoride in the ground water, were we feeding or supplementing it?

Boers replied we're averaging 0.7mg/L in the drinking water and we're supplementing as each well varies from 0.6mg/L to 0.9 mg/L but we just add to get to the recommended level.

No Action Taken.

4) Discussion and Update on Drinking Water PFAS Levels for Treated Water and Discharge Water from Backwashing.

Boers began results included in the packet were from our quarter 3 PFAS testing from both our entry points 400 and 500 which show shorter chain items breaking through close to 15 parts per trillion on each of those entry points. Entry points are different combinations of wells, 3 wells on one entry point and 3 wells on the other entry point. The outfall samples are non-detect required by DNR for some of the discharge. The flushing water coming out of our carbon vessels that we were discharging to outfall were also required to be tested for PFAS. The values we were discharging were non- detect, I think we hit 1.5 parts per trillion of the PFHxS which is below the limit of quantification that could be a variable but with the next sample it disappeared, its very promising looking at the water going through our carbon that there is non-detect PFAS in it. When the system goes online, we will do additional testing for PFAS and are required by DNR for quarter 4 sampling and the results will come here once they are available.

Gehin questioned if outfall was to the stream or sanitary sewer?

Boers replied to a retention pond outside of the facility but will eventually get to the river.

No Action Taken.

5) Discussion and Possible Action Approving the Development of a Pilot Study to Begin Accepting Leachate from the Marathon County Landfill.

Lindman began a meeting was held with Marathon County Landfill, with regards to next steps and putting together a pilot. Another meeting is set for tomorrow and we're trying to include the DNR in a future meeting to get their recommendations with things they want to see as well. There are minutes from our last meeting in the packet.

Brooks stated there was discussion for long term, short term. Short term would be to run a pilot and see the impacts of the leachate. Between short term/midterm, we'll have some discussion if there's any potential exemptions available or make aware from short to long term. Medium term is 100% acceptance of the leachate that would vary with the DNR discussions in the future. The landfill is looking at clean water funding as we are for treatment improvements. The landfill is proposing to put in a reverse osmosis system to treat leachate and then the wastewater plant will be a backup for leachate disposal when the reverse osmosis has downtime. With us not receiving our draft permit yet, the discussion with DNR needs to take place first before us moving forward with the acceptance of leachate.

Robinson wanted us to look at this as a systemic issue, as we have the issue of leachate being generated by the landfill, issue of effluent discharge standards to the upcoming WPDES permit, and long-term basis of what we do with our biosolids if regulations come. Neither the landfill nor the wastewater treatment plant accumulated this but we're being asked to deal with this, so keep in mind the leachate effluent in biosolids when having those discussions. The Administrator last month talked about innovation fund coming out through the Department of Revenue that would aid reduction cost or intergovernmental costs and that would be good for our ratepayers.

Brooks replied discussions that took place as far as landfill accepting our biosolids as a cover source, there'd be a pilot ran as well as the spent resin filters from the water treatment facility, there are a lot of unknowns at this time. Moving forward, we'll discuss more with DNR discussions in person if we could get everyone together versus online meeting but to make them aware. It still leaves our effluent as a source of contamination to Wisconsin River and that's what needs to be taking into consideration. We could take the leachate and they could take our biosolids but that still leaves our effluent possibly being compromised.

Lindman reiterated that it would be one of the biggest challenges, we want to do this but we need the DNR to be onboard and not for it to be punitive on either the landfill or the wastewater plant but to start that discussion with them as we approach the subject to find a solution.

No Action Taken.

6) Operating Budget Quarterly Update Through September 2024.

Groat started with the Sewer Utility fund, where the budget was prepared on a modified accrual basis for 2024 & 2025 focusing on the impact on cash. The operations column for Sewer through September shows \$8.3 million in revenue, \$7 million in expenses, \$1.2 million profit this year. We have some non-cyclical expenses like interest payments made May 1 and November 1 that have impacted the results. Capital Projects like Eau Claire Blvd. and some are waiting for closing with DOA, these projects would be paid out of the utility's operations profit like the transportation equipment. We received closing notice yesterday for the treatment plant so that loan will be closing. Once it closes, we'll have to contribute \$720,000 annually to our capital replacement fund and that would need to be established by 2028. The council approved budget modification for Headworks project taking the \$800,000 fully funded by the DOA either grant money or borrowing and funding the cherry street lift station with ARPA. At the next meeting, I could include 2025 budget so that you'll have this year's budget, next year's budget and actuals to date. I'll add that to next month's report. Water Utility shows \$8.7 million in revenue and \$6.09 million in expenses, similar situation to the bottom line where we have to make our final interest payments and our payment in lieu of taxes and

that would have an impact on our final numbers but we'll see that we're generating a profit at the end of the year. Some differences on revenue and capital projects and expenses are related to timing, like the solar project that never had a revenue source or water meters that have not been transferred from the general fund that was \$1 million then \$800,000 from ARPA, then miscellaneous equipment funded from operations but from a financial standpoint we'll finish up the year in good shape.

Robinson questioned where the funding is coming from the capital side because its not reflected in the operational projected revenues? For example- Sewer shows capital contributions of \$36,000 but capital outlay of \$1.8 million. What is our role relative to the budget because we review the capital side and rate increases but not always the operating budget, at some point, there's some disconnect. Council approves operating budget but we recommend capital so I'm lost to where our role is relative to funding sources and responsibilities.

Groat replied it shows up on top either as proceeds from borrowing, grants or capital contributions as ARPA financing or TID financing or projects that are special assessed. We are waiting for closing on some of these projects from DOA, we will have funding from DOA when we close from the Eau Claire Blvd around \$400,000. Equipment funded 100% from operations. Treatment plant loan we just received closing but there's a couple of projects not completed.

Lindman questioned if it would be more helpful for the Commission not to have capital expenditures and only see operational as Robinson's point, in the past, capital has always come here but the operating never really has, my feeling is that it should be and I'm hoping with Workday, it would help us present that to you so you can become more familiar with the operational side as well as the capital side. I've seen some benefits to what workday is able to do from a presentation standpoint but I'm happy to bring the city attorney to the next meeting, for the roles.

Groat replied we could place that on 2 separate sheets or try a different presentation next month when we'll have the 2025 budget. I was researching and its hard-to-find other water utilities who are giving financials in an open forum but we'll give it a try. Water utility's cash position is showing strong revenues compared to expenses and given other funding sources for other capital projects, I felt we were able to do that throughout this whole budgeting in workday, next year we'll have the capital in workday and would be easier to do budget to actual.

Diny states it just seems intuitive to have the full picture here whether we are authorized to approve or not, our input is important.

No Action Taken.

7) Discussion and Possible Action Approving the Replacement of an Existing Truck.

Boers stated the memo included a recap of the request to replace an existing truck with funding we had at the beginning of the year but had to back out because we didn't feel it was appropriate at that time not knowing where we would be. Since then, we've come across different funding sources to allow cash availability so we'd like to make the purchase. We have 3 vehicles that could use replacement, a 2008 truck, 2016 van that was inexpensive and a smaller 2011 truck that needs replacement. The hopes are that by the time we get our purchase in we would retire the old truck at that time.

Lindman stated this is not adding to the fleet, it's a replacement.

Force motioned to approve the replacement of an existing truck. Seconded by Gehin.

Motion carried 5-0.

8) Discussion and Possible Action Approving a Research Project with the Water Research Foundation for Regeneration or Disposal of PFAS-Laden Drinking Water Residuals, Media, and Waste.

Lindman began we were approached by the water research foundation to enter this study with them to start looking at some of our backwash residuals we have that were recently tested. They'd be looking at testing and doing research on backwash from the resin and backwash from the GAC. There is no cash outlay for us, the water utility would take the samples but we wouldn't have to pay for lab costs. We step into these things, hoping to be proactive with the regulatory agencies sort of like with the leachate and the landfill, we must be proactive this might be an advantage to us and to other communities. This would help us look forward so we have a good understanding of what we're doing and staying in communication with our regulatory authorities at the same time on what we're doing, this would be beneficial in getting information. If we don't do it, someone else would, so this is a way for us to be proactive.

Robinson motioned to authorize participation in the research project with the Water Research Foundation for regeneration or disposal of PFAS-Laden drinking water residuals, media, and waste. Seconded by Gehin.

Lindman stated this is expected to begin in about 6 months and we expect a letter of involvement coming which we are authorizing the mayor to sign.

Watson questioned if it would take extra time from daily duties and if they would present their findings to us?

Lindman replied they would present in different workshops like down in Chicago water research foundation, they present their R&D and its very informative and being a part of this would be very beneficial.

Gehin questioned if this was a stand-alone foundation or if this was related to the EPA?

Lindman replied this is a stand-alone foundation that has done multiple studies as far as destruction of PFAS and biosolids and soils.

Motion carried 5-0.

Force questioned if we addressed the confined space instruction received from the public?

Diny replied we haven't but it was received as public comment and we'll place it in the minutes to address as an inquiry.

Lindman replied all our staff are trained in confined space and other training information addresses chemicals and corrosion and I'll be happy to respond on how we address that.

9) Adjourn.

Watson motioned to adjourn. Seconded by Gehin.

Motion carried 5-0.

Link to view meeting in its entirety: <https://tinyurl.com/wausaucitycouncil>

Gina Vang, Recording Secretary

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MEMORANDUM

TO: President Diny
Commissioner Watson
Commissioner Force
Commissioner Gehin
Commissioner Robinson

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

SUBJECT: Director's Report – December 2024

Update on Water Treatment Facility 2020 WDNR Safe Drinking Water Loan

- Some final work is still ongoing for this loan but progress is being made. Some additional work was added for lock out tag out (LOTO) and is complete. Staff is working to have final payment by year end or early in 2025.

Update on Wastewater Treatment Facility 2020 WDNR Clean Water Fund Loan

- Final disbursements for this project from the DNR have been made. City is working to make sure the proper level of the Replacement Fund is established starting in 2025 as required by the loan agreement with the DNR.

WATER DIVISION

1. Update on GAC at the Water Treatment Facility. See attached.

WASTEWATER DIVISION

1. Leachate acceptance: 11/5/2024 meeting update. Minutes attached.
2. Interviews for the one additional staff added to the Wastewater team will commence on 11/22/24 and finish on 12/4/2024. There will be seven candidates interviewing for the Wastewater Operations Technician position. We are hopeful to fill this added position shortly after interviews are complete.

3. Interviews for the one additional staff added to the Wastewater Collection System team will commence on 12/5/24 and there will be four candidates interviewing for the Collection Systems Technician position. We are hopeful to fill this added position shortly after interviews are completed.
4. Old T.V Van sold on Govt. Auction and sold for \$29,000.00. Original trade in value Enviro-Tech offered, but rescinded, was \$27,000.00.

Memorandum

Date: November 22, 2024

To: Scott Boers, Eric Lindman

From: Susan Wojtkiewicz

**Re: City of Wausau
Drinking Water Treatment Facility PFAS Treatment**

The PFAS treatment system is now operational, with GAC-treated water being delivered to City of Wausau customers. The information in this memo supplements information presented in Donohue's invoice report for the period October 6 – November 2, 2024.



Aerial view of site, November 1, 2024. Note that paving and site work have been completed.

The PFAS Treatment System was put through a contract-required seven day systems demonstration by the contractor. During this time, the system was monitored by the contractor and adjustments made to programming of the controls system. Samples were collected for PFAS in the influent and effluent water, at the beginning and end of the demonstration period. However, it will likely be several weeks before laboratory test results are available. Wausau Water Works staff has taken over operation of the PFAS treatment system.

Invoice Status Report



PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024

Activities This Period

- Supported City as needed with communications and information.
- Conducted Internal Coordination Meetings as needed and provided Monthly Status Report.
- Responded to Requests for Information and clarification of construction documents.
- Reviewed Pay Application 13 and provided preliminary review of Pay Application 14.
- Initiated preparation of Change Order 5.
- Reviewed Contractor requests for facility shutdown as needed.
- Provided on-site observation of construction, with Resident Project Representative (RPR) at site while Contractor and Subcontractors performing major construction activities including facility shutdowns, delivering and installation of equipment and piping and RPR staff on site to observe Contractor progress and answer Contractor questions.
- Developed requests for proposals for equipment modifications and structure improvements including Structure 120 power panel surge protection device, alkaline brine regeneration system additions.
- Reviewed contractor responses to requests for proposals.
- Revised coagulant room and polymer system modifications based on Owner comment and developed cost estimates for building modifications to accommodate chemical feed and process waste tankage.
- Reviewed submittals for operation and maintenance manuals, training and warranties.
- Attended monthly construction progress meeting and on site meetings with Contractor as necessary.
- Continue support of funding activities including Safe Drinking Water Loan including submitting disbursement request from Emerging Contaminants funding.
- Provided Applications Engineering Services as needed.
- Provided Designer Review Site Visits and development of punch list.
- Supported startup up activities by Contractor including monitoring pH for GAC rinsing and bacti testing.
- Reviewed Contractor startup plan.
- Provided Designer Review Site Visits for electrical, structural, plumbing/HVAC and process disciplines.
- Coordinated, scheduled and attended WDNR field visit and review of construction.

Activities Next Period

- Support City as needed with communications and information.
- Conduct internal Weekly Coordination Meetings as needed and provide Monthly Status Report.
- Provide construction related services including on-site observation, review of submittals, consideration of requests for information, processing change orders and pay applications.
- Continue review of RFPs as needed and develop RFPs as needed.
- Prepare SDWLP disbursement requests and track budget.
- Develop Standard Operating Procedures and guides for system startup processes.
- Facilitate Congressionally Directed Spending funding.

