MEMORANDUM

TO: Corpus Christi Mayor Paulette Guajardo and City Council Members
Port of Corpus Christi Commission Chair David Engel and Port Commission Members
Corpus Christi City Manager Peter Zanoni and City staff
Port of Corpus Christi Chief Executive Officer Kent Britton and Port staff

FROM: Chispa Texas
Coastal Bend Audubon Society
Coastal Watch Association
Concerned Citizens of Calallen and Robstown
For The Greater Good
Hillcrest Residents Association
Portland Citizens United
Sierra Club; Lone Star Chapter, Coastal Bend Group
Surfrider Foundation; Texas Coastal Bend Chapter
Texas Campaign For The Environment

RE: PFAS contamination in Corpus Christi Inner Harbor

DATE: June 26, 2025

CC: Texas Commission on Environmental Quality
Texas Water Development Board
U.S. Environmental Protection Agency, Region 6
Nueces County Judge Connie Scott and County Commissioners
Corpus Christi-Nueces County Public Health District
Harte Research Institute, Texas A&M University, Corpus Christi

---

We have recently learned that eight surface water samples drawn from the Corpus Christi Inner Harbor in November 2024 were all determined to have contained "forever chemicals" – a chemical family known as PFAS (per- and polyfluoroalkyl substances). One of those eight samples contained a PFAS compound in excess of the allowed concentration in drinking water set by the Biden Administration last year and reaffirmed by the Trump Administration just last month. The presence of any amount of PFAS in the Inner Harbor is unquestionably of serious concern from a public health perspective given the City's plan to build a desalination facility that would treat water from, and discharge effluent into, that body.

As you may be aware, PFAS – a family of over 12,000 man-made, synthetic chemical compounds with a range of commercial and industrial applications – are known as "forever chemicals" due to their persistence and bioaccumulation in the environment (including in sediment, water and air), in wildlife (especially in aquatic life), and in the human body. Extensive research has linked exposure to PFAS chemicals to an increased risk of numerous

adverse human health outcomes, including cancers of the pancreas, kidney, bladder and thyroid; reproductive and developmental issues; liver damage; compromised immune systems; and endocrine disruption. Children and the elderly are believed to be particularly susceptible to impacts from exposure.

Two of the most common members of the PFAS chemical family in the United States – PFOS and PFOA – have been the most studied for health risks, and as a result are both now regulated by the Environmental Protection Agency (EPA) under multiple federal statutes. Under the Safe Drinking Water Act, all U.S. drinking water is confined to a "Maximum Contaminant Level" (MCL) of 4 parts per trillion (ppt). In addition, the EPA has also established, and recently reaffirmed, a "Maximum Contaminant Level Goal" (MCLG) of 0 ppt, defined as the level "*below which there is no known or expected risk to health."* In other words, while enforcement action will be triggered at 4 ppt or above (beginning in 2031), the EPA's position has been and currently remains that *the only truly safe amount of PFOS or PFOA in drinking water is none*.

Analysis of one of the eight November 2024 Inner Harbor surface water samples detected PFOS at *5.5 ppt.* The remaining seven readings showed PFOS levels ranging from 2.4 ppt to 3.2 ppt, for an average reading across all eight samples of 2.8 ppt. Considering the intensely bioaccumulative nature of PFOS, the concentrations are likely to be much higher in the Inner Harbor's aquatic life and sediments than they are at the water's surface. This level of PFOS in the Inner Harbor raises at least two major public health concerns related to the City's desalination plans: First, that *some amount of PFOS would enter the regional drinking water supply*; and second, that *PFOS accumulation in a localized area of the Inner Harbor would dramatically increase as the result of concentration in the desal effluent.*

Regarding the risk of introducing PFOS into our drinking water, we are aware of studies cited by the EPA and others indicating that reverse osmosis (RO) filtration systems (the technology planned for the Inner Harbor facility) can remove 90% or more of PFOS and other PFAS compounds, with some even achieving removals of 99%, *when treating municipal drinking water containing total dissolved solids (TDS) below 1,000 mg/l*. However, the intake water at the City's Inner Harbor facility would be sea water with TDS levels of approximately 35,000 mg/l, as *much as 35 times higher than what PFAS removal studies have evaluated*. While it's certain that very high TDS levels would have a negative impact on the PFOS removal performance of the City's RO filtration system, as far as we have determined, there is simply *no available data* indicating exactly what the nature or scope of that impact could be, leaving *also* unknown what steps could be required to achieve consistent PFOS removal, and *at what cost to Corpus Water ratepayers*.