Invoice Status Report



PFAS Response

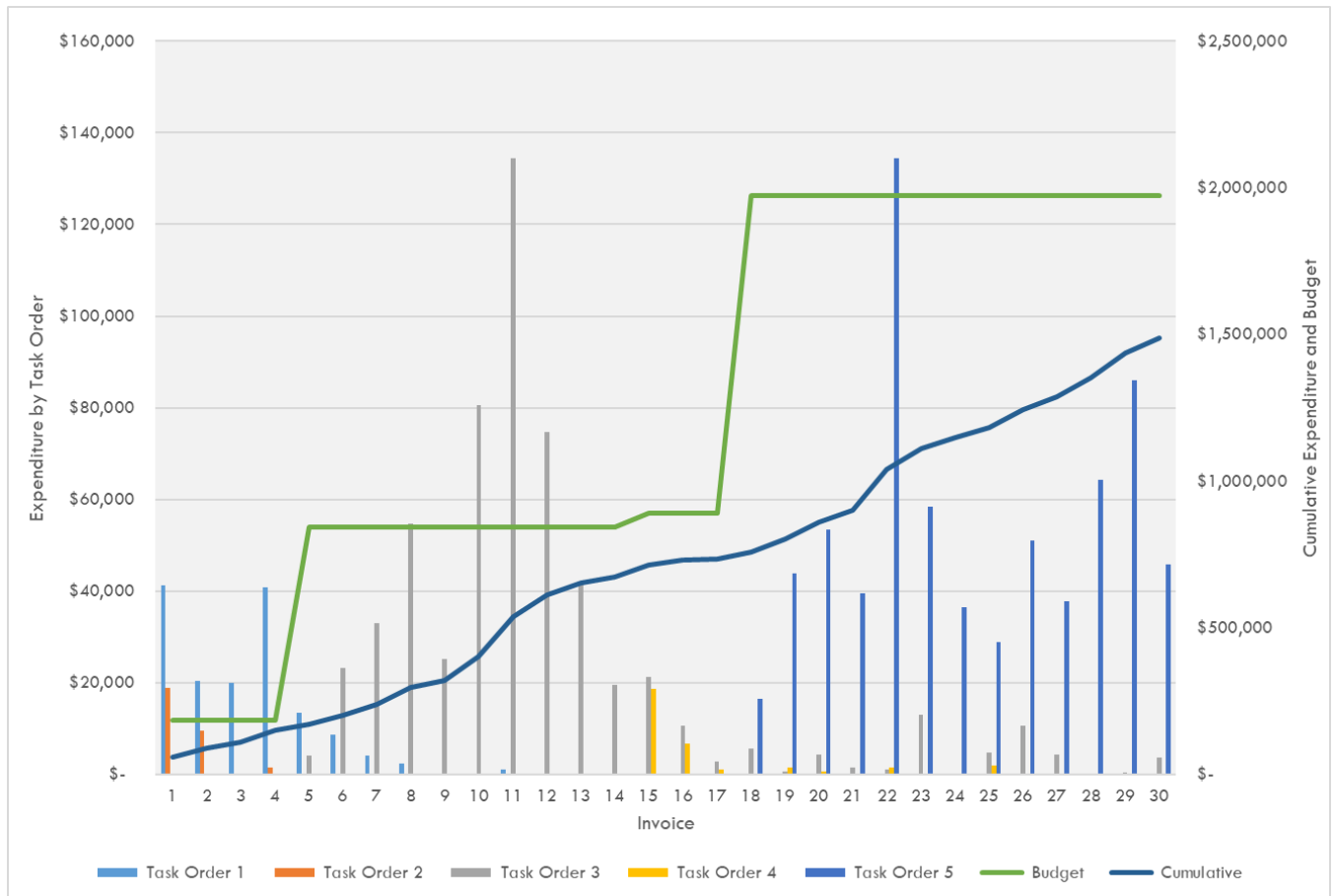
City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30
Period | October 6, 2024 – November 2, 2024

Budget Status

Engineering Budget



Invoice Status Report



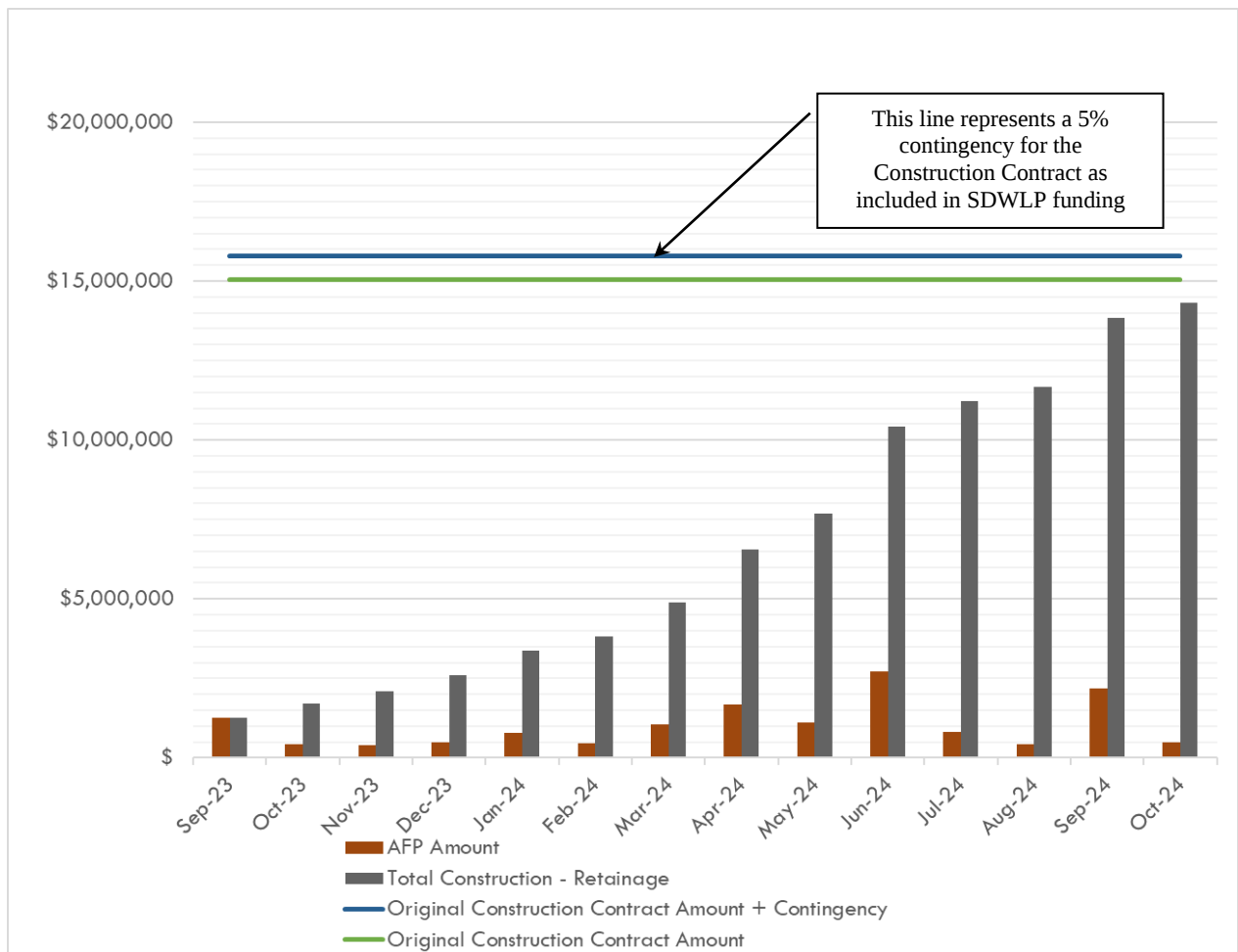
PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30
Period | October 6, 2024 – November 2, 2024

Construction Budget



Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

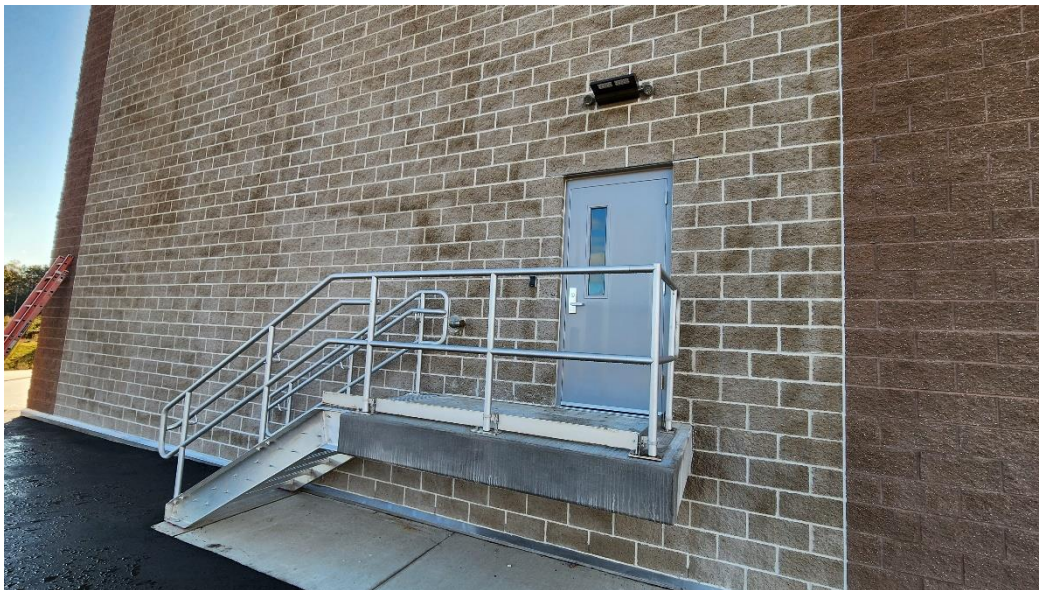
Invoice 14066-30
Period | October 6, 2024 – November 2, 2024

Construction Photo Log

The photos below represent the construction activities that have taken place thus far.



What are a bunch of Turkeys called?.....Either a Rafter or Gang Brood



Doors and windows installed in Structure 120 (PFAS Treatment Building).

Invoice Status Report



PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



PFAS Backwash sump curtain installed in Structure 120 (PFAS Treatment Building).



Asphalt being placed around Structure 120 (PFAS Treatment Building).

Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



Heating water lines installed into carrier pipe for NaOH chemical feed lines to ensure lines don't freeze in Structure 100 (Process Building).



Interior security cameras and motion sensors installed in Structure 120.

Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



Exterior security cameras installed around Structure 120 (PFAS Treatment Building).



Rip rap placed on north and south sides of new temporary road at the NE side of Structure 120.

Invoice Status Report

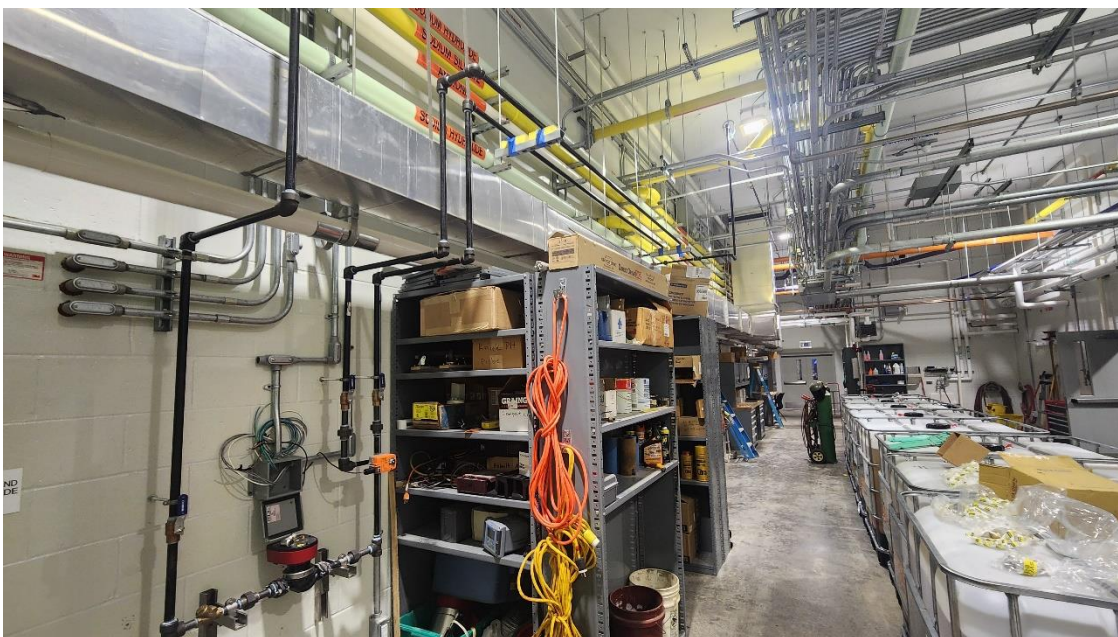
PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



New hot water heating lines and pump to recirculate water around NaOH chem feed lines in Structure 100 (Process Building).



New asphalt and landscaping along north ditch of Structure 120 (PFAS Treatment Building).

Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

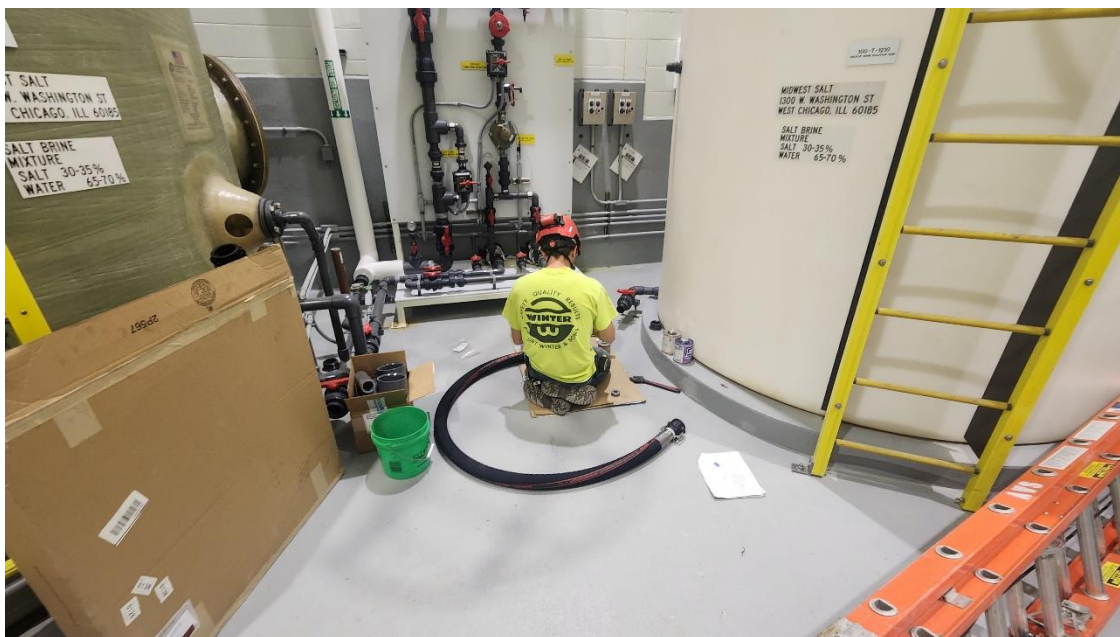
Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



New Hot Water Line feed to each chemical room for the ability of a hot water wash down in Structure 100 (Process Building).



Working on repurposing the Salt Brine tank to a NaOH tank in Structure 100 (Process Building).

Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



New wall panel is up on the northwall of Structure 100 between Structure 100 and Structure 120.



Landscape seed and mulch along east ditch east of Structure 100 and Structure 120.

Invoice Status Report

PFAS Response

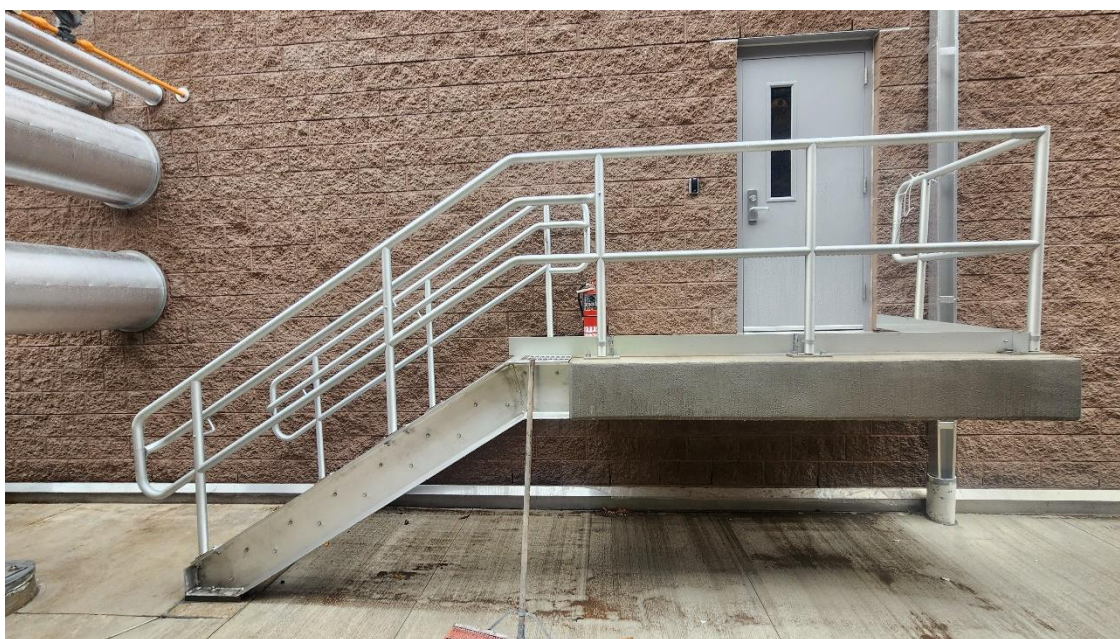
City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30
Period | October 6, 2024 – November 2, 2024



Insulation and jacketing completed on all pipe runs between Structure 100 and Structure 120.



Stairway southside of Structure 120 (PFAS Treatment Building) set.

Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30
Period | October 6, 2024 – November 2, 2024



50% NaOH and 31.5% HCl onsite for Caustic Wash/Disinfection of PFAs Vessel 5A in Structure 120 (PFAS Treatment Building).



Landscape stone complete around MH410 and northwest side of Structure 120 (PFAS Treatment Building).

Invoice Status Report

PFAS Response

City of Wausau, Wisconsin

Donohue Project Number 14066

Invoice 14066-30

Period | October 6, 2024 – November 2, 2024



Demolition on third and final Filter Water Pump in Structure 100 (Process Building).



New Filtered Water Pump 0911 being set in place in Structure 100 (Process Building).

INVOICE



3311 Weeden Creek Road
Sheboygan, WI 53081
Phone: 920-208-0296
www.donohue-associates.com

Invoice To:

City of Wausau
Attn: Eric Lindman
407 Grant Street
Wausau, WI 54403

Invoice Date:

November 7, 2024

Donohue Project No.:

14066

Invoice No:

14066-30

Project Manager:

Susan Wojtkiewicz

Terms:

Net 30 Days

Billing Period:

10/06/24 - 11/02/24

Project Description:

Continuing Services Agreement

Your Authorization:

Continuing Professional Services Agreement, Signed 03/17/22
Task Order No. 1, Signed 03/17/22
Task Order No. 2, Signed 03/18/22
Task Order No. 3, Signed 07/21/22
Task Order No. 4, Signed 05/16/23
Task Order No. 5, Signed 08/09/23

Compensation:

Task Order No. 1 - Time and Expense Not-to-Exceed	\$	155,375.00
Task Order No. 2 - Time and Expense Not-to-Exceed	\$	30,000.00
Task Order No. 3 - Time and Expense Not-to-Exceed	\$	658,695.00
Task Order No. 4 - Time and Expense Not-to-Exceed	\$	44,920.00
Task Order No. 5 - Time and Expense Not-to-Exceed	\$	1,083,284.00
Total	\$	1,972,274.00

Billing Summary:

Total Charges to Date	\$	1,487,007.09
Charges Previously Billed	\$	1,437,543.64
Current Charges	\$	49,463.45

<u>Task Order No. 1</u>	\$	155,375.00
Total Charges to Date	\$	152,354.26
Charges Previously Billed	\$	152,354.26

Labor (hours)	\$	-
Reimbursable Expenses	\$	-
Subconsultants	\$	-
Total	\$	-

<u>Task Order No. 2</u>	\$	30,000.00
Total Charges to Date	\$	30,000.00
Charges Previously Billed	\$	30,000.00

<u>Task Order No. 3</u>	\$	658,695.00
Total Charges to Date	\$	576,051.59
Charges Previously Billed	\$	572,361.59

Labor (18.0 hours)		
Reimbursable Expenses	\$	3,690.00
Permit Fees	\$	-
Subconsultants	\$	-
Total	\$	3,690.00

<u>Task Order No. 4</u>	\$	44,920.00
Total Charges to Date	\$	32,145.00
Charges Previously Billed	\$	32,145.00
Labor (hours)	\$	-
Reimbursable Expenses	\$	-
Subconsultants	\$	-
Total	\$	-

<u>Task Order No. 5</u>	\$	1,083,284.00
Total Charges to Date	\$	696,456.24
Charges Previously Billed	\$	650,682.79
Labor (228.5 hours)	\$	43,412.50
Reimbursable Expenses	\$	2,360.95
Subconsultants	\$	-
Total	\$	45,773.45

Current Charges Due	\$	49,463.45
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Please Remit to:

Donohue & Associates, Inc.
3311 Weeden Creek Road
Sheboygan, WI 53081
Phone: 920-208-0296
Fax: 920-208-0402

<u>Aged Receivables</u>				
<u>Current</u>	<u>31 - 60 Days</u>	<u>61 - 90 Days</u>	<u>91 - 120 days</u>	<u>>120 days</u>
\$49,463.45	\$86,476.92	\$0.00	\$0.00	\$0.00



November 5, 2024

Minutes are in red

Subject: Marathon County Solid Waste Department & Wausau Waterworks
Wausau Waterworks: Leachate Treatment Pilot Study

ATTENDEES:

NAME	COMPANY	PHONE	EMAIL
Dave Hagenbucher	MCSWD	715-551-5864	David.Hagenbucher@co.marathon.wi.us
Eric Olson	MCSWD	715-297-0429	Eric.Olson@co.marathon.wi.us
Eric Lindman	Wausau Waterworks	715-261-6745	Eric.Lindman@ci.wausau.wi.us
Ben Brooks	Wausau Waterworks	715-261-6941	Ben.Brooks@ci.wausau.wi.us
Brad Wendtland	Wausau Waterworks		Bradley.Wendtland@wausauwi.gov
Jason Schill	Wausau Waterworks		Jason.Schill@ci.wausau.wi.us
Jalen Thomas	Tetra Tech (TT)	608-630-4850	Jalen.Thomas@tetrattech.com
Lee Daigle	Tetra Tech (TT)	630-410-7252	Lee.Daigle@tetrattech.com
Arie Kremen	Tetra Tech (TT)	732-575-0051	Arie.Kremen@tetrattech.com

Dave and Jalen provided a summary of recent conversations between Marathon County and Wausau Waterworks to this point. It was also noted that during the WDNR's PFAS advisory call on October 18, 2024, the proposed situation with Wausau and Marathon County was discussed several times by uninvolved parties.

1. **WWTP Pilot Study**

a. Other Considerations:

i. Darkest Leachate: BRRDF

1. Wausau: Why is this the parameter we are testing for?

- a. The reason for doing the UV test is to test for the worst-case scenario for wastewater treatment efficacy once leachate is added to the stream
 - b. Certain compounds of interest cause the color of leachate which is one reason why color is the selected criteria of measurement
 - c. Arie: Based on the relevant literature and field data we are seeing a there is correlation between clearer leachate with more treatable liquids via UV
- ii. **Wausau Waterworks Denitrification System**
 - 1. Wausau was not able to touch base on this yet with their engineer. Update to be provided at a later date.
 - a. Donahue created the design of this system
- iii. **Phase 1: WWTP Effluent Samling Time**
 - 1. Phase 1 will provide an approximate upper range for leachate treatment capacity at the WWTP prior to beginning Phase 2
 - a. We will need to know what Wausau's new permit will say regarding clarity of the effluent once it is released.
 - i. Treatment has been observed by Tetra Tech to become less effective in instances where UV test shows less than 65% transmission
 - 1. Erik – if we see results of 65% to 70% Wausau would like to keep the jar test going until 50% is reached.
 - 2. E coli/ Fecal Coliform is a concern for the WWTP's effective treatment of wastewater
 - a. That is another reason that color is the criteria of interest for Phase 1.
 - b. A result of 65% in the UV test is the typical upper limit for eliminating E coli
 - i. The WWTP has its's own sensors to read transmittance in Phase 2. The real time operating data will tell us if there are any issues.
 - 3. Erik - Is there a way to determine ratios over the course of an hour?
 - a. Arie: Yes, if we put the leachate at the headworks there is enough mixing time and volume by the time it hits the UV, we will be able to calculate this based on an assumption of constant flow. Total residence time in the WWTP is likely a couple of days.
 - i. Wausau to provide true total residence time for the facility
 - 4. Ben: The denitrification and aeration processes would be of most "concern"
 - 5. Arie: Introduction of leachate may be easier than firth thought due the longer residence time the WTTTP has demonstrated
 - 6. Who would be performing the Phase 1 Test?
 - a. Wausau volunteered to complete this Phase. If they need help the rest of the team will be notified.
 - b. Marathon County to provide leachate to Wausau so they can perform the test
 - c. Timeline: Phase 1 should be completed before thanksgiving weekend
 - d. A 1-gallon composite sample will be collected from the Area B Landfill and a 1-gallon sample of BRRDF leachate will be

collected. Two separate tests will be performed. One for each landfill

iv. **Step 2: Preferred Leachate Disposal Time**

1. Lee: Would it make sense to take breaks between each proposed phase?
 - a. Arie: No, we need the biology to acclimate having new volumed of leachate in the system. Taking breaks would prevent this and cause more variation in the system's operation. Waiting too long between increments won't allow the system to stay under load and won't show a true representation of what it looks like to treat leachate
2. We want to see a signal and to know whether or not the signal will be an obstacle to meeting permit requirements
3. Ben:
 - a. Dryer operates bi-weekly
 - b. This goes from the dryer into the primary
 - c. Will need to look more at phase 2 during non-dryer weeks due to higher system demands
 - i. More magnesium-hydroxide required to maintain high enough PH
 - d. Time lines for Steps 4 and 5 of the proposed Phase 2 have been extended to 2 weeks as a result of the above
4. WWTP to talk to Marathon County about surcharged for current arrangement

2. Scheduling WDNR Involvement

- a. Team wishes to discuss with WDNR before Phase 2 begins. Wausau WWTP and Marathon County to connect with respective WDNR representative to have a Teams meeting to discuss.
- b. Marathon County to involve Tess, Kate and Colin
- c. Dave wants the solid waste group to know that the landfill will take the sludge and filters
- d. Jalen to get all names from Ben
- e. WDNR inspection scheduled for the WWTP on Dec 20. We would like to meet with them before that date
 - i. Schedule a meeting for some time during the first two weeks of December
 - ii. Approval from the WDNR could result in potential start time of phase 2 in December

Action Items	Assigned	Due Date	Status
A 1-gallon composite sample will be collected from the Area B Landfill and a 1-gallon sample of BRRDF leachate will be collected. Each sample will be delivered to Wausau by Marathon County	David Hagenbucher (Marathon)	ASAP	Completed
Two separate Jar tests will be performed by Wausau WWTP. One for each landfill (Area B and BRRDF)	Jason Schill (Wausau)	Before Thanksgiving	Completed

Wausau to touch with Donahue regarding their denitrification system	Ben Brooks and Eric Lindman (Wausau)		Completed
Wausau to provide list of parameters that they will need tested for during Phase 2 for their permit requirements	Ben Brooks (Wausau)		Completed
Wausau WWTP and Marathon County to connect with respective WDNR representatives to have a Teams meeting to discuss Phase 1 and Phase 2	Jalen Thomas (Tetra Tech) Ben Brooks (Wausau)		In progress, date to be determined.

Wausau Water Works Commission

PFAS Project Update



December 3, 2024

Project Status Update

- Seven-day systems demonstration completed
- Wausau Water Works staff has assumed operation of PFAS treatment



Aerial view of site, November 1, 2024. Note that paving and site work have been completed.

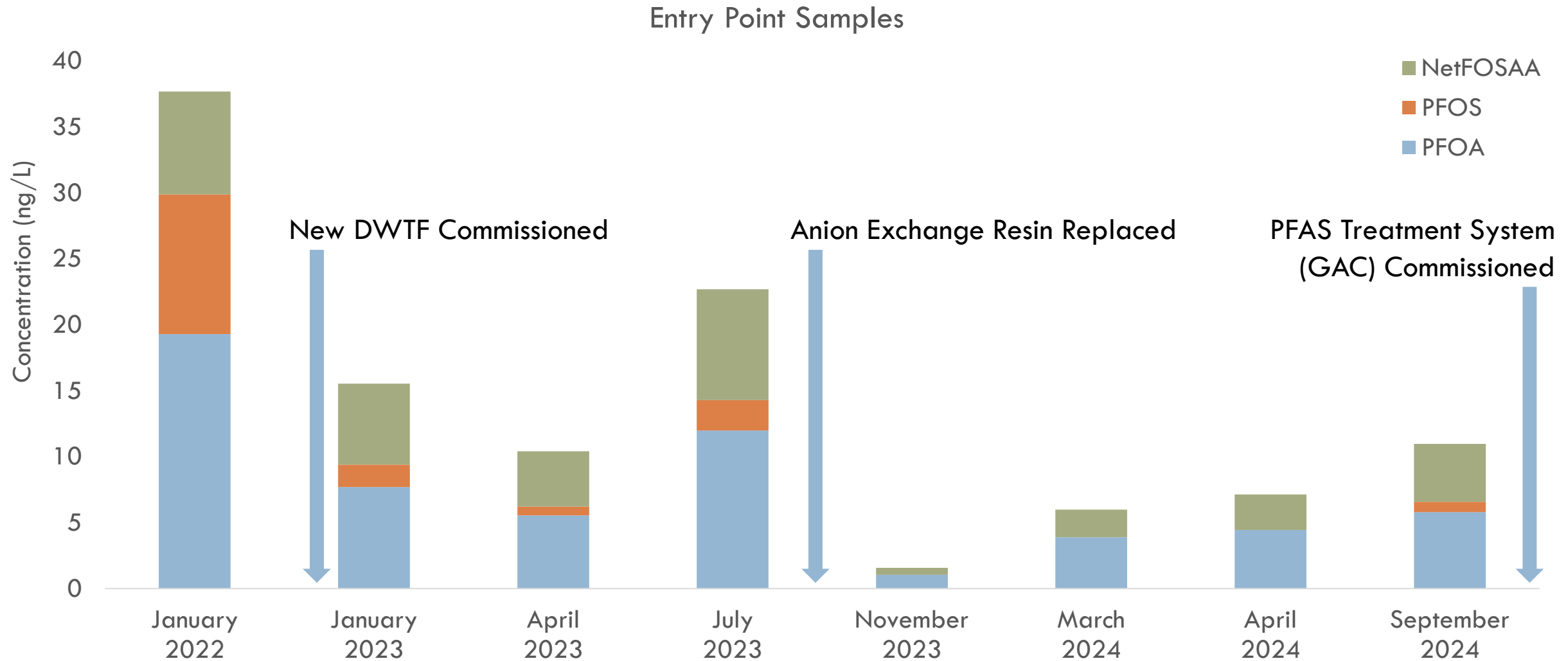
Pilot Testing and New DWTF Operation – What Have we Learned so Far?