Nonetheless, even assuming that the City plant's RO system was able to successfully remove PFOS at a 95% level, if the Inner Harbor's initial PFOS level was consistent with the November 2024 average sample concentration of 2.8 ppt, *the drinking water produced by the desalination plant would still contain PFOS at 0.14 ppt* – not only above the EPA's MCLG of 0 ppt, but also 7 times the agency's 2022 "lifetime health advisory level" of 0.02 ppt. We note that City staff has indicated that drinking water produced from the desal plant would be mixed with other water

from the O.N. Stevens Treatment Plant, but while this may help to further reduce PFAS compounds in the water distributed to residents across the region, *it will not eliminate them*.

To the City's credit, Corpus Water has previously tested our drinking water supply for contaminants and found unregulated PFAS compounds, but no PFOS or PFOA. Given this, it is profoundly disturbing to consider that the City would now allow the Inner Harbor desalination plant to potentially inject toxic PFOS into that same water supply.

The second major PFOS health risk of desalination in the Inner Harbor relates to the effluent. Even assuming that the planned facility's RO system could be effective at removing most, but not all, PFOS from the treated water, *the filtered contaminants would not disappear; instead, they would be concentrated in the brine discharge*, leading to increased concentrations at *multiple levels higher in the discharge relative to the intake*. Thus the desal plant could actually become *a point source of PFOS pollution*, cycling elevated levels of concentrated PFOS back into the Inner Harbor with each batch of treated water, raising a range of concerns.

As noted, PFOS and PFOA are notorious for their ability to bioaccumulate, particularly in aquatic life. Once these compounds enter the water, they are taken up by small organisms and progressively concentrated as they move up the food chain – a process known as biomagnification. Predators, like game fish, can end up with PFAS levels multiplicatively higher than the waters in which they live. For example, Minnesota and Wisconsin have been monitoring for PFAS in fish for decades, and have determined that concentrations of PFOS in particular can be over *7,000 times higher in fish tissue* than in the surrounding water.

Given the risk to aquatic life and to humans who may consume contaminated fish / shellfish, in addition to establishing the MCL and MCLG standards for PFOS / PFOA in *drinking water*, the EPA has also recently issued "human health criteria" for *surface water*, recommended at 0.0009 ppt for PFOA and 0.06 ppt for PFOS. Notably, these levels are *well below current detection capabilities*, suggesting once again that the EPA considers PFAS compounds, whether in drinking water or in surface water, to be a threat to human health *at any concentration level above 0*. It should go without saying that while the Inner Harbor is a secure area and off limits to recreational boating and fishing, aquatic life (as well as water itself) moves freely between the Inner Harbor and the Corpus Christi Bay. For the City to discharge concentrated PFOS into waters populated by Redfish, Speckled Trout, Flounder and other gamefish ultimately caught in the Bay and *consumed by local and visiting anglers and their families* would amount to a shocking disregard for the EPA's recommendations and the known risks of bioaccumulation.

To point, a recent study by Environmental Working Group scientists found that consuming a single serving of fish containing PFAS at 9,500 ppt would equate to drinking a month's worth of water containing PFAS at 48 ppt, or 12 times the EPA limit. This means that if a fish from the Inner Harbor accumulated PFOS at the 7,000x factor observed in Minnesota and Wisconsin, just 2.8 ppt PFOS in the water would yield a fish containing 19,600 ppt PFOS; eating a single serving of that fish would be the equivalent of *drinking a month's worth of water containing PFOS at 99 ppt, or nearly 25 times the EPA limit*.