- Anion exchange process at the new DWTF plays a critical role
 - Interim solution for PFAS
 - Water quality benefits (color removal, improved disinfection)
- What to expect for PFAS Treatment System (full-scale GAC)
 - PFOA limits and concentrations will dictate media replacement schedule
 - Can expect 1-2 carbon changes of 6 lead vessels per year
 - Treatment/monitoring based on new federal maximum contaminant levels*

Compound	MCL
PFOA	4.0 ppt (or ng/L)
PFOS	4.0 ppt (or ng/L)

*Expected to be formally adopted in Wisconsin in 2026

Anion Exchange Reduced PFAS Concentrations During GAC Construction



Anion Exchange Improves Water Quality and Disinfection



Before Anion
Exchange

After Anion
Exchange

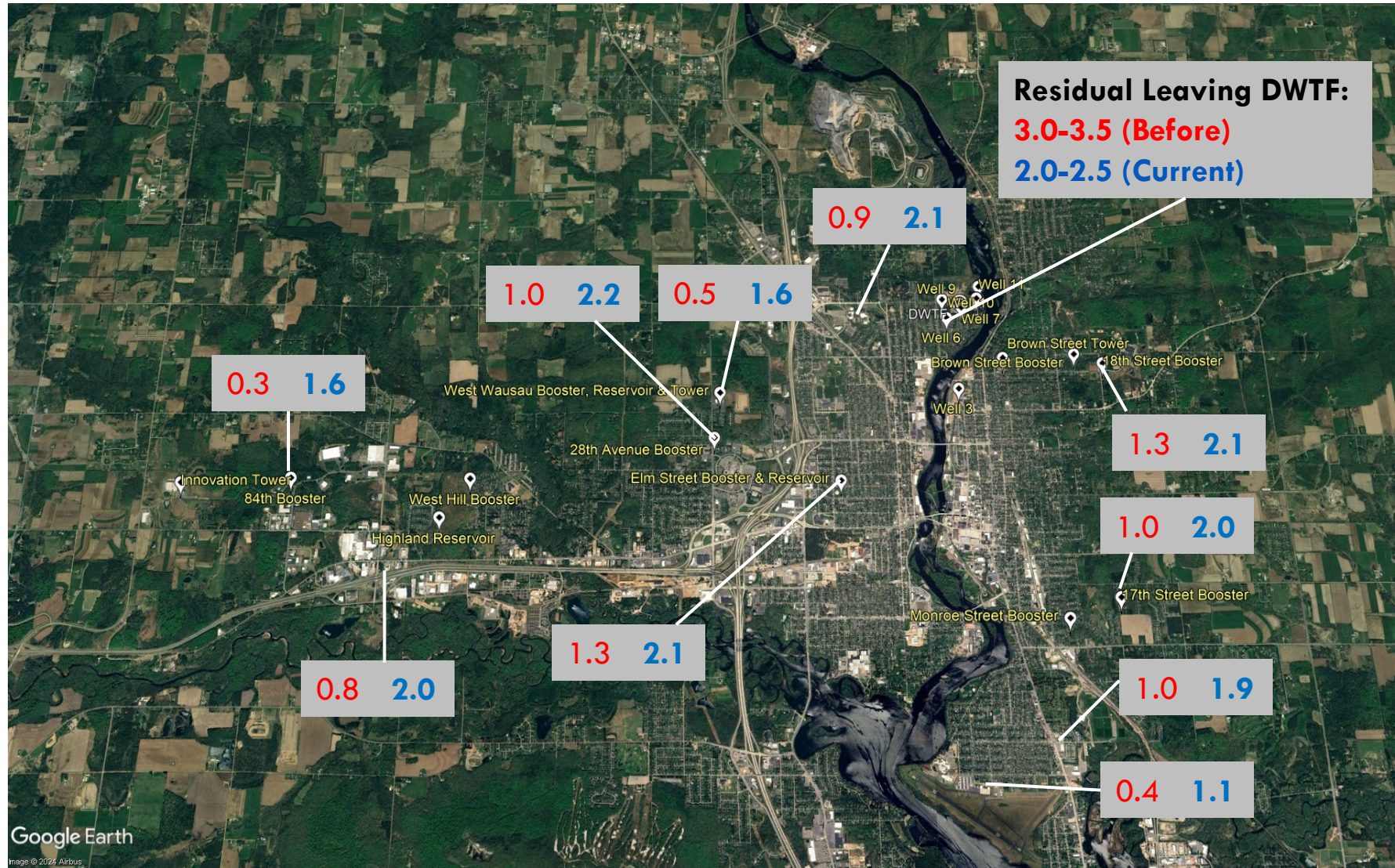
Anion exchange removes color



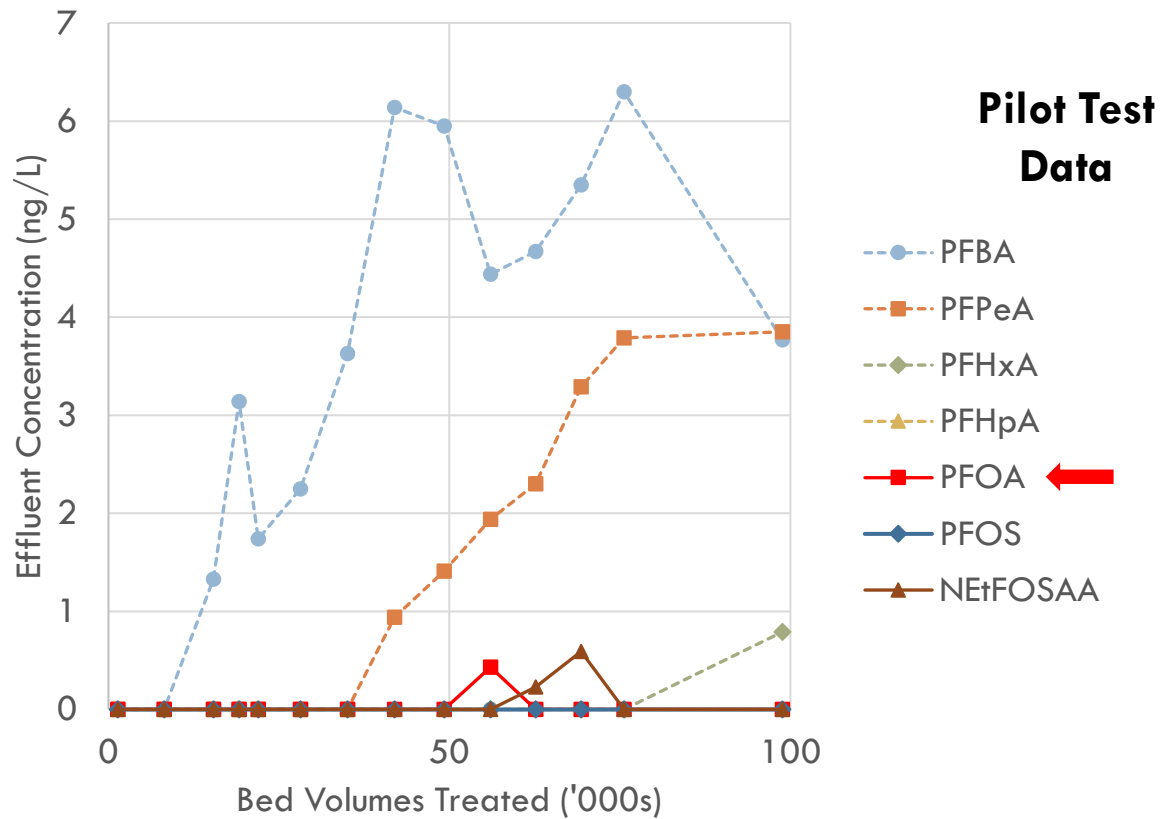
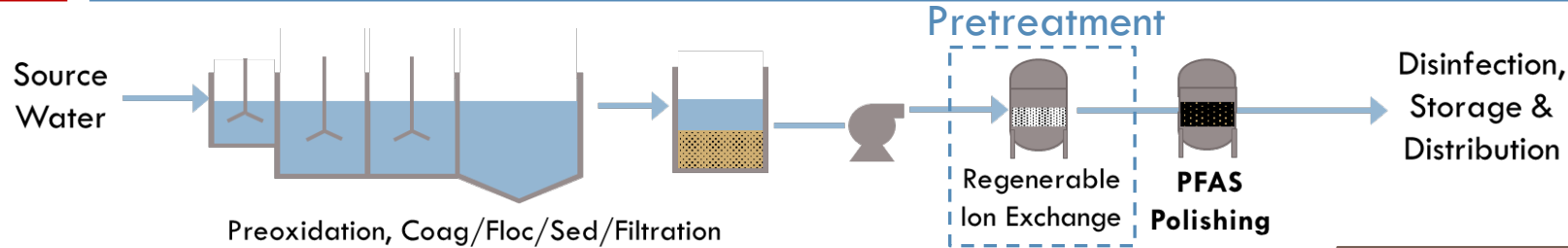
Anion exchange reduces total organic carbon (TOC) concentrations:

- Improves water quality in distribution system piping to customers
- Supports more robust disinfection process
- Supports compliance with new and future regulations

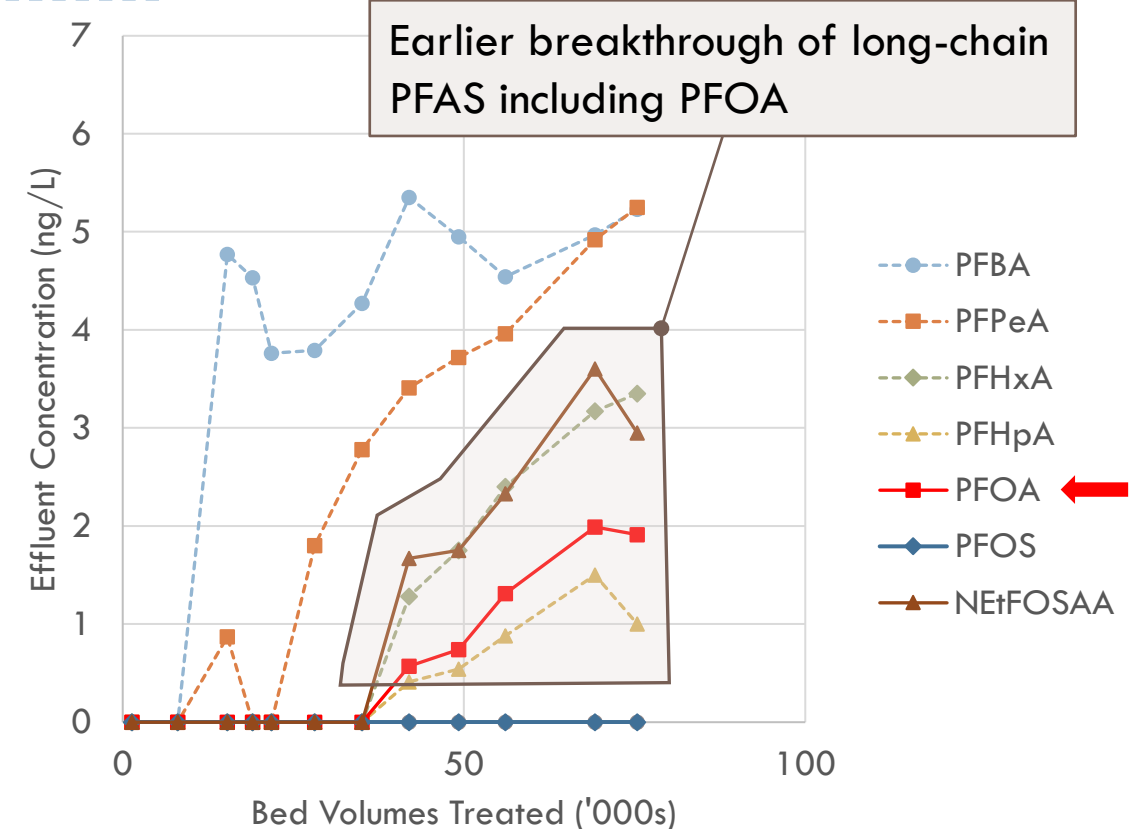
Water Quality Throughout the Distribution System has Improved with the New DWTF



Anion Exchange Improves Downstream PFAS Removal



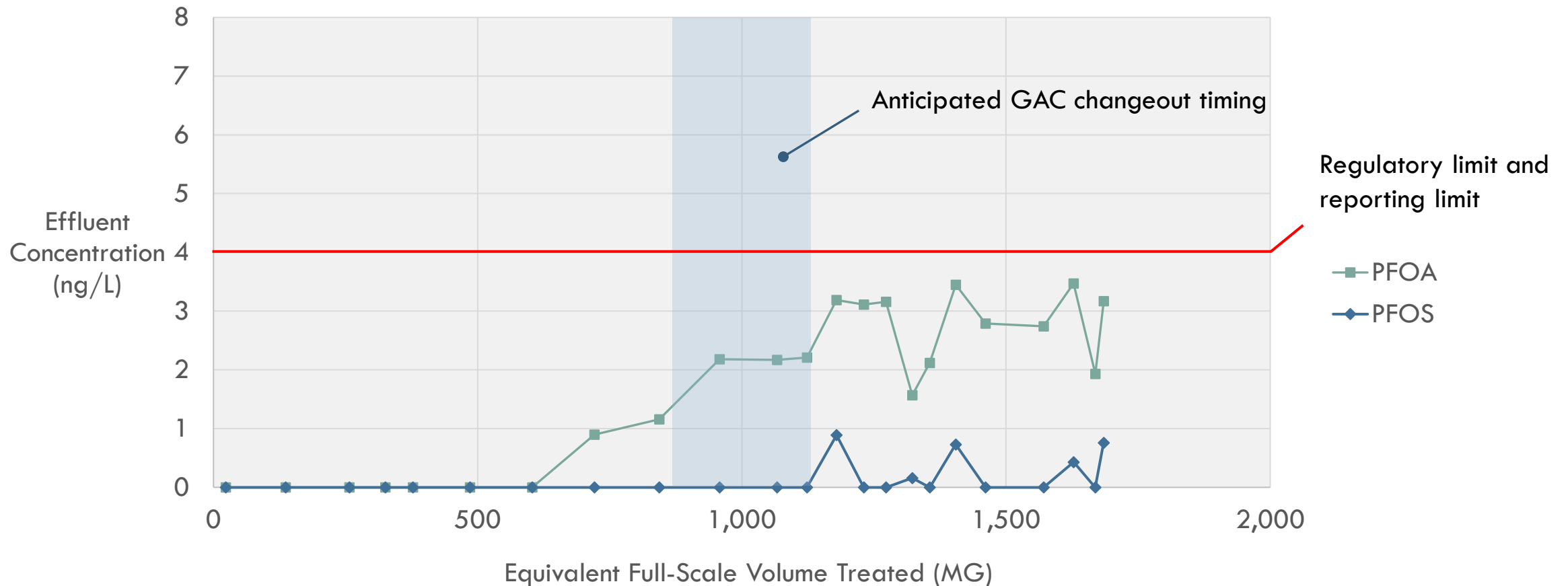
Single Use Ion Exchange Resin with IX Pretreatment



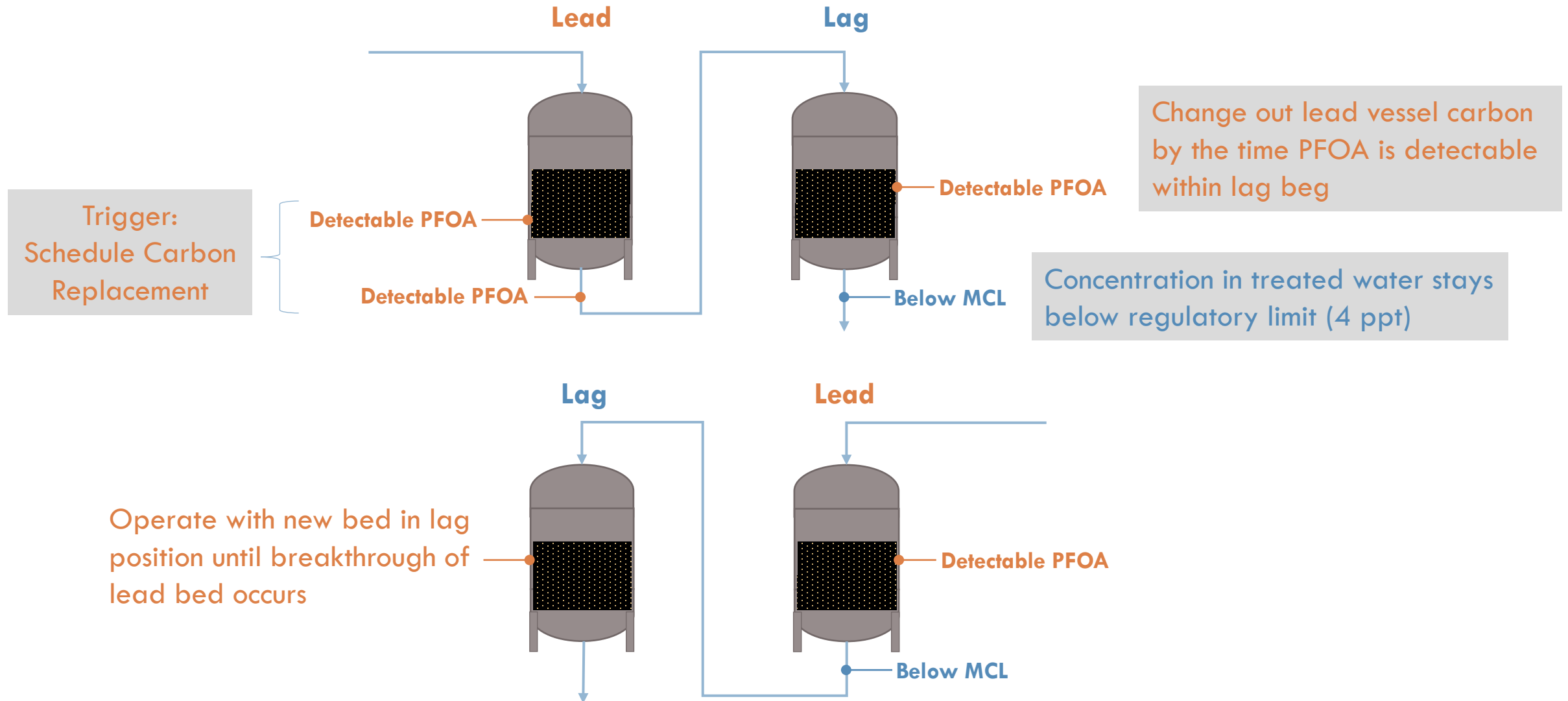
Single Use Ion Exchange Resin with No IX Pretreatment

Full-Scale System Operation will be Driven by PFOA Limits

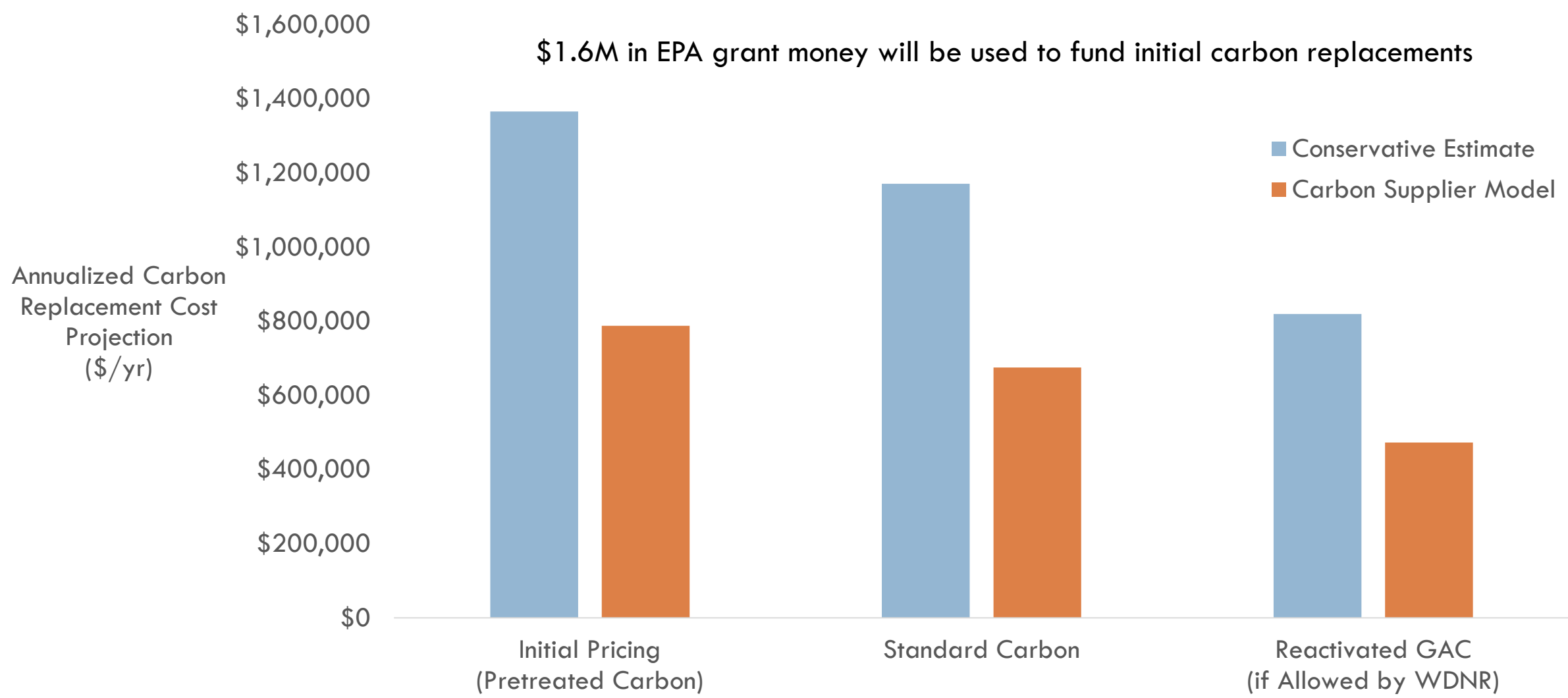
GAC Data from Pilot Test



Media Changeout Strategy



Operating Cost Planning



Flexibility for the Future

- Benefits of GAC
 - Removes a variety of organic and emerging contaminants
 - Provides additional aesthetic “polishing” and TOC removal
 - Simpler management of spent media compared to other technologies
- PFAS Treatment Facility is set up to accommodate other media
 - Single Use Ion Exchange Resin
 - FLUORO-SORB® (emerging adsorbent)

FLUORIDATION

A Failed Experiment
Griffin Cole, DDS NMD

CDC ORAL HEALTH SURVEY – 3RD GRADERS

- STATES WITH LOWEST CHILDHOOD DECAY:

New Hampshire – 35% decay rate

Vermont – 37% decay rate

- BOTH ARE 2 OF THE LEAST FLUORIDATED IN THE COUNTRY! (43rd and 39th respectively)

- DECAY IN STATES WITH HIGHEST FLUORIDATION RATE:

Wash DC - 60% decay rate (100% fluoridated)

Kentucky - 60% decay rate (99.8% fluoridated)

North Dakota - 68% decay rate (96% fluoridated)

CDC Oral Health Data: Explore by Topic DOH/CDC – 11-1-2023



CDC and HHS Proven Incorrect

- For years – they said 1.2 PPM is the right level for fluoridation.
- In 2015, they lowered to 0.7 PPM due to high rates of fluorosis.

NOW – the rates keep going up. 70% - 87%

CDC NHANES Results:

Large increases in severity and prevalence were found in the 2011–2012 NHANES as compared with the previous surveys, for all sociodemographic categories.

12 to 15y total prevalence of fluorosis increased from:

22% to 41% to 65% in the 1986–1987, 1999–2004, and 2011–2012 surveys, respectively.

2013-2014 and 2015-2016 :

70% - 87%!



A National Study Exploring the Association Between Fluoride Levels and Dental Fluorosis

Man Hung et al. [JAMA Netw Open](#): 2023 June

The findings of this cross-sectional study suggest that exposure to higher concentrations of fluoride in water and having higher plasma levels of fluoride were associated with a greater risk of dental fluorosis.

“Our results also align with those of Neurath et al...”

SCIENTIFIC PROOF OF ACTION?

- There has NEVER been a double-blinded randomized clinical trial to prove fluoridation *actually works* (or is safe).
- There has NEVER been a long-term follow-up study to prove that fluoridation *actually worked...* (Several showing failure)
- Silicofluorides (fluoride supplements/additives) have NEVER been FDA approved for ingestion and they were never proven safe prior to dumping in our water supply.

SILICOFLUORIDES ARE NOT CALCIUM FLUORIDE

“The kinetics of acetylcholinesterase inhibition and the influence of fluoride and fluoride complexes on the permeability of erythrocyte membranes.”

Westendorf's research on incomplete dissociation of silicofluorides under physiological conditions

Dissertation to receive Ph.D. In chemistry from the University of Hamburg by Johannes Westendorf
Hamburg, Germany – 1975.

Association of silicofluoride treated water with elevated blood lead.

Neurotoxicology 2000 Dec;21(6):1091-100.

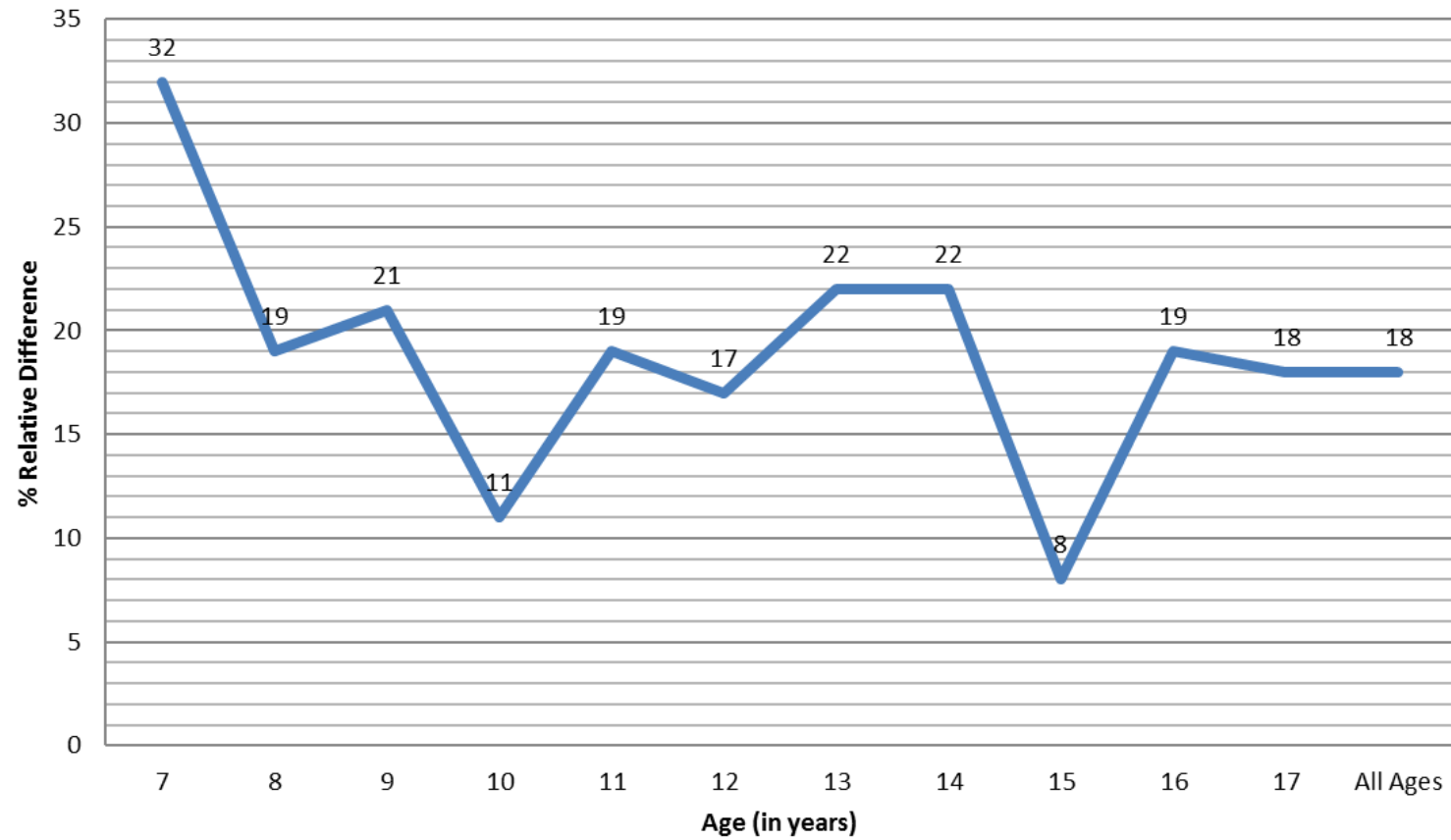
Masters and Coplan : 151,225 venous blood lead (VBL) tests taken from children ages 0-6 inclusive, living in 105 communities of populations from 15,000 to 75,000.