But most immediately concerning from a regulatory perspective is the EPA's recent listing of both PFOS and PFOA as *hazardous substances* under CERCLA (commonly known as the Superfund law). However neither the City's NPDES discharge permit, recently issued by the TCEQ, nor any of the City's supporting documentation, makes any mention of PFAS. While this is unsurprising vis-à-vis the permit given that Texas has not yet adopted PFAS limits, we believe it nonetheless means that the Inner Harbor facility is not legally permitted, given the CERCLA designation, to discharge *any* PFAS. And while the final facility as planned may not exceed the current reportable discharge limits in any 24-hour period based on the average sample reading of 2.8 ppt PFOS, if concentrations were significantly higher than measured, or if future regulations lowered the reporting requirement (which is most likely to happen), the facility could easily be out of compliance or subject to enforcement. Regardless, it is troubling that despite the prominence of PFAS in the dialogue among water professionals – indeed, *it was the topic of a panel discussion at Corpus Water's own professional conference last month* – the City appears to have pursued a discharge permit without giving any consideration to the possible presence of PFAS in the Inner Harbor, or its potential for entry into the region's drinking water.

Finally, we note that the EPA has also recently proposed to list both PFOS and PFOA – as well as seven other "forever chemicals" – as *hazardous waste* under RCRA (the Resource Conservation and Recovery Act). This is a broadly-acknowledged first step toward a formal designation that would require a generator to utilize RCRA-permitted Treatment, Storage and Disposal Facilities (TSDF) to handle waste, typically at great operational expense. If listed, the only way a hazardous waste could be lawfully discharged as effluent would be *if the release were specifically allowed by the facility's NPDES discharge permit.* Regardless, even if the City's NPDES permit was ultimately amended to allow the discharge of hazardous wastewater, if PFOS/PFOA is listed and is present at a level above the hazardous waste threshold in the facility's remaining waste stream – e.g., spent filters and sludge – it would all still be subject to the costly requirement for permitted TSDF disposal.

ADDITIONAL BACKGROUND INFORMATION

As both the Port and the City are aware, the November 2024 Inner Harbor surface water samples revealing PFOS contamination were taken, and their analysis overseen, by Dr. William J. Rogers. Dr. Rogers is a Texas A&M University System Regents Professor and Director of Environmental Science at West Texas A&M University. Through his consulting firm, Dr. Rogers was commissioned to conduct the analysis by Dr. Darrell Brownlow and Dr. Michael L. Mintz. Dr. Brownlow is an environmental consultant and expert in groundwater hydrology. Dr. Mintz is a board-certified otolaryngologist with expertise in thyroid cancer surgery.

Dr. Brownlow and Dr. Mintz are partners in an enterprise that has proposed to sell desalinated brackish groundwater in Corpus Christi and elsewhere. *Our groups are in no way affiliated with their enterprise or their proposal.* Dr. Mintz relayed to us that in January of 2025, he shared the details of Dr. Roger's PFOS sampling results with the CEO of the Port and several of its commissioners, as well as the Corpus Christi city manager, the COO of Corpus Water, and

several city council members. Alarmed by the lack of response from both the Port and City, Dr. Mintz and Dr. Brownlow approached our groups with Dr. Rogers' findings last month. Similarly, we are deeply concerned that the Port and City, having known in some cases for *five months* that the Inner Harbor likely contains some level of PFOS contamination, have not only taken no known action, but in the case of City management appears to have charged ahead with plans to construct the desal facility *without any public acknowledgement of the possible health risk* or its implications for the project, or *any effort to independently test the Inner Harbor for PFAS*.