RESULTS: They found that average blood lead levels are *significantly higher* in children living in communities whose water is treated with silicofluorides.

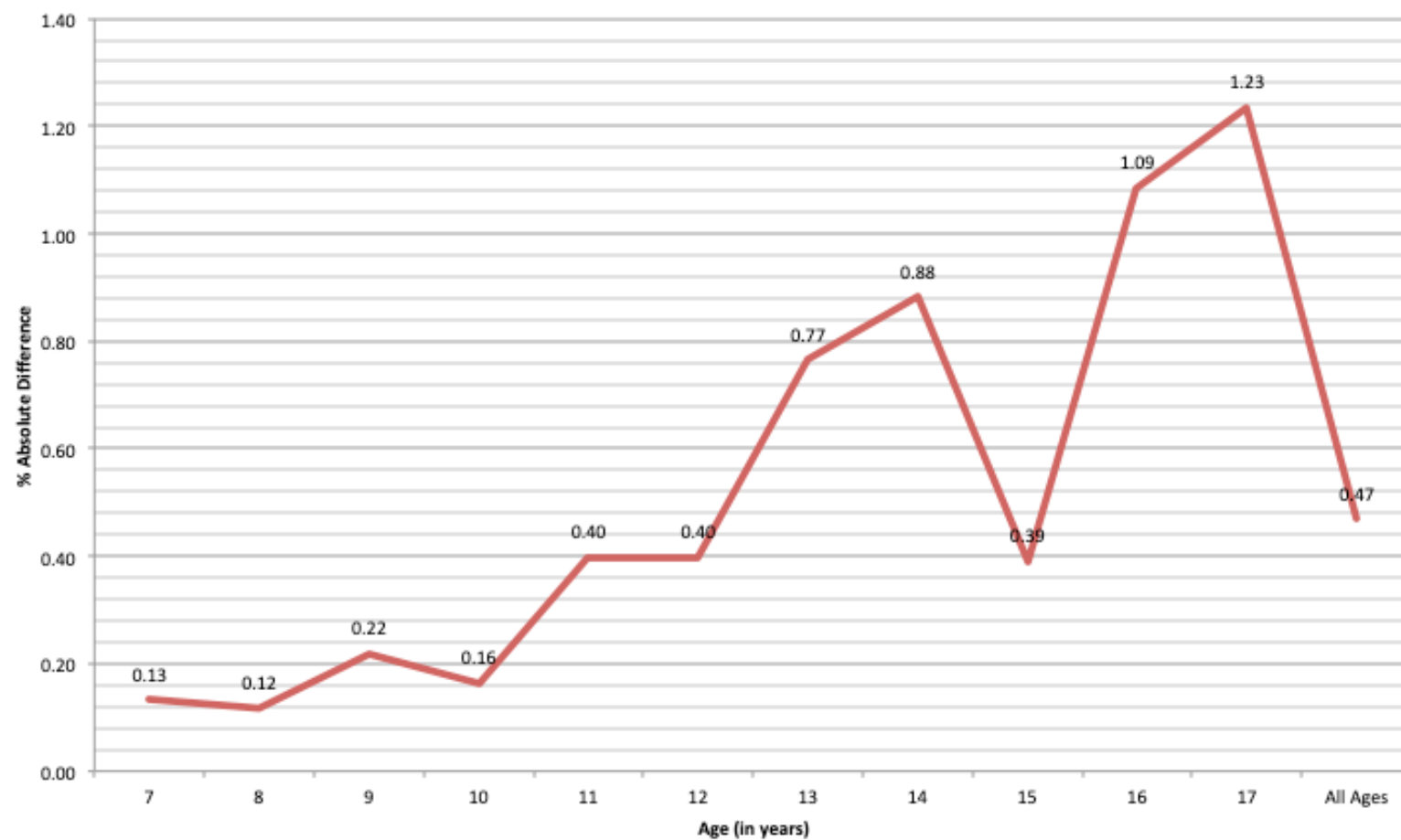
NATIONAL INSTITUTE OF DENTAL
RESEARCH
1986/87 LANDMARK STUDY – FINDINGS?

- Carlos and Brunelle - DMFS (128 tooth surfaces)
 - 0.6 tooth surfaces amounts to an Absolute difference of less than 1% of the 100-plus tooth surfaces in a child's mouth. (Report touted an 18% difference in decay rates based on a RELATIVE difference quotient)
- Yiamouyiannis - DMFT (28 teeth)
 - Relative difference of 4%. Absolute difference of less than 1/10th of a tooth.

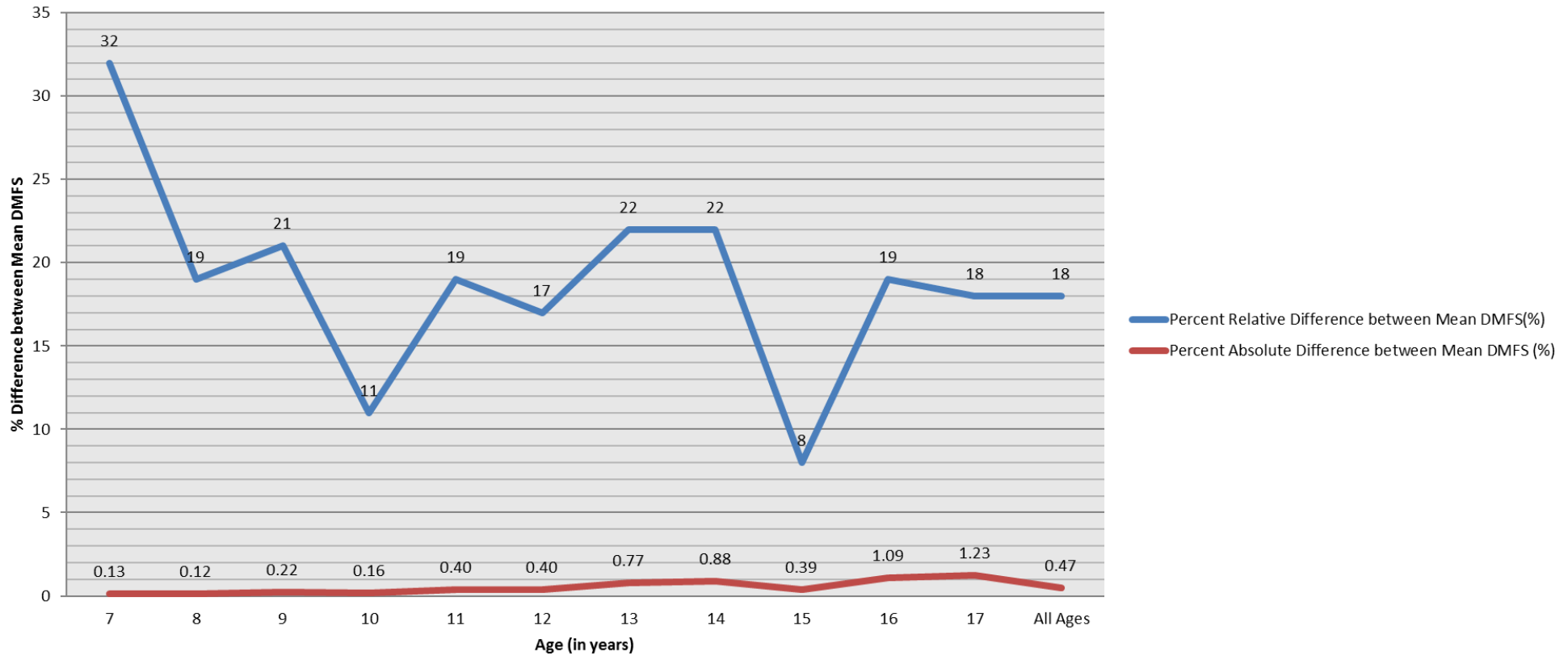
Percent Relative Difference between Mean DMFS vs. Age



Percent Absolute Difference between Mean DMFS vs. Age



Percent Difference Between Mean DMFS vs. Age



WHAT ABOUT BOTTLE-FED BABIES?

Human breast milk is very low in fluoride. (.004 ppm f vs .7 ppm– bottle fed baby can get greater than 100 x the level of mother's milk!)

How can you possibly control the dosage??

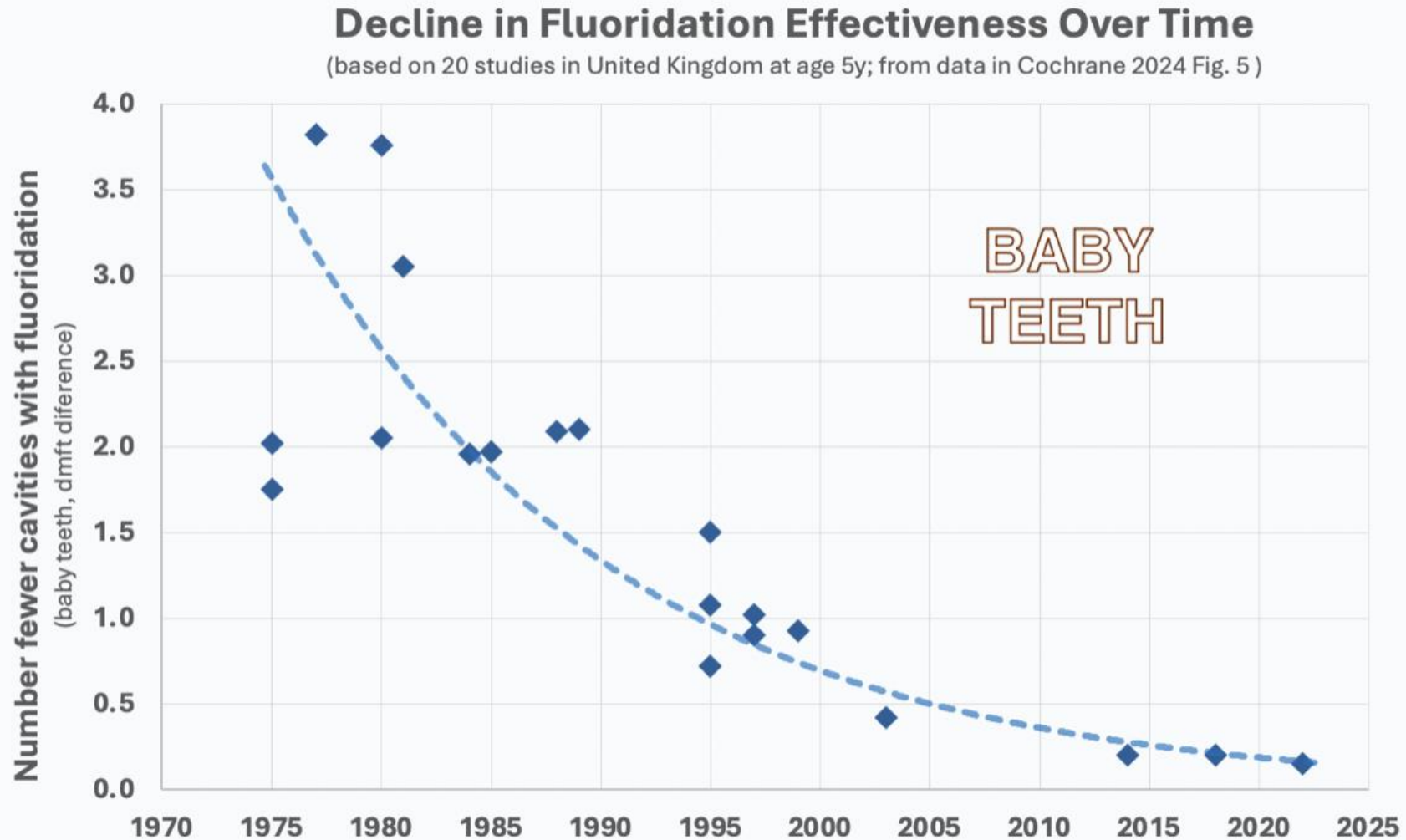


COCHRANE COLLABORATION

OCTOBER 6, 2024

- CONCLUSIONS – from 22 children’s studies and NONE in adults*
 - Average Benefit – ONLY “one quarter of a tooth”
 - “We could not be sure whether adding fluoride to water reduced tooth decay in children’s permanent teeth.”
 - “We were unsure whether there were *any* effects on tooth decay when fluoride is removed from a water supply.”
 - While 1970s studies showed young children in fluoridated areas *may* have saved as many as 4 cavities in their baby teeth, the most recent study from 2022 found a reduction of only 0.16 decayed teeth.
-
- * Search included studies dating back to the 70s – up to 2023. They found that 80% of all the PRO-fluoride studies were from prior to 1975 and of POOR quality.

COCHRANE COLLABORATION



2018 IOWA FLUORIDE STUDY (NIH)

- MOST Comprehensive Research Project on Fluoride in the US
- NO Significant Correlation Between Ingested Fluoride and Cavity Reduction...
- Further Validating its 2009 Study That Stated “recommending an ‘optimal’ fluoride intake is problematic.”

LOTUS STUDY – LARGE UK 10-YEAR COHORT STUDY ON FLUORIDE

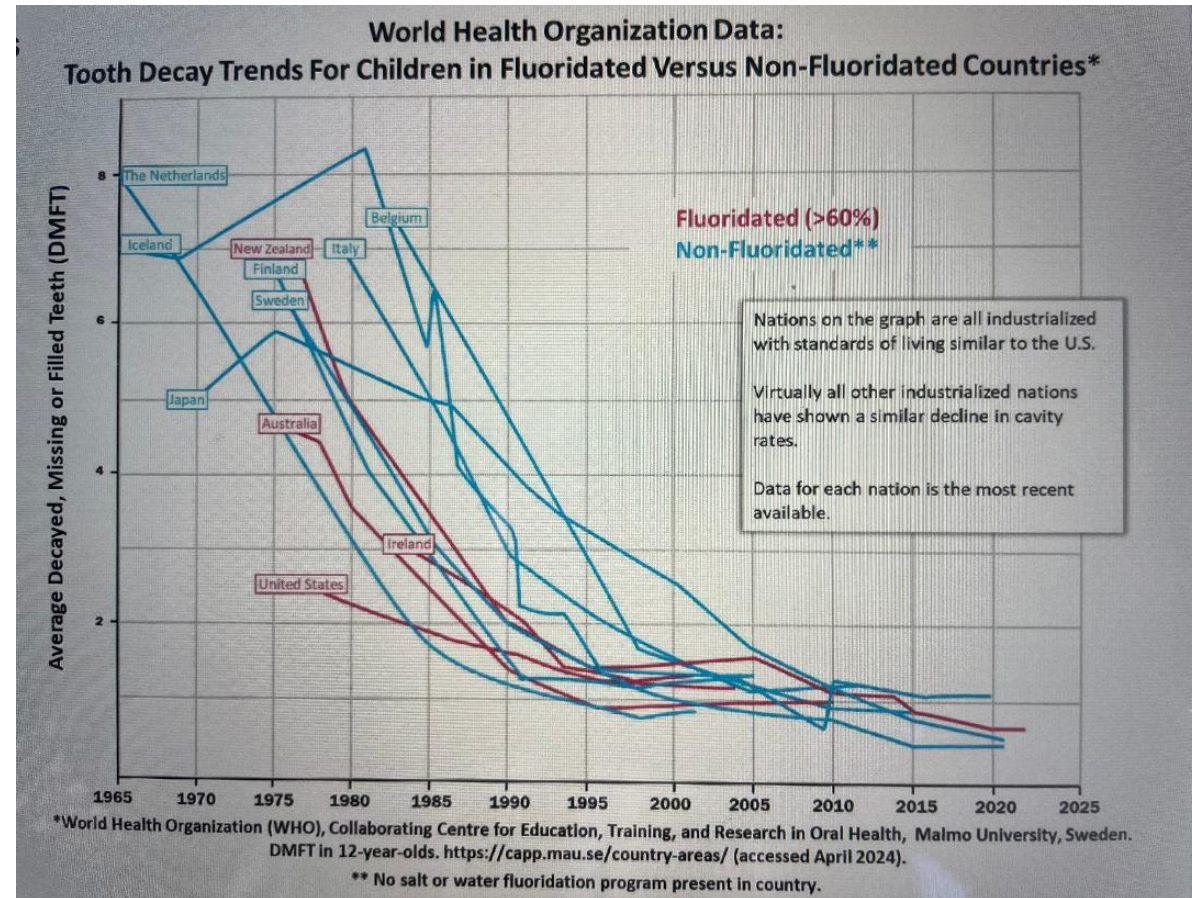
- 6.4 MILLION ADULTS:

Largest study of the effects of fluoridation on the dental health of adults.

- Fluoridation results in only 2% fewer cavities
- No reductions in social inequalities
- No reductions in missing teeth
- Fluoridation a likely net economic loss when capital costs are included

TIME TO END THE EXPERIMENT

- 95% of the world does NOT FLUORIDATE
- Of the 11 countries that do – the US provides fluoridated water for more humans than the other 10 countries combined!
- YET – decay rates are equal worldwide!





December 3rd, 2024

Fluoride and Neurodevelopment

Wausau Commission Meeting

Ashley Malin, PhD.

Assistant Professor

COLLEGE *of* **PUBLIC HEALTH & HEALTH PROFESSIONS**
and **COLLEGE OF MEDICINE**

[Environ Health Perspect.](#) 2012 Oct; 120(10): 1362–1368.

Published online 2012 Jul 20. doi: [10.1289/ehp.1104912](https://doi.org/10.1289/ehp.1104912)

PMCID: PMC3491930

PMID: [22820538](https://pubmed.ncbi.nlm.nih.gov/22820538/)

Developmental Fluoride Neurotoxicity: A Systematic Review and Meta-Analysis

[Anna L. Choi](#),¹ [Guifan Sun](#),² [Ying Zhang](#),³ and [Philippe Grandjean](#)^{1,4}

► [Author information](#) ► [Article notes](#) ► [Copyright and License information](#) [PMC Disclaimer](#)

Conclusion: *“The results support the possibility of an adverse effect of high fluoride exposure on children's neurodevelopment”*

Prenatal Fluoride Exposure and Cognitive Outcomes in Children at 4 and 6–12 Years of Age in Mexico

 This article accompanies [LOW PRENATAL EXPOSURES TO FLUORIDE: ARE THERE NEUROTOXIC RISKS FOR CHILDREN?.](#)

Authors: [Morteza Bashash](#), [Deena Thomas](#), [Howard Hu](#), [E. Angeles Martinez-Mier](#), [Brisa N. Sanchez](#), [Niladri Basu](#), [Karen E. Peterson](#), ... [SHOW ALL](#) ..., and [Mauricio Hernández-Avila](#) | [AUTHORS INFO & AFFILIATIONS](#)

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JAMA Pediatrics | [Original Investigation](#)

Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada

Rivka Green, MA; Bruce Lanphear, MD; Richard Hornung, PhD; David Flora, PhD; E. Angeles Martinez-Mier, DDS;
Raichel Neufeld, BA; Pierre Ayotte, PhD; Gina Muckle, PhD; Christine Till, PhD



RESEARCH

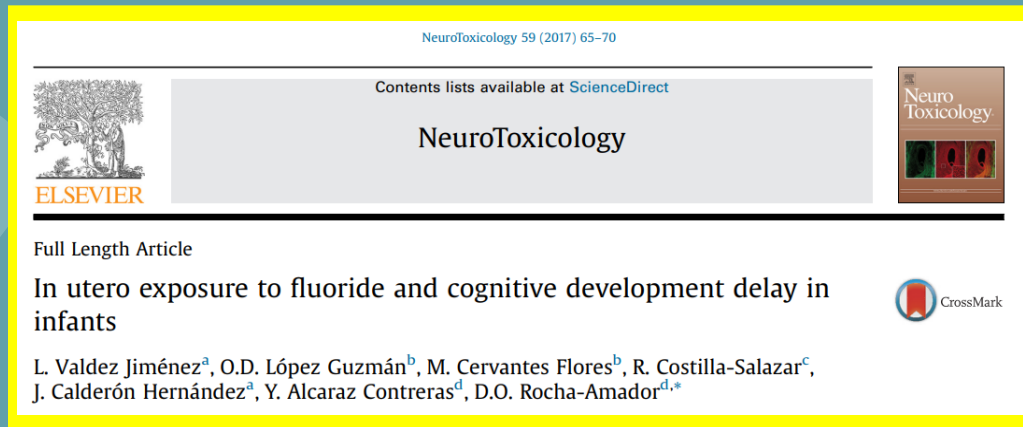
Open Access

Urinary fluoride levels and metal co-exposures among pregnant women in Los Angeles, California



Ashley J. Malin^{1*}, Howard Hu², E. Angeles Martínez-Mier³, Sandrah P. Eckel², Shohreh F. Farzan², Caitlin G. Howe⁴, William Funk⁵, John D. Meeker⁶, Rima Habre², Theresa M. Bastain² and Carrie V. Breton²

Prenatal Fluoride Exposure and Neurodevelopment



Dietary fluoride intake during pregnancy and neurodevelopment in toddlers: A prospective study in the progress cohort

Alejandra Cantoral^a, Martha M. Téllez-Rojo^{b,*}, Ashley J. Malin^c, Lourdes Schnaas^d, Erika Osorio-Valencia^d, Adriana Mercado^b, E. Ángeles Martínez-Mier^e, Robert O. Wright^c, Christine Till^f

Fluoride exposure during pregnancy from a community water supply is associated with executive function in preschool children: A prospective ecological cohort study

Deborah Dewey^{a,b,c,d,*}, Gillian England-Mason^{a,b,1}, Henry Ntanda^b, Andrea J. Deane^{a,b}, Mandakini Jain^e, Nadia Barnieh^b, Gerald F. Giesbrecht^{a,b,c,f}, Nicole Letourneau^{a,b,c,g,h}, APrON Study Team



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Environ Res. 2022 August ; 211: 112993. doi:10.1016/j.envres.2022.112993.

Domain-specific effects of prenatal fluoride exposure on child IQ at 4, 5, and 6–12 years in the ELEMENT cohort

Carly V. Goodman^a, Morteza Bashash^b, Rivka Green^a, Peter Song^c, Karen E. Peterson^c, Lourdes Schnaas^d, Adriana Mercado-García^e, Sandra Martínez-Medina^d, Mauricio Hernández-Avila^f, Angeles Martinez-Mier^g, Martha M. Téllez-Rojo^{e,*}, Howard Hu^b, Christine Till^a





NTP

National Toxicology Program
U.S. Department of Health and Human Services

NTP Monograph

**on the State of the
Science Concerning
Fluoride Exposure
and Neurodevelopment
and Cognition:
A Systematic Review**



N T P R e p o r t

- Comprehensive systematic review of the existing literature on early life fluoride exposure and child neurodevelopment
- Focused on human studies but also included animal and in vitro studies
- 72 total studies on fluoride and IQ

(NTP, 2024)

N T P R e p o r t

- “there is **moderate confidence** in the body of evidence that estimated fluoride exposure is **inversely associated with IQ in children**”
- “the moderate confidence in the inverse association between fluoride exposure and children’s IQ is **relevant to some children living in the United States**, including at a minimum those living in areas where fluoride in drinking water is known to be at or above 1.5 mg/L”

(NTP, 2024)

N T P R e p o r t

- Associations between drinking water fluoride levels below 1.5 mg/L and children's IQ remain “**unclear**”
- It is plausible that pregnant women and children living in optimally fluoridated communities could have a total fluoride intake at or above the level of those living in a community with a water fluoride level of 1.5 mg/L

(NTP, 2024)

- The NTP report highlighted a need for more US-based studies on fluoride and neurodevelopment



Original Investigation | Public Health

Maternal Urinary Fluoride and Child Neurobehavior at Age 36 Months

Ashley J. Malin, PhD; Sandrah P. Eckel, PhD; Howard Hu, MD, MPH, ScD; E. Angeles Martinez-Mier, PhD, DDS, MSD; Ixel Hernandez-Castro, PhD; Tingyu Yang, MS; Shohreh F. Farzan, PhD; Rima Habre, ScD; Carrie V. Breton, ScD; Theresa M. Bastain, PhD

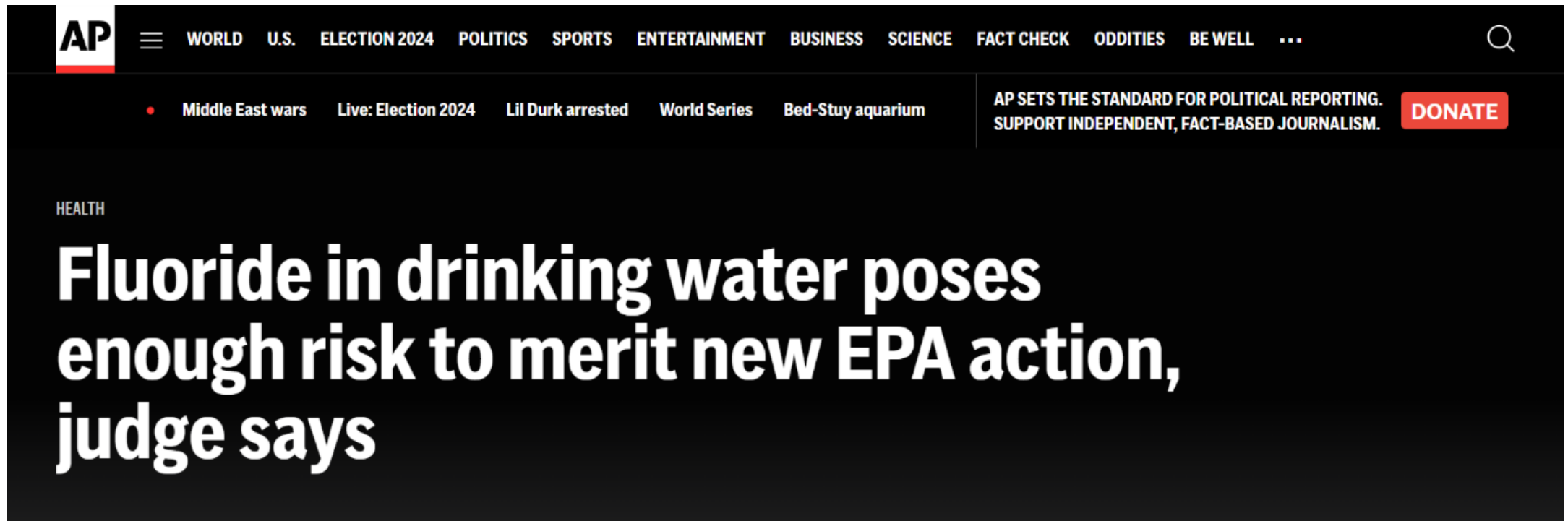
Potential Mechanisms of Neurotoxicity

- Fluoride can readily cross the placenta
- Accumulate in brain regions implicated in **learning, memory, mood, attention** and **executive function**
 - Alters cholinergic activity
 - Increases oxidative stress
 - Alters glutamate metabolism



(Bartos et al., 2018, 2022; Chen et al., 2003; Mullenix, 1995; Sun et al., 2018)

F e d e r a l R u l i n g :



The image is a screenshot of the AP News website. At the top, there is a navigation bar with the AP logo on the left and a list of categories: WORLD, U.S., ELECTION 2024, POLITICS, SPORTS, ENTERTAINMENT, BUSINESS, SCIENCE, FACT CHECK, ODDITIES, BE WELL, and a search icon on the right. Below the navigation bar, there is a secondary bar with a red dot next to 'Middle East wars', followed by 'Live: Election 2024', 'Lil Durk arrested', 'World Series', and 'Bed-Stuy aquarium'. To the right of this bar is a red button labeled 'DONATE' and text that reads 'AP SETS THE STANDARD FOR POLITICAL REPORTING. SUPPORT INDEPENDENT, FACT-BASED JOURNALISM.' Below this, the word 'HEALTH' is displayed in a small font. The main headline is 'Fluoride in drinking water poses enough risk to merit new EPA action, judge says' in large, bold, white text.

AP

WORLD U.S. ELECTION 2024 POLITICS SPORTS ENTERTAINMENT BUSINESS SCIENCE FACT CHECK ODDITIES BE WELL ...