Indeed, the only known public discussion of PFAS contamination in the Inner Harbor by *any* City official over the entire years-long duration of project planning occurred at a Corpus Christi City Council meeting on March 25th of this year, when Council Member Gil Hernandez questioned Jason Cocklin of Freese and Nichols, the City's lead consultant on the Inner Harbor plant:

> *Council Member Hernandez: We had somebody do some work on PFAS within the Inner Harbor, and what we do with it afterwards. Obviously we haven't studied it. Will GHD look at that? Will Kiewit look at mitigation of the PFAS?*
>
> *Jason Cocklin: The best physical barrier for PFAS is RO (reverse osmosis). So if there's PFAS in the Inner Harbor ship channel, it will come out in the process. Now, it will be in the concentrate … but there's not a concern that we've run across that there's not an engineering solution for. So if there are regulations that come out for PFAS in wastewater discharges … then we'll have to polish the concentrate and remove that PFAS.*
>
> *Council Member Hernandez: And how much is that going to cost?*
>
> *Jason Cocklin: I don't have a number. It's not insignificant at this volume.*
>
> *Council Member Hernandez: That will be something we'll have to consider. I know that the EPA is looking at this in parts per trillion. So if they're that concerned about it, in parts per trillion, then it's something we need to be cognizant of.*
>
> *Jason Cocklin: We are talking about something that's already in the ship channel, so this is not anything that we're adding.*
>
> *Council Member Hernandez: Yeah, but if you're going to take it out, I don't think you should put it back in.*
>
> *Jason Cocklin: And that's probably what regulators will say.*

RECOMMENDATION

In light of the above – the health risks tied to PFAS, the documented PFOS contamination in the Inner Harbor, the potential for PFOS to enter the region's drinking water via the Inner Harbor

desalination facility, the potential for desal effluent to accelerate bioaccumulation in local aquatic life, and the range of associated health, regulatory and cost implications – we strongly urge the Port of Corpus Christi and the City of Corpus Christi to take immediate, proactive measures *before* the City moves forward with the Inner Harbor desalination facility.

Specifically, we recommend the following:

1. *Immediately authorize a comprehensive study of PFAS contamination in the Inner Harbor, Corpus Christi Bay, and Nueces Bay (the Nueces Bay Power Station takes in water from the Inner Harbor and discharges it into Nueces Bay).* This should include expanded water sampling for PFOS, PFOA, and other relevant PFAS compounds at multiple locations and depths, as well as testing of sediments and a range of aquatic life to assess bioaccumulation levels. The study should be conducted by independent qualified experts and designed to establish a baseline PFAS profile. The study should assess whether PFAS are present at levels that pose ecological or human health risks in surface water or treated drinking water.

2. *Based on the study findings, develop a comprehensive risk assessment and a responsive operational plan to ensure that the Inner Harbor desalination facility will protect public health and comply with federal regulations.* The plan should ensure, among other things, that all drinking water produced by the facility meets the EPA's MCLG of 0 ppt; that all discharge meets the EPA's "human health criteria" for PFOS / PFOA for surface water; that the facility is permitted to discharge PFAS contaminants, as contemplated under CERCLA; and that the City can effectively and economically manage disposal of *all* waste streams in the likely event that PFOS and PFOA are designated as hazardous waste under the RCRA.

3. *Delay any additional engineering or construction of the desalination plant pending results of the PFAS study and development of an operational plan.* If the study confirms significant PFAS contamination or bioaccumulation, it may become necessary to fully re-evaluate the project's design or location.

The discovery of PFAS in the Inner Harbor plainly presents serious ecological and public health risks. It is far more prudent for the Port and the City to *acknowledge and address these facts now* than for the City to move forward with a massively expensive desalination facility only to discover later that the project has introduced dangerous PFOS chemicals into the region's drinking water supply, has discharged concentrated PFOS into the Inner Harbor, and/or has run afoul of federal regulations. *We hope that the possible consequent legal liability of doing so will be foremost in your consideration*. By undertaking a rigorous PFAS study *now* and pausing the desalination project until that information is in hand and a responsive plan has been developed, the Port and City can demonstrate an appropriate regard for the health and well-being of the residents of Corpus Christi and the region. Thank you for your attention to this urgent matter.