• Middle East wars Live: Election 2024 Lil Durk arrested World Series Bed-Stuy aquarium

AP SETS THE STANDARD FOR POLITICAL REPORTING. SUPPORT INDEPENDENT, FACT-BASED JOURNALISM. **DONATE**

HEALTH

Fluoride in drinking water poses enough risk to merit new EPA action, judge says

F e d e r a l R u l i n g :

- “the Court finds that fluoridation of water at 0.7 milligrams per liter (“mg/L”) – the level presently considered “optimal” in the United States – poses an **unreasonable risk of reduced IQ in children.**”
- “The scientific literature in the record provides a **high level of certainty that a hazard is present; fluoride is associated with reduced IQ.**”

(Case 3:17-cv-02162-EMC Document 445)

F e d e r a l R u l i n g I m p l i c a t i o n s

- There is not enough of a margin of safety between the hazard level and exposure level of fluoride in drinking water for dental caries prevention (i.e., 0.7 mg/L)
- The EPA's default standard is for there to be a **factor of 10** between the hazard level and exposure level
- According to the NTP report, **the hazard to child IQ exists at 1.5 mg/L**

F e d e r a l R u l i n g I m p l i c a t i o n s

- According to the EPA's default standard:

The fluoride concentration in drinking water would need to be **0.15 mg/L or lower** to provide enough of a margin of safety **to protect child IQ**

Questions

ashleymalin@ufl.edu





To: Wausau Water Works Commission

From: Scott Boers, Water Operations Superintendent

Date: 11/25/2024

Subject: Update on Meter Replacements and Schedule Moving Forward into 2025

All,

To date in 2024, the water department has changed over 2263 meters. Of those, 1603 were the typical household "5/3" meter. Of the 1603 meters 39% failed to meet 91% accuracy, and the average low flow rate accuracy was 71.4 %. These numbers are not completely representative of what is in the system since we are focusing on dead and troubled meters but shows the importance of removing these meters from the system.

As we work towards making these changeouts more efficient, there are several challenges that will need to be addressed. The utility will be meeting with the finance department before the beginning of the new year to start working on efficiencies to make the process as streamlined as possible. Topics of discussion will include information gathering and updating of accounts, updating and adding information to billing system reports, meter reading and bill closing schedules, and adding an on-line interactive calendar for residents to schedule meter appointments.

Streamlining these processes will not only improve the meter changeouts but will be necessary, as we look at moving to monthly billing in the future.



TO: Wausau Waterworks Commission

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

DATE: December 3, 2024

SUBJECT: 2024 LSL Project Completion and 2025 LSL Replacement Funding

With available funding from the WDNR in 2024 Wausau replaced over 600 LSL's. The 2024 project overall went well with some items learned related to communication outreach, scheduling with homeowners and 3rd party inspections and data collection.

As we predicted 80% of the work to complete LSL replacement is community outreach, gathering permissions and scheduling the work. This prediction held true throughout this year and we will be making adjustments to our outreach program, our method of scheduling and how we are collecting the data once work is completed. A quick recap of the accomplishments for 2024:



As of
Nov 6th, 2024

**Includes in-person verifications from canvassing and self-verification submissions online from the project website.*



Total number of homes in Phase 1 census tracts



Total number of home visits (canvassing) in Phase 1 census tracts to date



Total number of homes verified in Phase 1 census tracts to date



Total number of homes eligible for replacement
(lead found upon verification)



Total number of ROE forms signed and returned to the EquiFlow team

Number of LSLs Replaced

629

Year 1 Results	Cost	Cost/LSL	%
Hard Construction Costs - Partial	\$3,007,680	\$4,820	55.3%
Hard Construction Costs - Full	\$30,000	\$6,000	0.6%
Construction Contingency	\$252,135	\$401	4.6%
Engineering, Bid Preparation & Procurement	\$200,785	\$319	3.7%
Inspection, Scheduling, Job Costing, Software	\$684,650	\$1,088	12.6%
Permitting	\$82,085	\$131	1.5%
Water Filters	\$48,433	\$77	0.9%
Outreach	\$413,336	\$657	7.6%
CIP General Requirements Fee	\$117,978	\$188	2.2%
CIP Base Construction Fee	\$362,781	\$577	6.7%
CIP Performance-Based Fee	\$241,854	\$385	4.4%
Total	\$5,441,717	\$8,651	100.0%

Original # of LSLs Projected (DNR Application)

553

Not-To-Exceed Budget	Original	Cost/LSL	%
Hard Construction Costs - Partial	\$3,321,630	\$6,007	58.7%
Hard Construction Costs - Full	\$0	\$0	0.0%
Construction Contingency	\$332,163	\$601	5.9%
Engineering, Bid Preparation & Procurement	\$200,785	\$363	3.5%
Inspection, Scheduling, Job Costing, Software	\$595,000	\$1,076	10.5%
Permitting	\$0	\$0	0.0%
Water Filters	\$42,581	\$77	0.8%
Outreach	\$413,336	\$747	7.3%
CIP General Requirements Fee	\$122,637	\$222	2.2%
CIP Base Construction Fee	\$377,110	\$682	6.7%
CIP Performance-Based Fee	\$251,407	\$455	4.4%
Total	\$5,656,650	\$10,229	100.0%

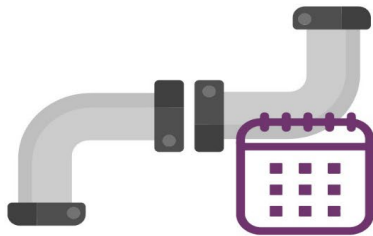
Moving into 2025 we are looking to complete the following based on the WDNR 2025 LSL Funding allocation:



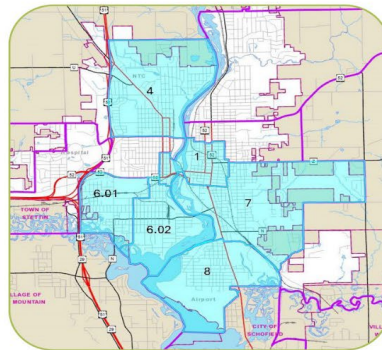
\$14,959,156
AWARDED

by the DNR for Year 2
(2025) of the Program

\$8,846,859 & **\$6,112,297**
Principal Forgiveness & Loans



1,862 anticipated to
be replaced in
Year 2 (2025)
LSLs



6
CENSUS TRACTS
to receive LSL
replacements in 2025
(1, 4, 6.01, 6.02, 7, 8)



CITY OF WAUSAU

SOLE SOURCE PURCHASE JUSTIFICATION

REQUIRED FORM PURCHASE OF GOODS OR SERVICES EXCEEDING \$5,000

Purchase of goods or services for no more than \$25,000 may be made without competition when it is agreed *in advance* between the Department Head and the Finance Director. Sole source purchasing should be avoided unless it is clearly necessary and justifiable. The justification must withstand public and legislative scrutiny. The Department Head is responsible for providing written documentation justifying the valid reason to purchase from one source or that only one source is available. Sole source purchasing criteria include: urgency due to public safety, serious injury financial or other, other unusual and compelling reasons, goods or service is available from only one source and no other good or service will satisfy the City's requirements, legal services provided by an attorney, lack of acceptable bids or quotes, an alternate product or manufacturer would not be compatible with current products resulting in additional operating or maintenance costs, standardization of a specific product or manufacturer will result in a more efficient or economical operation or aesthetics, or compatibility is an overriding consideration, the purchase is from another governmental body, continuity is achieved in a phased project, the supplier or service demonstrates a unique capability not found elsewhere, the purchase is more economical to the city on the basis of time and money of proposal development.

1. Sole source purchase under \$5,000 shall be evaluated and determined by the Department Head.
2. Sole source purchase of \$5,000 to \$25,000 a formal written justification shall be forwarded to the Finance Director who will concur with the sole source or assist in locating additional competitive sources.
3. Sole source purchase exceeding \$25,000 must be approved by the Finance Committee.

-
1. Provide a detailed explanation of the good or service to be purchased and vendor.

Contract with Asterra for Satellite Leak Detection. Asterra uses a patented technology to see below ground using radio wave lengths from satellites.

2. Provide a brief description of the intended application for the service or goods to be purchased.

The ground penetrating imaging will be used to determine areas within the water distribution system that have leaks. Once the imagery is reviewed and areas are identified then on ground crews will identify specific locations and mark the leaks for repair.

3. State why other products or services that compete in the market will not or do not meet your needs or comply with your specifications.

This is a patented product.

4. Describe your efforts to identify other vendors to furnish the product or services.

Patented product.

5. How did you determine that the sole source vendor's price was reasonable?

Compared pricing to our bi-annual correlating contract pricing.

6. Which of the following best describes this sole source procurement? Select all that apply.

- ☒ Product or vendor is uniquely qualified with capability not found elsewhere.
- ☐ Urgency due to public safety, serious financial injury or other. (explain) – Community Development urgency and desire to expedite redevelopment at this site.
- ☐ The procurement is of such a specialized nature that by virtue of experience, expertise, proximity or ownership of intellectual property
- ☐ Lack of acceptable quotes or bids.
- ☐ Product compatibility or the standardization of a product.
- ☐ Continuation of a phased project.
- ☐ Proposal development is uneconomical.

Department: DPWU

Preparer: Eric Lindman

Vendor Name: Asterra

Expected amount of purchase or contract: \$TBD

Department Head Signature:

Date:

Finance Director Signature:

Date:



To: Wausau Waterworks Commissioners

Re: Bi-Annual Wastewater Treatment Plant Inspection and Final Determination of Class A, Exceptional Quality Biosolids by the WDNR.

Date: November 20, 2024, at 9:30am-4:00pm

On 11/20/24, WDNR staff were on site at the Wausau Wastewater Treatment Plant to perform the bi-annual inspection of the treatment plant and also discuss the final determination of the Class A, Exceptional Quality, Biosolids. WDNR staff present; Nicholas Lindstrom (Basin Engineer), Fred Hegeman (Biosolids Coordinator), Amy Garbe (Permit Writer), Victoria Ziegler (Permit Writer) and Sawyer Hanson (DNR staff). WWTP staff present; Ben Brooks, Jason Schill and Jeremy Steinman. Donohue Engineer present; Allen Howe.

Below is a recap of the Inspection and biosolids determination.

- 1.) Class A, EQ, Biosolids. Verbal approval was provided by Fred Hegeman and he will be sending an official approval letter soon.
- 2.) Exclusion of a Mercury limit within the next WPDES permit term. WDNR will be meeting on 11/22/24 to review data and to make their final decision. If the WDNR determines a Mercury limit is not required, the City will be required to submit a letter of recission to rescind the Mercury variance request that was submitted during the permit renewal application process.
- 3.) July 8, 2020, Effluent Copper result may initiate a copper limit on Effluent within the next permit term. If the City can determine that this data point was reported or calculated in error, no limit will be required. I am working with Badger Labs currently on this investigation.
- 4.) The Inspection went very well overall and the WDNR stated to keep up the excellent work.



Brad Wendtland, the Wastewater Operations Supervisor received the prestigious 2024, Wisconsin Wastewater Operators Association (WWOA), North Central Region, Operator of the Year award during the 58th Annual **WWOA Conference which was held in Appleton, Wi. in October.**

The Wastewater Operator of the Year Award recognizes an individual whose dedication, skills, and expertise go above and beyond the call of duty. This award celebrates their unwavering commitment to protecting one of our most valuable resources – water.

This award not only acknowledges technical competence and reliability, but it also honors leadership, innovation, and a strong sense of responsibility. Wastewater Operators are the unsung heroes working behind the scenes, ensuring that the water we use and discharge meets the highest standards for safety and quality.

The recipient embodies all these qualities and more and must be a driving force in the wastewater profession. They must consistently demonstrate exceptional skill, dedication, and possess a deep understanding of wastewater systems.

Brad has not only mastered the technical aspects of his job, but has also been an inspiring leader to colleagues, helping them grow and thrive in their roles. His accomplishments are vast. From programming a basic sampler to surviving an \$80M dollar entire plant upgrade and keeping his sanity. Brad has made lasting impacts that will benefit the City of Wausau for years to come. It's not just about performing daily operations—it's about forward-thinking.

Congratulations to Brad Wendtland for a job well done!

Ben Brooks

Wausau Waterworks -Wastewater, Superintendent





CITY OF WAUSAU
SOLE SOURCE PURCHASE JUSTIFICATION
REQUIRED FORM PURCHASE OF GOODS OR SERVICES EXCEEDING \$10,000

Purchase of goods or services for no more than \$25,000 may be made without competition when it is agreed *in advance* between the Department Head and the Finance Director. Sole source purchasing allows for the procurement of goods and services from a single source without soliciting quotes or bids from multiple sources. Sole source procurement cannot be used to avoid competition, rather it is used in certain situations when it can be documented that a vendor or contractor holds a unique set of skills or expertise, that the services are highly specialized or unique in character or when alternate products are unavailable or unsuitable from any other source. Sole source purchasing should be avoided unless it is clearly necessary and justifiable. The justification must withstand public and legislative scrutiny. The Department Head is responsible for providing written documentation justifying the valid reason to purchase from one source or that only one source is available. Sole source purchasing criteria include: urgency due to public safety, serious injury financial or other, other unusual and compelling reasons, goods or service is available from only one source and no other good or service will satisfy the City's requirements, legal services provided by an attorney, lack of acceptable bids or quotes, an alternate product or manufacturer would not be compatible with current products resulting in additional operating or maintenance costs, standardization of a specific product or manufacturer will result in a more efficient or economical operation or aesthetics, or compatibility is an overriding consideration, the purchase is from another governmental body, continuity is achieved in a phased project, the supplier or service demonstrates a unique capability not found elsewhere, the purchase is more economical to the city on the basis of time and money of proposal development.

1. Sole source purchase under \$10,000 shall be evaluated and determined by the Department Head.
2. Sole source purchase of \$10,001 to \$25,000 a formal written justification shall be forwarded to the Finance Director who will concur with the sole source or assist in locating additional competitive sources.
3. Sole source purchase exceeding \$25,000 must be approved by the Finance Committee.

☐

Ongoing Sole Source – 365 days

☒

One Time Sole Source Request

1. Provide a detailed explanation of the good or service to be purchased and vendor.

Kocourek Ford / 2024 Ford Transit cargo van

2. Provide a brief description of the intended application for the service or goods to be purchased.

This is an All Wheel Drive Cargo Van used as a meter exchange van

3. State why other products or services that compete in the market will not or do not meet your needs or comply with your specifications.

There is no other companies that offer AWD

4. Describe your efforts to identify other vendors to furnish the product or services.

I have contacted all of the local dealerships in our area. Ford, Chevrolet, Dodge and GMC Ford was the only one to offer AWD.

5. How did you determine that the sole source vendor's price was reasonable?

I compared to other Ford dealerships in the surrounding area.

6. Which of the following best describes this sole source procurement? Select all that apply.

- ☒ Product or vendor is uniquely qualified with capability not found elsewhere.
- ☐ Urgency due to public safety, serious financial injury or other. (explain)
- ☐ The procurement is of such a specialized nature that by virtue of experience, expertise, proximity or ownership of intellectual property.
- ☐ Lack of acceptable quotes or bids.
- ☐ Product compatibility or the standardization of a product.
- ☐ Continuation of a phased project.
- ☐ Proposal development is uneconomical.

Department: Wausau Water Utility

Preparer: Shannon Lane

Vendor Name: Kocourek Ford

Expected amount of purchase or contract: \$60,118.50

Department Head Signature:

Date:

Finance Director Signature:

Date: