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December 7, 2020

Honorable ALJ Rebecca Smith
Honorable Cassandra Quinn
State Office of Administrative Hearings
300 W. 15th Street, Suite 504
Austin, Texas 78701

Re: **SOAH Docket No. 582-20-1895; TCEQ Docket No. 2019-1156-IWD**; Application of the
Port of Corpus Christi Authority

Dear Administrative Law Judges Smith and Quinn:

Attached please find the Port Aransas Conservancy's Reply to Closing Arguments, as well as its Proposed Findings of Fact and Conclusions of Law, filed today in the above-referenced case.

Sincerely,

/s/ Craig Bennett

Craig Bennett

Enclosures
cc: Service List

**SOAH DOCKET NO. 582-20-1895
TCEQ DOCKET NO. 2019-1156-IWD**

IN THE MATTER OF THE	§	BEFORE THE STATE OFFICE
APPLICATION OF PORT OF	§	
CORPUS CHRISTI AUTHORITY OF	§	OF
NUECES COUNTY FOR TPDES	§	
PERMIT NO. WQ0005253000	§	ADMINISTRATIVE HEARINGS

PORT ARANSAS CONSERVANCY'S
REPLY TO CLOSING ARGUMENTS

December 7, 2020

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PORT ARANSAS CONSERVANCY’S REPLY TO CLOSING ARGUMENTS

TO THE HONORABLE ADMINISTRATIVE LAW JUDGES:

I. INTRODUCTION AND SUMMARY

One percent. To the Port, a one percent change in salinity to the Corpus Christi Ship Channel is simply insignificant. What is the big deal about a one percent increase in salinity? The Administrative Law Judges (ALJs) should not be misled by such a contention. The concern in this case is not about a one percent change in salinity to *the entire Corpus Christi Ship Channel*; it is about the much greater than one percent change in salinity that will occur at the location of discharge. A cannon fired at a football game may not seem that loud to fans in the stadium, but it can be deafening to those standing right next to it.

This case is about the impacts of the discharge on aquatic life in the area where they will be exposed to significant levels of, and wide changes in, salinity from what they have acclimated to in the ambient water. It is about how one determines the extent of those impacts when there are no criteria in the Texas Surface Water Quality Standards. The concentrations of salinity at the outfall will be twice those in the receiving waters, with at least 60% of salinity in the effluent remaining 160 feet away at the ZID boundary, and 30% as far as 415 feet away from the outfall. The wastewater discharge will all come out of one place—the diffuser—and the impact will be much greater than simply “1%” at that point. It will come out in levels damaging to aquatic life.

A. The Executive Director's Concerns.

From the initial closing arguments, it appears the Executive Director (ED) is concerned this case could negatively impact the use of the TCEQ's standard practices and tools, including the CORMIX model. While PAC understands these concerns, at the same time the use of practices and tools cannot be more important than the goal those tools are trying to accomplish. As even the TCEQ's own witness indicated, the CORMIX model does not always fit, and there are cases where the model is not used. In this case, the evidence clearly establishes the CORMIX model just does not work. Therefore, the ED's adherence to "standard procedures" is simply not an adequate response, especially when dealing with a first-of-its-kind facility, the very first seawater desalination facility permitted by the TCEQ in Texas.

Here, the use of standard practices or tools does not assure protection of the environment or compliance with applicable laws because, among other things, (1) the Port chose the very worst location for its outfall, in an area that merits special environmental protection, and (2) the Port submitted an application that presents a dozen or more inaccuracies related to the key facts needed for the ED's standard evaluation. In essence, the Port has forced the ED to try to put a square peg in a round hole, and this is the clear result of the Port's lack of experience with desalination and its assumption that any errors can simply be fixed after a permit is issued. This is not acceptable.

PAC recognizes that the ED has limited resources and needs to process permit applications efficiently. But the discharge proposed in this case requires special evaluation, not simply a rubber stamp. The Port's proposal puts the discharge in a unique site, not just because it is in the middle of a major spawning and migration area, but because it is also over a 90 foot hole, not a normal bay or channel bottom, with the likely presence of an eddy. It is also unique because it would be the first major discharge from a seawater desalination facility in Texas.

Moreover, the discharge is unusual because it is concentrated brine—double the levels of salts in the seawater into which it would discharge. It is not just another industrial waste discharge, where the standard modeling and the TEX TOX analysis can be used to set standards. The standard approach requires numeric criteria, but there is no number that can be used to determine what limits are needed for discharge of concentrated brine to protect marine species, like there are for metals, organic chemicals, and most constituents from industrial facilities.

Thus, when the ED changed the percentage of effluent at the ZID in the revised draft permit from 1.95% to 18.4%, the permit became more stringent for pollutants that have numeric criteria, but less stringent for brine. This is important to note. When PAC showed that TCEQ and the Port had incorrectly interpreted the results from the CORMIX model and the proposed discharge could not meet the level for salinity in the Application, the ED simply increased the amount of salinity allowed. Namely, the ED simply raised the 1.95% effluent limit in the original draft permit to 18.4% in the revised draft permit, which increased by nearly ten times the amount of brine allowed to be at the edge of the ZID. Without criteria for salinity for use in TEX TOX, the ED's standard practice of setting permit limits simply cannot be applied.

But it is even worse, because PAC's modeling with CORMIX has shown that even the amount of brine modeled by the Port and ED is not accurate, thus amplifying an already existing problem. Namely, using more accurate velocities for the discharge, PAC's experts have determined that the discharge at the ZID boundary will result in 60 to 70% effluent remaining, with 20 to 30% effluent at the aquatic mixing zone. Despite this, the ED is sticking with the 18.4% at the ZID boundary, because the ED is devoted to using a velocity of .05 meters per second, a velocity the evidence shows is accurate only 5% of the time. This is a bit surreal, because no one has presented any evidence that the mixing zone calculations from the CORMIX model at the higher velocities

are not correct. Even worse, the diffuser design identified in the Application will not even achieve the increased 18.4% effluent limit identified in the draft permit.

The limits now in the permit at 18.4% are not what was originally evaluated by the ED, or presented to TPWD for its evaluation, to the public for comment, or considered for a *prima facie* case. The new limit at the ZID is a major amendment of the draft permit, without public notice. It is the result of allowing the Port to ignore its modeling in the Application, in essence a major amendment to its permit. In fact, the ED's decision to change the draft permit from 1.95% to 18.4% at the ZID boundary, just before the preliminary hearing, sufficiently rebutted the *prima facie* case on the administrative record sent from TCEQ initially. But there are a number of other clear errors.

- The ED failed to comply with Tex. Water Code § 26.029(a)(2), which requires that the location of the point of discharge must be in the Permit.
- The ED failed to comply with Tex. Water Code § 26.029(a)(4), which requires that the character of the waste must be described in the permit. TCEQ's rule implementing that provision requires identification of the chemicals or characteristic of chemicals in the effluent "in enough detail to allow evaluation of the water and environmental quality considerations involved."¹
- Similarly, TPWD asked the ED to obtain information from the Port on the constituents in the intake, such as copper, that will be concentrated in the desalination process and discharged. Under the statute and rule discussed above, the Port was required to provide representative water quality data for salinity and temperature in the intake water for use in its evaluation. The data on other constituents is available at the same sampling sites used for temperature and salinity but, in response to comments, the ED erroneously stated simply that the facility has not been built and, thus, such data is not available.
- The ED did not require the Port to provide data on conditions at the outfall for the CORMIX modeling, which would have identified, before the comment process, the eddy at the outfall location. Instead, the draft permit requires such information *after* the permit is issued, when TPWD, PAC, and others are no longer privy to the results.

Without criteria to set salinity standards, the required careful consideration of the impacts was not done. No effort was made by the Port or TCEQ to establish a level of salinity in the mixing

¹ 30 TAC §305.45(b)(8)(B)(ii).

zone that will protect water quality or aquatic species in those zones. It is in these zones, not the entire channel, at which the water quality standards are focused.

Without criteria or some rational effort, the ED and the Port are just guessing at what level of effluent in the mixing zone will be protective of aquatic life. And they clearly have guessed wrong, based on the evidence from TPWD and the top experts on such issues. Overwhelmingly, the evidence establishes that the proposed permit will not protect aquatic life or otherwise be protective of the environment. The permit must be denied.

B. The Port's Contentions.

The Port relies heavily on two contentions to support the Draft Permit: (1) the discharge will increase salinity in the Corpus Christi Ship Channel “only” 1%; and (2) the volume of discharge is “only” 0.5% of the daily tidal exchange flow in the Channel. Substantively, these are red herrings, as PAC demonstrates below. But in its Closing Argument, the Port devotes considerable time discussing the requirements for competent expert evidence in Texas. So let’s examine the assertion that these two purported “facts” support the conclusion that “[t]here will be no adverse effect on aquatic organisms or terrestrial or aquatic life because the level of pollutants anticipated from the Facility will be too low.”²

Rule 702 requires that an expert be qualified to offer his opinions “by knowledge, skill, experience, training, or education.”³ While the Port’s experts are qualified to calculate the salt mass balance of the Channel, or the tidal flows, none are qualified to offer the opinion that the discharge will have no adverse effect on the aquatic life that will encounter it in concentrations of up to 100% (at the outfall). Dr. Jordan Furnans has no degree, or other expertise, in biology, aquatic

² Port’s Closing Argument, at 23.

³ Tex. R. Evid. 702.

biology, marine biology, wildlife, fishery science, environmental health, ecology, or the movement of early life stages of any marine species anywhere, any time.⁴ Randy Palachek did not offer any calculations for any species regarding their physiological tolerance for salinity.⁵ He has no idea what the no effect concentration for red drum, spotted seatrout, sheepshead, or southern flounder may be.⁶ Dr. Tischler is not a biologist, and has not conducted any studies or tests on the impacts of increased salinity on fish larvae.⁷ He has only a “general” understanding of how larvae move through the Aransas Pass tidal inlet.⁸ But he does think it “likely” that some larvae will pass through the ZID.⁹ He testified explicitly that he did not consider, and thus could not offer an opinion about, any effect on organisms that might pass through the mixing zones.¹⁰

So how does the ultimate conclusion of “no harm” fare under the *Daubert-Robinson* standard? The “theory” is that a 1% increase in salinity in the whole Channel (although the impact at the ZID and aquatic life mixing zones is much higher) and a volume of discharge that is only .5% of the tidal flow could not possibly cause adverse effects to the environment or marine life. How can that theory can be tested?¹¹ There is a scientifically accepted, valid, and codified process for determining the no effect concentration of salinity on various species, as discussed by Dr. Esbaugh. The Port’s experts did not attempt to test their theory, or rely on anyone else’s testing of their theory, by attempting to determine the no effect concentration.

⁴ Tr. Vol. 3, 146:12 – 147:9.

⁵ Tr. Vol. 4, at 15:4-10.

⁶ Tr. Vol. 4, at 16:6-17:14.

⁷ Tr. Vol. 3, at 213:23 – 214:8.

⁸ Tr. Vol. 3, at 214:23 – 215:3.

⁹ Tr. Vol. 3, at 215:4-9.

¹⁰ Tr. Vol. 3, at 243:18 – 244:18.

¹¹ *E.I. du Pont de Nemours & Co. v. Robinson*, 923 S.W.2d 549, 556-57 (Tex. 1995); *Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 714 (Tex. 1997).

To what extent does the “technique” rely on the subjective interpretation of the expert? As already observed, the Port and its experts have offered no testing, experimentation, or data that purports to demonstrate that its calculations support its conclusion at all. Their theory has been subjected to no scrutiny whatsoever, much less peer review or publication. There have been no non-judicial uses of their theory.¹² The conclusion of “no harm,” based entirely on the proportional calculations offered, is 100% subjective belief and unsupported speculation.¹³ Essentially, it boils down to this – “one” is a small number, so how could there be any harm? This would be laughable if the stakes were not so high. Neither these experts, nor the Port, actually even attempt to offer any analysis that connects the underlying calculations of 1% and 0.5% to the “no harm” conclusion. To say there is an analytical gap is a gross understatement. This is the classic expert’s *ipse dixit*, entitled to no weight whatsoever.¹⁴

In fact, as seen below, the evidence from the marine biologists, along with a review of the actual standards that apply, demonstrates the potential for great harm. The 1% number referenced by the Port is a red herring because it is not even the number that matters—rather the numbers that matter are for the ZID, and the mixing zones, and the 1% number is for the whole channel. In the ZID and the mixing zones, the increased salinity will cause significant adverse harm.

¹² *Robinson*, 923 S.W.2d at 556-57; *Havner*, 953 S.W.2d at 714.

¹³ *Whirlpool Corp. v. Camacho*, 298 S.W.3d 631, 642 (Tex. 2009); Port’s Closing Argument, at 7.

¹⁴ *Gammill v. Jack Williams Chevrolet, Inc.*, 972 S.W.2d 713, 727 (Tex. 1998); *Gharda USA, Inc. v. Control Sols., Inc.*, 464 S.W.3d 338, 349 (Tex. 2015); Port’s Closing Argument, at 8.

II. THE COMMISSION’S REFERRED ISSUES

A. **Whether the Proposed Discharge will Adversely Impact: the Marine Environment, Aquatic Life, and Wildlife, Including Birds and Endangered or Threatened Species, Spawning Eggs, or Larval Migration.**

This matter is governed by Title 30, Chapter 307 of the Texas Administrative Code: The Texas Surface Water Quality Standards (TSWQS). Every witness addressing the issue agreed that, under the TSWQS, the permit must insure the discharge will not cause any death, of any marine creatures, anywhere in ZID.¹⁵ It is important to remind the ALJs of this standard, because neither the ED nor the Port has given much attention to it in their closing briefing.

1. **The Port’s Arguments.**

In the Port’s Closing Argument, there is no reference to death, much less any assertion that the discharge will cause none. The only reference to Section 307.8 is to note that Randy Palacheck “was responsible for” Section 307.8 of the Application Standards relating to toxic permitting.¹⁶ The Port is nothing if not consistent – it ignores any information or legal authority that is unfavorable to its position.

Because the Port cannot contest the evidence that increased salinity from the discharge will cause the death of marine organisms – red drum larvae that will float on currents into the mixing zones, among others – it ignores the standard, ignores the evidence, and impugns the character of the world’s foremost experts on the marine ecology and biology of tidal passes generally, and Aransas Pass in particular.

¹⁵ Tr. Vol. 5, at 171:1-8, 178:16-23; Tr. Vol. 3, at 57:6-19; Tr. Vol. 5 at 178:16-23; Tr. Vol. 3, at 57:6-19; 215:10-16; and 245:9-15; 30 Tex. Admin. Code § 307.8(b)(2) (“Acute criteria and acute total toxicity levels may be exceeded in small zones of initial dilution (ZIDs) at discharge points of permitted discharges, but there must be no lethality to aquatic organisms that move through a ZID.”) (emphasis added).

¹⁶ Port’s Closing Argument, at 13.

The Port states repeatedly that the marine scientists are biased “against the Port” and that they intend to thwart all development in the region, including seawater desalination. But the evidence does not support this. There is no evidence whatsoever that PAC’s experts possess any bias against the Port as an organization. And each made it clear that they object to this specific facility for one reason – the Port has selected the worst possible place to locate the discharge from an ecological standpoint. Thus, the scientists are concerned not because of a bias, but because their scientific expertise informs them that the Port’s application is simply a terrible idea, with potentially disastrous environmental consequences to the area. The Port has actually stated that these experts’ opinions should be given no weight *because* “they live in the community.”¹⁷ This is the height of arrogance. There really is no better, more probative evidence than the testimony of four of the world’s most experienced and recognized marine biology and ecology researchers who have lived and worked in this location for decades.

These witnesses relied on voluminous data that objectively and independently verifies their observations and knowledge, and decades of their own research. For example, uncontroverted data from NOAA indicates that velocities in the channel exceed 0.25 meters per second (m/s) about 73% of the time and 0.41 m/s about 68% of the time.¹⁸ Because he lives there, Scott Holt has firsthand knowledge there are also periods “of many hours where there is little flow at all.”¹⁹ But the Port asserts these world renowned researchers lack a sound foundation of data and offer mere speculation. The Port does so by ignoring most of the record, and encouraging the ALJs and TCEQ to do the same. Really, the Port is left no alternative because the most relevant data was simply omitted from the Application, the modeling, TCEQ’s SOPs, and the Administrative Record.

¹⁷ Port’s Closing Argument, at 10.

¹⁸ PAC-2, at 16:27-28.

¹⁹ PAC-4, at 19:9-10.

The statements made by PAC’s witnesses *before* they were retained by PAC do not reflect any bias whatsoever. In each case, these comments demonstrate that, as knowledgeable, independent researchers with no pecuniary interest in the outcome, the experts recognize the damage the discharge would cause.²⁰ Dr. Erisman’s public comment is illustrative: “Given the disproportional number of fish that spawn in the inlet compared to adjacent areas and the fact that it is the only site for a large expanse of coastline that connects the Gulf to the bays, disturbances in this area could result in a measurable, negative impact on the size and productivity of the regional populations of these fishes. In turn, such a scenario could directly impact local fisheries by reducing the number of fish in the region that are available to be harvested.”²¹

When given the opportunity, each testified just as Dr. Stunz did – they do not object to desalination; rather, they object to the specific location of this discharge, and moving it would likely eliminate their concerns: “I’d like to note that I am in no way against the use of desalination as a means to provide fresh water to the Corpus Christi and Coastal Bend region of Texas. In fact, I’m very supportive and acutely aware of Texas’ water need now and in the future. However, I am gravely concerned about the proposed discharge of concentrated brine into the Aransas Pass tidal inlet – a location versus a desalination plant issue.”²²

Scott Holt testified at the final hearing most eloquently, that moving the discharge would avoid the death of the most viable larvae, and thus would eliminate his concerns:

²⁰ The Port actually tries to discredit Dr. Erisman, whose grants take up five pages of his CV and include a \$501,009 grant from the Bureaus of Safety and Environmental Enforcement and of Ocean Energy Management, by asserting that his opinions are offered only so he can gain financially. Port’s Closing Argument, at 24; PAC-1 BE-4, at 16-20. Apparently, the Port is unaware that vast sums of grant money are spent every year to fund research on the effects of ecological disasters. <https://www.csmonitor.com/Environment/2020/0610/Deepwater-Horizon-What-we-learned-from-worst-oil-spill-ever#:~:text=Oil%20spill%20Deepwater%20Horizon%3A%20%24500,in%20research%20later%20%2D%20CSMonitor.com>

²¹ PAC-1 BE-1, at 2.

²² PAC-6, at 24:9-15.

. . . I think it would change my opinion, because now you have it in a different place. You didn't just sort of move the furniture around in the living room, you know. . . . And so you asked me a while ago why the channel is so important, all these things going in and out of it. You now have the discharge out in the – in the ocean. And in this particular case, because it will almost certainly be put on the south side of the inlet, it's in a place where, one, there is – the density of [organisms] is not nearly as high, they're not concentrated in there; but, two, the larvae that are coming into the inlet are sort of the winners, you know, they're the ones that have actually managed to be picked up in the tidal current and brought into the estuary. They have a chance to actually get to the nursery ground.²³

PAC agrees that reliable data must form the basis of the experts' opinions. Here is a partial list of the objective, independent, and verifiable facts that support the testimony of PAC's experts (this evidence is uncontroverted):

- The Aransas Pass tidal inlet is the most important multi-species, spawning site for the most economically valuable sportfishes in the region,²⁴ including Red Drum, seatrout, sheepshead, black drum, flounder, and sand trout.²⁵
- The productivity of local populations of sportfishes “are directly linked to, and dependent upon, the reproductive activity that occurs at this inlet.”²⁶
- Southern flounder “have recently been identified as being in serious trouble and, thus, the protection of their spawning habitat is absolutely critical for recovery and sustainability.”²⁷
- Tidal inlets are “recognized as essential fish habitat, under 16 U.S.C. § 1802(10), as areas that are necessary for fish spawning, breeding, feeding or growth to maturity.”²⁸
- “If this area is degraded, fish won't simply go elsewhere to spawn. . . . harming it will just cause them to spawn less (or not at all), reduce their feeding, and ultimately reduce the carrying capacity of local fish populations.”²⁹

²³ Tr. Vol. 3, at 17:3-19.

²⁴ PAC-1, at 6:15-16.

²⁵ Tr. Vol. 2, at 59:13-61:2.

²⁶ PAC-1, at 7:4-7.

²⁷ PAC-1, at 7:20-22.

²⁸ PAC-1, at 8:12-14.

²⁹ PAC-1, at 11:15-19.

- Hypersalinity could lead to fewer eggs, which then die at a much higher rate than usual.³⁰
- Salinity in the ocean averages “around 33, 35 parts per thousand.”³¹
- The aquatic life is very sensitive to hypersalinity and the natural salinity in the channel is close to the physiological tolerance of the most sensitive species.³²
- The draft permit utilizes a water current speed much slower than what actually occurs in the shipping channel.³³
- The draft permit uses intake salinity values that range from 18 to 22 parts per thousand (ppt). The expected intake salinity from the currently proposed location will be in the range of 32 to 35 ppt.³⁴
- A 5-year data set for salinity in the shipping channel available from the Mission Aransas National Estuarine Research Reserve spanning 2007 to 2012 reflects that the median salinity value was 32.5 ppt, which by definition means that half of the data points in the data set exceeded 32 ppt under natural conditions.³⁵
- Early life stage animals tend to be the most sensitive to environmental perturbation, including salinity fluctuations. Accordingly, high salinity can result in high mortality and slower growth in larva.³⁶
- A significant reduction in fish populations in and around Corpus Christi Bay and the ship channel would adversely impact commercial fishing and fisheries in those same areas.³⁷
- If the environment has more salt than is inside the body of an animal – “Water inherently moves to higher concentrations of salt. So that means the water that’s inside of a fish is going to move outside of the fish, effectively dehydrating it.”³⁸

³⁰ PAC-1, at 12:15-22.

³¹ Tr. Vol. 2, at 101:2-6.

³² PAC-5, at 9:4-6.

³³ PAC-5, at 10:18-22.

³⁴ PAC-5, at 11:1-7.

³⁵ PAC-5, at 11:25-12:3.

³⁶ PAC-5, at 12:14-17.

³⁷ PAC-5, at 12:22-13:2.

³⁸ Tr. Vol. 3, at 39:1-4.

- A five-year data set shows that 10% of the time, salinity in the ship channel is in excess of 37 parts per thousand.³⁹
- While estuarine organisms are generally tolerant of a range of salinities and temperatures, larval stages are not particularly tolerant. This is especially true where the individual organisms encounter a sharp or sudden change in conditions such as might be expected in a brine discharge zone.⁴⁰
- Many coastal species spawn in offshore waters and their eggs and early larvae drift for days or weeks in coastal currents; the larvae are ultimately drawn into tidal inlets. Some of those larvae drawn into the inlet on the flood tide are carried into the estuary to suitable habitat where they remain to develop into juveniles and sub-adults. This development into the sub-adult stage takes one or more years before they return to the ocean as maturing adults.⁴¹
- There are a hundred species or more that follow similar life cycle patterns.⁴²
- In order to reach nursery habitats, larvae must pass through Aransas Pass. There is no other way for them to reach their nursery habitats. The proposed discharge would be located directly in the path of these larvae on their journey to their nursery habitats. The discharge from the desalination plant will contain concentrated brine of much greater salinity than the naturally occurring ambient conditions, which the larvae will not be able to avoid.⁴³
- High salinity sucks all the water out of larvae.⁴⁴
- Vulnerable organisms are distributed throughout the water column.⁴⁵
- The tidal system is “mixed semi-diurnal.” Water flow will be strong in one direction for many hours, may nearly pause for an hour, and then reverse and flow strongly in the opposite direction for many hours. This will last for 6-8 days. For the next 6-8 days, the water flow is generally reduced in overall speed and changes direction more often and somewhat irregularly. There are sometimes periods of many hours where there is little flow at all.⁴⁶

³⁹ Tr. Vol. 3, at 49:12-16.

⁴⁰ PAC-4, at 9:14-17.

⁴¹ PAC-4, at 9:21-10:2.

⁴² PAC-4, at 11:20-24.

⁴³ PAC-4, at 12:6-15.

⁴⁴ PAC-4, at 12:24-25.

⁴⁵ PAC-4, at 17:22-18:3.

⁴⁶ PAC-4, at 18:23-19:10.

- Fish eggs are fertilized in the water.⁴⁷ Depending on the species, from day 1 to day 100, they are larvae that slowly grow into a fish.⁴⁸ The larvae are extremely vulnerable and abundant, and drift with the currents.⁴⁹
- The Aransas Pass is the conduit for all these species to get from the offshore spawning area to the nursery habitat. If they don't get there, they die.⁵⁰
- Plankton and fish are going to enter the ZID.⁵¹ Hypersaline water could be harmful to zooplankton that are trapped in the ZID.⁵²
- Ninety-six million gallons of discharge that is 60 parts per thousand would require 191 million gallons of ambient water to get it all down to 40 ppt.⁵³ That ambient water is full of "the larval fish we're worried about. It includes copepods, which are in the water we're worried about, plankton."⁵⁴
- Aransas Pass is a narrow inlet with a high concentration of larvae. Since larvae have little, if any, ability to maneuver and are dependent on tidal currents to enter the bay, they have no ability to avoid the brine discharge plume. When the larvae are pushed by tidal current through Aransas Pass and into the plume, they are instantaneously going from an ambient salinity level at the mouth of the tidal inlet into a hypersaline condition within the plume.⁵⁵
- TPWD spends approximately \$4 million annually to stock 20 million fish along the Texas coast.⁵⁶
- This is an ecological hotspot, comparable to a coral reef or rain forest.⁵⁷
- The inlet provides an important food supply for birds.⁵⁸

⁴⁷ Tr. Vol. 3, at 11:10-20.

⁴⁸ Tr. Vol. 3, at 11:22-12:4.

⁴⁹ Tr. Vol. 3, at 12:17-24.

⁵⁰ Tr. Vol. 3, at 13:18-25.

⁵¹ Tr. Vol. 3, at 21:5-7.

⁵² Tr. Vol. 5, at 147:17-18:6.

⁵³ Tr. Vol. 3, at 28:22-29:6.

⁵⁴ Tr. Vol. 3, at 29:22-25.

⁵⁵ PAC-6, at 14:4-16.

⁵⁶ Tr. Vol. 3, at 72:14-21.

⁵⁷ Tr. Vol. 3, at 75:1-8.

⁵⁸ Tr. Vol. 3, at 75:21-76:3.

- Higher salinities are associated with higher occurrence of algae blooms, like red tide,⁵⁹ which is harmful to the aquatic life, killing fish.⁶⁰
- In the Corpus Christi Bay system, the success of one species depends on the success of other species.⁶¹
- If the desalination plant operates at 60% capacity, the percent effluent at the ZID will be 24.7%.⁶²
- Velocity of water in the channel will affect the actual mixing of the discharge that will occur. Actual data of the actual velocity of water in the channel exists – and was not used in the Cormix modeling.⁶³

These are some of the uncontroverted facts in the record. They include facts offered by the Port’s witnesses and the ED’s witnesses – as well as several lifetime’s worth of research and data – that support the PAC expert’s ultimate conclusion: The discharge could wipe out a year’s worth of the TPWD hatchery program – 18 million baby red drum – over a very short period of time. And much higher numbers for other things that occur at much higher densities per cubic meter.⁶⁴

The Port emphasizes that harm must not be merely possible, but probable. According to its own experts, there is “almost a hundred percent probability” that marine organisms will pass through the mixing zones, encountering the high salinity plume.⁶⁵ The Port’s witness, Dr. Tischler, after acknowledging that the TSWQS prohibit any death, simply ignored the legal standard in the TSWQS and instead opined as to whether the discharge would affect overall “populations.”⁶⁶ This is not the applicable standard. The question is not whether death is possible; it is clearly and

⁵⁹ Tr. Vol. 3, at 132:21-133:3.

⁶⁰ Tr. Vol. 3, at 133:4-13.

⁶¹ Tr. Vol. 5, at 145:9-12.

⁶² Tr. Vol. 6, at 58:3-7.

⁶³ Tr. Vol. 6, at 101:19-102:9.

⁶⁴ Tr. Vol. 3, at 120:22-121:6.

⁶⁵ Tr. Vol. 4, at 23:3-21; Tr. Vol. 3, at 215:4-9, 243:18-245:8.

⁶⁶ Tr. Vol. 3, at 245:3-8. Furthermore, Dr. Tischler provides no scientific basis for his conclusion that the proposed discharge would not affect fish populations.

admittedly probable. The only disputed fact is the exact scale of the calamity. The Port's witnesses and the ED's witnesses testified that because there is a zone of passage and only some marine organisms will die, the permit should be granted. That would violate the spirit – and the letter – of the law.

In its Closing Argument, the Port also argues that the following evidence demonstrates that the proposed discharge is protective of the marine environment: 1) the Administrative Record; 2) testimony from its witnesses; and 3) testimony from the ED's witnesses. We already know that just because a document is in the Administrative Record does not make it infallible. For example, the Port lists the TCEQ interoffice memorandum dated August 20, 2018, from Dr. Wallace describing the antidegradation review, which we know was based on information contained in Ms. Cunningham's modeling analysis and subsequent CORMIX report from 2018, later admitted to be incorrect. However, Dr. Wallace's analysis was never updated after Ms. Cunningham re-evaluated the modeling, rescinded her previous modeling analysis, and updated the CORMIX report.⁶⁷ A scientific analysis that relies on outdated info and a modeling exercise that had to be rescinded because its calculations were off by a factor of 10 does not demonstrate compliance with the TSWQS.

The Port also points to the testimony of its witnesses as evidence that the permit should be issued. Without a trace of irony, Port argues that the “testimony of Dr. Palachek demonstrates that the plume of effluent will result in effluent concentrations of 18.4% at the edge of the ZID...[and] Palacheck's testimony on this issue remains unchallenged.”⁶⁸ However, the Port fails to mention

⁶⁷ Tr. Vol. 5, at 212:17-215:12.

⁶⁸ Port's Closing Arguments, at 17.

that *its other witness*, Dr. Tischler, testified that Port *cannot* comply with the 18.4% effluent concentration limit in the draft permit. Brilliant.

The Port also makes other strawmen arguments such as the natural ambient salinity fluctuations demonstrate that the discharge will not impact the marine environment. This relies on the premise that the discharge will only increase the overall salinity within Corpus Christi Bay by 1% or less. As the ALJs understand at this point, PAC's concern is not the overall salinity within the entire Corpus Christi Bay, but the impact of the high salinity discharge in the area immediately surrounding the diffusers and lethality of larval organisms within the ZID. The Port also argues that the WET testing requirements in the draft permit will ensure the discharge will be protective of the environment. First, it is impossible to declare the discharge will be protective of the environment if one has not yet done any actual testing to demonstrate it does not harm the environment.⁶⁹ Second, the WET testing the Port claims will demonstrate protectiveness of the marine environment does not include testing of salinity impacts on larval stages of fish.⁷⁰ Obviously, the impact of salinity on adult and juvenile fish is substantially different than the impact on the larval stage, which is the most vulnerable stage in a fish's life cycle.

While not in its Application, the Port also argues the SUNTANS modeling for the "far field," (i.e., the area generally outside of the aquatic mixing zone) supports a finding that the discharge will not adversely affect the aquatic environment. Again, the SUNTANS modeling does not address the impact within the ZID and does not demonstrate compliance with the TSWQS requirement that there be no lethality in the ZID.

⁶⁹ PAC-6, at 22:10-13 (quoting Dr. Stunz: "I cannot understand how the Executive Director can on one hand claim that the permit will be protective of the marine environment and aquatic life and on the other hand claim that the effluent and its effect on water quality has not yet been analyzed.)

⁷⁰ Tr. Vol. 5, at 206:23-207:2.

Even so, Dr. Furnans was told to assume that discharge would meet the target percentage at the boundary of the aquatic mixing zone of about 1% effluent and did not evaluate any other possible concentrations at that boundary.⁷¹ It was never run again with the higher percentages shown by the modeling of Mr. Trungale or Dr. Tischler.⁷² The Port also presented a “spreadsheet” developed by Mr. Palachek which was used to average the mixing of the effluent over the entire Ship Channel.⁷³ It ignored what happens in the ZID or other mixing zones, simply providing a channel-wide average. In fact neither the SUNTANS modeling nor the spreadsheet can offer any information on the extent of mixing in the near field, in the ZID or aquatic mixing zone.⁷⁴ Neither the SUNTANS modeling nor the spreadsheet provide any support for the position of the Port or for the draft permit. They are red herrings, even if they used accurate inputs.

2. The ED’s Arguments.

The ED argues that it did not do “anything wrong” and followed its Implementation Procedures (IPs) in reviewing this application and therefore, the draft permit should be issued. Similarly, the Port argues that because TCEQ has adopted the TSWQS, which are intended to be protective of the marine environment, has adopted rules to implement TSWQS which are laid out in the IPs, and followed the those IPs when developing the draft permit, that the ALJs should recommend issuance of the draft permit.

As noted in *Save Our Springs Alliance v. TCEQ*: “TCEQ’s and EPA’s anti-degradation rule sets out substantive standards: following TCEQ’s checklist of procedure for anti-degradation

⁷¹ APP-JF-13, at 1.

⁷² APP-LT-9.

⁷³ APP-RP-8; APP-RP-1, at 18:28-19:5.

⁷⁴ *Id.*; APP-JF-13, at p. 6 (stating, “The grid cell size surrounding the proposed diffuser site is too large to resolve the complex fluid dynamics in the near field mixing with SUNTANS – that is, near the diffuser the model cannot actually solve how the mixing is occurring, but instead represents the net effects of mixing assuming the diffuser is operating as specified in the instructions LRE was given.”)

review does not assure compliance with these substantive standards.”⁷⁵ In fact, both the ED’s and the Port’s arguments in support of the antidegradation review and the ED’s determination that the proposed discharge will not adversely impact the marine environment are woefully lacking in substance and fail to acknowledge numerous errors, both legal and scientific.

The ED cites to the testimony of Dr. Wallace regarding her antidegradation review in which she determined the increase in salinity is within the range of percent effluent for chronic aquatic life and should be acceptable for spotted seatrout, Atlantic croaker, and red drum.⁷⁶ The ED also claims she considered the impact of the proposed discharge on oysters and sea grass habitat, and determined the existence of a “zone of passage” would be protective of exceptional aquatic life use. Finally, the ED states that Dr. Wallace also considered the potential impact on federally-listed endangered and threatened species.

We can all agree that the mere fact that the ED conducted an antidegradation analysis does not render it correct, especially if there are numerous errors in that analysis. Of particular concern to PAC is the acute aquatic life criteria requirement in the TSWQS that there may be no lethality within the ZID. As discussed at length during the hearing, the TSWQS specifically state:

Acute criteria and acute total toxicity levels may be exceeded in small zones of initial dilution (ZIDs) at discharge points of permitted discharges, but there must be no lethality to aquatic organisms that move through a ZID.⁷⁷

In its closing arguments, the ED mentions Dr. Wallace’s opinion that the proposed discharge will comply with the *chronic* aquatic life criteria, but fails to discuss the *acute* criteria for aquatic life. In other words, the ED’s Closing Arguments do not address the effect of the discharge in the area

⁷⁵ *Save Our Springs Alliance, Inc. v. TCEQ*, No. D-1-GN-19-003030 (345th Dist. Ct. Travis County, Tex. Oct. 29, 2020).

⁷⁶ During her testimony, Dr. Wallace actually was not willing to offer an opinion on the range of salinity needed to support marine life in this area. Tr. Vol. 5, at 162:24-163:6.

⁷⁷ 30 TAC §307.8(b)(2).

that is most likely to be affected – the ZID. Nor did Dr. Wallace consider the protection of oysters, as there was no consideration of copper, which the evidence indicates will be discharged in amounts greater than allowed under the TCEQ standard for oyster waters.

Witnesses from PAC, the ED, and the Port all agree the discharge cannot result in any death in the ZID.⁷⁸ Witnesses from PAC, the ED, and the Port also all agree that fish larva will pass through the ZID and be exposed to the plume of highly concentrated brine wastewater.⁷⁹ During the hearing, the best response the ED could muster in response to whether the discharge would cause death to fish larva moving through the ZID, was “I hope there will be zero death.”⁸⁰

The ED also argues the “zone of passage should be protective of exceptional aquatic life use.” This is not the legal standard. Neither the ED nor the Port can demonstrate there will be no death in the ZID, so they have moved the goal posts and argue that if there is a “zone of passage” then they have met the substantive requirements in the TSWQS. In fact, during the hearing, Dr. Wallace testified that she was “unconcerned” about possible death in the ZID “because there is adequate zone of passage.” In effect, Dr. Wallace ignores the actual standard and instead creates a new legal standard, which the ED now appears to be adopting – that TSWQS requirement that “there must be no lethality to aquatic organisms that move through a ZID” may now be excused if there is some undefined “adequate” zone of passage. Not only does the ED present an entirely new legal standard, but it is not based on any sort of scientific approach or analysis.

⁷⁸ Tr. Vol. 5, at 165:13-16, 178:16-23; Tr. Vol. 3, at 40:21-42:8, 57:6-19; 215:10-16.

⁷⁹ Tr. Vol. 5, at 146:8-147:24, 165:17-20; PAC-6, at 13:1-10; Tr. Vol. 3, at 215:4-9; Tr. Vol. 4, at 23:14-21.

⁸⁰ Tr. Vol. 5, at 165:21-166:2.

B. Whether the Proposed Discharge will Adversely Impact the Health of the Requesters and Their Families, Including Whether Fish and Other Seafood will be Safe for Human Consumption.

Because PAC addressed this issue in its initial Closing Arguments, it will not restate that argument here. Nothing raised by the ED or the Port warrants an additional response.

C. Whether the Proposed Discharge will Adversely Impact Recreational Activities, Commercial Fishing, or Fisheries in Corpus Christi Bay and the Ship Channel.

This issue is directly tied to Issue A discussed above, because the impact upon aquatic life will impact the fish populations in the region, which in turn will impact all activities, whether commercial or recreational, that depend upon fish populations.

The ED's arguments rely solely on the testimony and antidegradation review conducted by Dr. Wallace, which are inconsistent with the TSWQS and lack scientific rigor. She has not performed any studies of larvae in the Corpus Christi Bay or the estuaries,⁸¹ but she acknowledged that hypersaline water may be harmful to zooplankton in the ZID.⁸² She could not offer any opinion about the salinity concentrations needed for marine life in this area,⁸³ nor could she dispute that at least 10% of the time, the salinity in the channel is already at the upper physiological limit of some species.⁸⁴ Dr. Wallace did not attempt to quantify the aquatic life that exists in the waters today, much less the number that will pass through the ZID. Instead, her opinion seems to be based solely on the idea that there is an adequate zone of passage that will be protective of fish populations. As noted above this is not the legal standard and does not demonstrate compliance with the TSWQS.

⁸¹ Tr. Vol. 5, at 148:11-13, 171:9-11 (She did no investigation of the tolerance of oysters for changes in salinity.)

⁸² Tr. Vol. 5, at 147:17-148:6.

⁸³ Tr. Vol. 5, at 162:24-163:6.

⁸⁴ Tr. Vol. 5, at 151:21-152:11.

The Port's arguments rely almost exclusively on the belief that PAC's expert witnesses are not credible and attempt to shift the burden to PAC to numerically quantify the marine life that will be harmed by the proposed discharge. The testimony of PAC's experts demonstrate that the proposed discharge could wipe out all of TPWD's nearly \$4 million annual fish-stocking efforts. That is quantification enough, although their testimony also contains a more-detailed discussion of harm, identified above in regard to Referred Issue A and also in PAC's initial closing arguments.

D. Whether the Application, and Representations Contained therein, are Complete and Accurate.

Remarkably, in closing arguments, the ED completely ignores undisputed facts that even the Port has conceded to be true, and contends the Application is complete and accurate. If anything, the ED's complete disregard for the undisputed evidence should give the ALJs great pause and reflects why the agency review in this case should be given no deference.

1. The Outfall Location and Characteristics.

First, the ED completely ignores the conflicting information in the Application regarding the outfall location. The ED selectively asserts that the Application has the correct outfall location, but does not mention the other information in the Application identifying the outfall in a different location. A simple review of the Application shows the different outfall locations (for example, compare the map on page S-App 343 with the map on page S-App 386).⁸⁵ Even the ED staff was confused and thought the arrow pointed to the actual location of the outfall.⁸⁶

While the ED may have ultimately determined the correct location, the Application still contains conflicting information regarding the outfall location that has never been revised or

⁸⁵ AR, Tab D, at S-App 343 and S-App 386.

⁸⁶ PAC-14, at 10:23–11:6.

removed. This is a problem for other agencies enforcing the permit, if it were issued, particularly since the draft permit does not identify the outfall location, despite being required to by law.

Similarly, the Application has inaccurate information regarding the water depth at the outfall location. The ED notes that the TCEQ modeler “used the depth of the discharge point as provided in the Application, as an input parameter in the CORMIX model. According to the Application, the depth of the discharge point is 63 feet.”⁸⁷ The ED is correct that the Application states “Models were run at water depths of approximately 63 feet.”⁸⁸ However, the undisputed evidence is that the water depth at the location of the outfall is 90 feet.⁸⁹

To the extent the reference is simply to the diffuser depth, as opposed to the actual water depth, the Application is not clear on this, as it uses the phrase “water depths.” Moreover, the evidence indicates that the TCEQ modeler conducted the modeling with the understanding that the channel depth was 63 feet, not simply that the diffuser was at a depth of 63 feet while the channel bottom was at 90 feet. Specifically, when questioned, Ms. Cunningham testified:

Q: Okay. So when you model it, as you have here, at 63 feet, and it shows this type of plume and this kind of mixing, that's not a realistic picture of what happens when the effluent comes out and the bottom is at 90 feet, correct?

A: If the depth were increased, yes, the plume would continue to fall.

Q: . . . if you had been told that the bottom of the channel was at 90 feet rather than 63, you would have to have done a different model run, correct?

A: I mean, you certainly could. Yeah, I'd do an additional modeling run.⁹⁰

⁸⁷ ED's Closing Arguments, at 8.

⁸⁸ AR, Tab D, at S-App 126.

⁸⁹ PAC-2, at 14:13-15.

⁹⁰ Tr. Vol. 6, at 74:18-75:5.

Thus, the evidence clearly indicates the TCEQ modeler was misled by the Application and modeled using only a 63-foot water depth, rather than a 90-foot depth—but she would have modeled the 90-foot depth had she known that was the actual water depth at the location of the outfall. The ED now pretends this is insignificant, despite the fact the ED’s own staff said they would have modeled the correct channel depth had they known. The language in the Application was either inaccurate, or at least incomplete, because it misled the TCEQ modeler to do modeling different than what she would have done had she known the correct information.

2. The Ownership and Operation of the Facility.

In closing arguments, the Port asserts that it “presently intends to be the owner and operator of the facility.”⁹¹ Perhaps the Port should inform its own Chairman, who is on record very recently stating “. . . we’ve said consistently on both of these permits that we are not going to own, operate, or build a desalination plant.”⁹² If this is the model of truth and accuracy, then it appears truth and accuracy no longer have any meaning, and up is down and down is up. But it is not just the Port Chairman making such statements. Even the CEO and others have made statements that the Port does not intend to own or operate the desalination facility.

The Port further argues that “Protestants point to statements of individuals from the Port Authority who have questioned whether the Port Authority will ultimately own and operate the facility, but have produced no evidence that there is any other entity that is under contract to own or operate the facility, because no such entity exists.”⁹³ To be clear, Protestants do not rely on statements of individuals who have “questioned” whether the Port will “ultimately” own and

⁹¹ Port’s Closing Arguments, at 34.

⁹² PAC-24, at p. 4 of 5.

⁹³ Port’s Closing Arguments, at 34.

operate the facility. Protestants have produced clear evidence the highest levels of Port leadership have, in their own words, “**said consistently . . . we are not going to own, operate or build a desalination plant**”⁹⁴ or “**we’re not going to run the desalination facility.**”⁹⁵ Those words are hardly just “questioning” the Port’s “ultimate” ownership. They are clear, definitive, and, according to the Board chairman, have been consistently made. And they directly conflict with the Application. Is this really an entity we can simply “trust” with protecting one of the most critical ecological habitats on the Texas coast, when they even refuse to be truthful about their intentions?

E. Whether the Port Substantially Complied with Applicable Public Notice Requirements.

Of the ED’s 17-page closing argument, three pages are devoted to discussing notice issues for which there are no disputes. The only dispute raised by PAC is whether the Port properly identified the affected landowners using the actual proposed location of the outfall, because the Application contains conflicting information regarding the outfall location. If the Port does rely upon the correct latitude and longitude figures in the Application, PAC has no issue with the notice.

F. Whether the Draft Permit is Consistent with the Texas Coastal Management Program’s Goals and Policies.

The evidence fails to establish that the draft permit is consistent with the Texas Coastal Management Program. The ED again attempts to put the burden on Protestants, by contending that the ED, “was the only party to offer testimony regarding” the Coastal Management Program. The issue, however, is not whether the Coastal Management Program was mentioned in testimony, but whether the evidence put forth rebuts the prima facie presumption that the legal requirements related to the Coastal Management Program have been satisfied. PAC’s evidence does, so the

⁹⁴ PAC-24, at p. 4 of 5.

⁹⁵ PAC-18, at 5:8-10. *See also* PAC-18, at 4:25-6:1; 6:23-7:14; and 25:2-7.

burden is ultimately on the Port to prove compliance with the regulations. That evidence does not demonstrate compliance.

TCEQ simply based its review on a one-page threshold review sheet that asks whether the discharge is subject to EPA's "Categorical Effluent Standards," not whether this unique, first of its kind, discharge is consistent with the states' policies to protect the coastal waters. Moreover, while TCEQ rules have themselves been determined to meet the goals of the coastal programs, those rules for salinity state the following:

Numerical salinity criteria for Texas estuaries have not been established because of the high natural variability of salinity in estuarine systems, and because long-term studies by state agencies to assess estuarine salinities are still ongoing. Absence of numerical criteria must not preclude evaluations and regulatory actions based on estuarine salinity, and careful consideration must be given to all activities that may detrimentally affect salinity gradients.⁹⁶

Simple use of a "threshold review sheet" is hardly careful consideration of the policies and goals when there is no standard or guidance on what is protective. The evidence clearly demonstrates that no real review was actually conducted to determine consistency.

G. Whether the Modeling Complies with Applicable Regulations to Ensure the Draft Permit is Protective of Water Quality, Utilizing Accurate Inputs.

The ED argues the CORMIX model is all it can use to evaluate the impacts of discharges, but that is simply not true. The ED's witnesses testified that modeling is not always appropriate,⁹⁷ and permitting has been done before without the use of modeling.⁹⁸ Moreover, the ED ignores the CORMIX results demonstrated by Mr. Trungale, using more realistic water velocities, and his resulting predictions showing the worst case scenarios. According to the TCEQ modeler, the worst case scenario is what the CORMIX modeling is attempting to determine, yet the ED ignores the

⁹⁶ 30 TAC §304(g)(3). (Emphasis added).

⁹⁷ PAC-15, at 6:2-7:20.

⁹⁸ Tr. Vol. 3, at 208:21-25.

CORMIX modeling showing a more realistic worst case scenario using velocities that are more likely to occur than the low velocity used by the ED.

TCEQ also did not dispute the testimony of PAC's expert modelers that the CORMIX model cannot be used to provide reliable results when there is hole below the outfall. In fact, the ED's witnesses agreed with this clear weakness of the CORMIX model, but the ED still puts on blinders and acts as if the CORMIX modeling is accurate even though the evidence indicates it is not. This cannot be the way to evaluate a first-of-its-kind facility in a highly sensitive area.

The Port takes a different approach when addressing this issue. From the start of its argument, the Port tries to hide its failure to present accurate inputs and the failings of the CORMIX modeling by attempting to mislead the ALJs and shift the burden of proof to Protestants.

1. The Port's Misleading Arguments.

The Port has two major problems with the facts here. First, the Port's modeling expert has already admitted that the CORMIX model predicts that, under the Port's Application, the effluent will not comply with the 18.4% limit on the concentration of salinity at the ZID. Thus, he had to try to find a different diffuser configuration that might be able to satisfy the draft permit limit of 18.4%. Second, the Port knows that the CORMIX model cannot provide accurate predictions of the mixing for salinity under the conditions at the outfall, with the 90-foot hole and an eddy. Because the Port has these two fatal problems, it attempts to divert attention away from them.

In the very first sentence on Issue G on modeling, the Port states that "...the water quality based effluent limits that are derived with the use of the CORMIX modeling ensure that the Draft Permit is protective of water quality." They do not, because there are no water quality based effluent limits for salinity in the permit or elsewhere. The Port's statement sounds good, but it is simply not true! For constituents in the effluent with numeric TSWQS criteria, TCEQ can take the

predictions of the mixing from the CORMIX model at the boundaries of the mixing zones and use TEX TOX to develop water quality based effluent limits. But, the ED cannot do that for salinity because there is no numeric criteria for salinity. Therefore, under the rules, the evaluation of the impact of concentrated salinity is different and must be carefully considered.⁹⁹ The task is much more difficult, and the Port has not even seriously attempted to satisfy it.

The **one** purported salinity “limit” in the permit is **not** a limit on the level of salinity in the effluent. Rather, the 18.4% figure in Other Requirement 4 is an attempt to require adequate mixing to assure a conservative level of salinity in the receiving water. But what is a conservative level of salinity to protect marine species? **That is what this hearing is all about.** What we do know is the Port and TCEQ assumed it would be 2.5% or less at the ZID for their initial modeling. That is clear from the discussions of the target for such levels in the Application.¹⁰⁰ The initial TCEQ modeling showed 1.95%, which met the target, as did TCEQ modeling results for the 1.5% target for the aquatic mixing zone boundary and 1.0% for the human health zone.

But of course that was not the actual result of the CORMIX modeling, as TCEQ learned when PAC deposed the TCEQ modeler. When the ED understood the error and realized the Port could not comply with the draft permit, it did not say, “permit denied.” Instead it just changed the percentage figure to 18.4% to match what the CORMIX model predicted could be satisfied. The ED did not all of a sudden determine that 18.4% was safe, it simply moved the goalposts to accommodate what the modeling showed would occur. This is remarkable.

If the revised TCEQ modeling results had shown the Port could only meet 50% of the effluent, not the 18.4%, TCEQ could have simply changed Other Requirement 4 to say 50 rather

⁹⁹ 30 TAC §307.4(g).

¹⁰⁰ AR, Tab D, at S-APP 338-339.

than 18.4. Again, without water quality criteria, the ED has no basis to decide how much salinity is too much. The ED was, as Dr. Wallace indicated, going with its “feeling.” But now that Mr. Trungale has shown that the CORMIX model shows 60% to 70% of the effluent reaching the ZID boundary and 20% to 30% reaching the boundary of the aquatic mixing zone, the ED did not revise its draft permit again.¹⁰¹ It just ignores this evidence.

The Port agreed that it could not meet the 18.4 % at the ZID with its proposed design, so the Port’s new modeler tried to show the limit could be met with a different design and other changes to other inputs. But that model creates new problems. The model predicts that the percentage of the effluent at the boundary of the aquatic mixing zone will be 9%, much higher than target in the Application of 1.5% and much higher than the 1% figure that TCEQ’s model shows when it also predicts 18.4% at the ZID. The Port’s basic argument that the permit is protective for salinity is bogus, and talk of effluent limits is an effort to misdirect the ALJs from the fact that there is no showing that these effluent limits can be met or will be safe for marine life.

The Port’s statement in its first sentence about effluent limits for other constituents is almost as bad. While the statement could be true for known constituents in the effluent that have numeric criteria, there are none because the Port has not identified the chemicals that will be in the effluent. The Port and the ED claim that they cannot know what other constituents will be in the effluent except salinity and NaOCL, but that is simply because the Port has chosen to not identify the chemicals it will use in the process and it has not done any evaluation of the source water. TPWD (and PAC) asked the ED to require the Port to identify constituents in the source water, such as copper, and chemicals or types of chemicals it would need to use in the desalination

¹⁰¹ PAC does not suggest the draft permit should be revised again, but simply points out the absurdity of the ED’s approach in this case—to simply change the limits to match whatever the Port can meet, rather than set a safe target the Port must meet.

process.¹⁰² Both could be in the effluent. Amazingly, for both types of chemicals, the ED refused, stating in response to TPWD comments on these matters only that the desalination facility has not been built so the Port cannot know what will be in its effluent.¹⁰³

Of course they can know. The Port needs only to look at the results of testing of the local source water by TCEQ to determine how much copper and other chemicals are in it and, thus, what levels will be in the effluent once it is concentrated in the desalination process. Likewise, the Port could determine what chemicals or types of chemicals are used in desalination for pretreatment corrosion control and other processes. In fact, this summer, the Port contracted with the University of Texas to obtain such information by January 2021,¹⁰⁴ and the facility will not be built by then. The ED and the Port just chose not to do this task before the permitting process. The Port has really gamed the system. Enabling by the TCEQ has emboldened the Port to a shocking degree. The Port elects to omit, conceal, or ignore relevant information, and then indignantly asserts that PAC's expert testimony should be given no weight because of acknowledged "unknowns."

In regard to the CORMIX modeling, the Port is changing direction and trying to redirect the ALJs to a new argument. The Port clearly agrees with PAC on pages 53 and 54 of its Closing Arguments that the CORMIX model cannot predict mixing for an outfall using the 90-foot hole and with an eddy. It argues those facts can be ignored for modeling purposes. But, unlike the testimony of its experts, the Port no longer argues that what happens below the 63 imaginary bottom used in the model is not a problem because of turbulence. It is now saying there is no reason to look there, and the model works fine for permitting purposes. The Port realized what

¹⁰² PAC-8, at 89-90 (TPWD comment 74); *see also* 79-80 (TPWD comment 52), 93-94 (TPWD comment 77), 94-95 (TPWD comment 78), and 45-46 (PAC comment 5).

¹⁰³ *Id.*

¹⁰⁴ PAC-11.

PAC's closing argument has explained, that arguing that the eddy and other causes of the turbulence will assure adequate mixing below 63 feet means there is no need for the model above 63 feet. But that is contrary to the ED's position that the model is required. The Port cannot argue that the ED can simply assume the turbulence will deal with the mixing issue and still support the ED's argument that the model with non-turbulent, steady state conditions can provide valid results by ignoring the turbulence. The Port knows it cannot have it both ways, so it has now dropped its arguments below 63 feet and tried to refocus the ALJs on just the model results.

2. Attempts to shift the burden of proof.

Both the ED and the Port argue that Protestants did not present any evidence on some of the issues. They do so even when the evidence in the record clearly shows the failure of the Port to meet its burden of proof or the ED to comply with the law. The Port tries to turn its failure into PAC's failure. The clearest example is on page 55 of its closing arguments, where the Port states:

None of Protestants' witnesses have presented evidence using SUNTANS or any other far-field modeling program to dispute the conclusions from Dr. Furnans' work

and

it is telling to note that Mr. Trungale, who performed all of the modeling for Protestants in this matter, did not offer a single opinion regarding the SUNTANS modeling, or any of Dr. Furnans' other work.

But it is Dr. Furnans who made PAC's points, that the SUNTANS model is not relevant to the issues here and, even if it was, the model was not run with proper inputs. The effort to shift the burden is another effort at misdirection.

First, as Dr. Furnans said, his use of the SUNTANS model says nothing about the mixing or concentrations of salinity in the ZID or aquatic mixing zone,¹⁰⁵ which are the areas where PAC

¹⁰⁵ Tr. Vol. 3, at 162:18-163:10, 198:2-10.

argues the water quality standards are not met and the permit is not protective of the marine species. That is true of the spreadsheet, the salt balance, and other efforts by Port and its witnesses to average the salt in the discharge over a wide area. It is the high salinity levels in the ZID and mixing zones that is the problem.

Second, Dr. Furnans' modeling was not done with accurate inputs. Dr. Furnans was told to use a concentration of salinity at 1% over ambient at the boundary of the mixing zone.¹⁰⁶ Dr. Furnans did not run other conditions to evaluate the sensitivity to any other concentrations because he was not asked to do so.¹⁰⁷ And his report states that if the diffuser results in different conditions, his predictions from the modeling would have to be revised.¹⁰⁸

Mr. Trungale's modeling, which was confirmed by Dr. Tischler's modeling, shows that the worst case mixing occurs at velocities in the channel above 0.25 meters per second. The concentration of salinity at the boundary of the mixing zones is 10 to 30 times the level that Dr. Furnans was told to use, thus his SUNTANS modeling is not applicable here.

There has never been a reason for any Protestants to present any evidence on the SUNTANS modeling. Neither the SUNTANS modeling nor the other efforts to average the salinity over a large area helps the Port meet its burden of proof.

H. Whether the Executive Director's Anti-Degradation Review was Accurate.

The Port, and on some points the ED, argues the TCEQ antidegradation analysis was adequate because (1) Dr. Wallace conducted the analysis, is an aquatic scientist, and followed all TCEQ guidelines, (2) other TCEQ staff members reviewed her work, (3) Dr. Tischler concurs that

¹⁰⁶ APP-JF-13, at 1.

¹⁰⁷ Tr. Vol. 3, at 157:23-158:15.

¹⁰⁸ APP-JF-13, at 6.

Dr. Wallace's application of the water quality standards (of which the antidegradation review is an element) was appropriate, and (4) Dr. Wiland is wrong to criticize Dr. Wallace's failure to consider 1975 water quality conditions.¹⁰⁹ These contentions are addressed below.

But, first: the Port and ED's arguments are mostly silent on Dr. Wallace's deposition and hearing explanations of her antidegradation review. Not to belabor the points PAC set out in initial closing arguments, but it is vividly clear Dr. Wallace had "very little time" to conduct the antidegradation review,¹¹⁰ she holds the view that "for the most part, an antideg review on a new facility is a feeling,"¹¹¹ she has no knowledge of the existing assimilative capacity of the receiving water body for salinity or copper,¹¹² and the pH screen she conducted as part of the antidegradation review (Appendix B¹¹³ to the Statement of Basis in this case) is a collection of unsupported or plainly acknowledged as mistaken inputs¹¹⁴ that she was instructed by superiors not to correct before hearing.¹¹⁵

Dr. Wallace is an aquatic scientist, but credentials alone do not make reliable otherwise conclusory or factually-unsupported opinions. Legal claims may not be based on such opinions. To quote from *City of San Antonio v. Pollock*, 284 S.W.3d 809, 816 (Tex. 2009) (citations omitted), itself quoting from *Coastal Transp. Co. v. Crown Central Petrol. Corp.*, 136 S.W.3d 227, 232

¹⁰⁹ See Port's Closing Arguments, at 57-60.

¹¹⁰ PAC-16, at 31:23-24; a statement she stood by at trial, Tr. Vol. 5, at 186:10.

¹¹¹ PAC-16, at 34:14-15; by time of trial, she attempted to back-pedal to a position that an antidegradation review was mostly a matter of "best professional judgment." Tr. Vol. 5, at 200:11-19.

¹¹² Tr. Vol. 5, at 232:2-14; the *Implementation Procedures* are scant guidance, indeed, for determining "de minimis" degradation, but a rule of thumb apparently is that consumption by a new facility's pollutant of less than 10% of the existing assimilative capacity of a receiving water will have a de minimis impact. ED-MW-3, at 64.

¹¹³ AR, Tab F, at ED-0047.

¹¹⁴ PAC-16, at 11:6-10 (diffuser depth), PAC-16, at 13:6-12 (receiving water temperature), PAC-16, at 14:12-18 (receiving water salinity); PAC-16, at 18:1-20 (effluent output temperature and salinity at the mixing zone boundary). Most of these assumptions were also discussed in Dr. Wallace's cross-examination testimony.

¹¹⁵ Tr. Vol. 5, at 237:3-5.

(Tex. 2004):

[A]lthough expert opinion testimony often provides valuable evidence in a case, “it is the basis of the witness’s opinion, and not the witness’s qualifications or his bare opinions alone, that can settle an issue as a matter of law; a claim will not stand or fall on the mere *ipse dixit* of a credentialed witness.” [] ... This Court has labeled such testimony as “incompetent evidence,” and has often held that such conclusory testimony cannot support a judgment.[] ... *see also Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 712 (Tex. 1997) (“When the expert ‘brings to court little more than his credentials and a subjective opinion,’ this is not evidence that would support a judgment.... If for some reason such testimony were admitted in a trial without objection, would a reviewing court be obliged to accept it as some evidence? The answer is no.”).

The fact that a couple of Dr. Wallace’s superiors reviewed – in a manner on which the record is wholly silent – her antidegradation work does not create new bases for that work; it does not make the underlying work less conclusory. Dr. Tischler’s bolstering of Dr. Wallace’s work mostly points to her implementations memo, i.e., the documentation of the conclusory work.

Dr. Tischler raises the justification of “zone of passage” to support Dr. Wallace’s overall conclusion.¹¹⁶ But, on reviewing the exhibit, APP-RP-13, to which Dr. Tischler points for his “zone of passage” argument, one sees that the water across entire width of the channel and comprising roughly half its depth is at least 1.2% effluent. Given that (1) the Water Quality Standards impose a special oyster health-based criterion for copper (0.0036 mg/L) in waters **beyond** the mixing zone and (2) the copper concentration of neither the intake water, nor the effluent, nor the receiving water was considered in the antidegradation analysis, there is no logical basis on which to say the use, post-discharge, of these waters by oysters and their spat will not be impaired or that the degradation caused by 1.2% effluent is, *ipso facto*, de minimis.

Regarding 1975 water quality conditions: 30 TAC §307.5(c)(2)(B) specifies that “[t]he highest water quality sustained since November 28, 1975 ... defines baseline conditions for

¹¹⁶ APP-LT-1, at 39:10-16; Tr. Vol. 3, at 214:23-215:9.

determinations of degradation.” Thus, one must consider the 1975 baseline conditions in an antidegradation review.

The Port in its opening argument attempts to reimagine Dr. Wallace’s unequivocal deposition testimony¹¹⁷ that she did not consider the 1975 quality of the receiving water in her antidegradation review. Her admission had been highlighted by Dr. Wiland’s direct testimony that Dr. Wallace, in deposition, further admitted she did not think degradation was even measured against 1975 conditions.¹¹⁸ She affirmed non-consideration of 1975 conditions in her direct testimony, when she said it was “true” she did not consider the 1975 conditions and did not do an independent review of 1975 water quality. She went on in her direct testimony to suggest this non-review was in some manner cured, because unspecified provisions of the *Implementation Procedures* and unspecified provisions of the water quality standards address unspecified requirements of Part 131 (of Title 40) of the Code of Federal Regulations.¹¹⁹

The CFR chapter is the source of the 1975 baseline date (40 CFR §131.3(e)), but the chapter does not explain circumstances that would excuse Dr. Wallace’s failure to consider 1975 water quality conditions. The Texas water quality standards set the 1975 date, but, like the federal regulation, do not excuse failure to consider water quality conditions then.

The *Implementation Procedures* identify toxic pollutants, such as copper,¹²⁰ among the parameters of concern for a Tier 2 antidegradation review. The *Implementation Procedures*

¹¹⁷ Q: So you don’t make any effort doing antidegradation reviews to determine whether the waterbody – what condition the waterbody was in 1975?

[un-sustained objection omitted]

A: I did not.

PAC-16, at 37:6-12.

¹¹⁸ PAC-3, at 21:5-9.

¹¹⁹ ED-MW-1, at 21:26-31.

¹²⁰ 30 TAC §307.6 (“Toxic Materials”) identifies, 307.6(c)(1), copper as toxic, particularly in oyster waters.

indicate baseline conditions are estimated from existing conditions.¹²¹ But, the *Implementation Procedures* do **not say** the present conditions are the 1975 conditions; there is some consideration or analysis necessary to make that estimation, and that consideration or analysis did not occur here. Furthermore, the agency was told during the public comment period that “freshwater inflows have been significantly altered by agricultural development.”¹²² (To which the agency incorrectly responded: “[E]ffects of agricultural development on freshwater inflows are outside the scope of the Executive Director’s review of the ... application.” Strangely, the response went on to say that, if alterations in future freshwater inflows alter salinities, those changes will not be outside the agency’s future scope of review). So, the agency was on notice that water quality in 1975 and 2020 were likely not the same.

The bottom line on this is that Dr. Wallace’s deposition testimony honestly explained what she did and did not do regarding the 1975 and other antidegradation issues, and the lawyers’ attempts to later reformulate and get her to reformulate her explanations are just attempts to obfuscate what really happened.

In sum, there has to be some threshold for an acceptable antidegradation review, and the review that occurred here did not reach that threshold.

I. Whether the Draft Permit Includes All Appropriate and Necessary Requirements.

It makes little sense to argue about adequate permit conditions for a permit so lacking that it should not be issued at all because it does not meet state and federal requirements and is not protective of water quality and the environment. However, there are clear requirements that must be met by permit terms, and this draft permit clearly lacks some of those basic required elements.

¹²¹ ED-MW-3, at 63.

¹²² ED-KC-6, at 48, comment 61.

First, the permit must contain all information required by law. This one does not. It does not include the location of the outfall,¹²³ leaving the conflicting descriptions in the application to confuse enforcement personnel and courts. Further, neither the permit nor the application include the chemical characteristics of the effluent because the ED did not require such information. But the law requires such, providing that the following information **must** be included in the application: “the physical, chemical, and radiological properties of the defined waste or the injection fluids” as well as “the chemical, physical, thermal, organic, bacteriological, or radiological properties or characteristics, as applicable, described in enough detail to allow evaluation of the water and environmental quality considerations involved.”¹²⁴ Yet, neither the Application nor the draft permit provides this required information.

Further, any permit limits must be enforceable. TCEQ permits can be enforced by TPWD and local governments as well as TCEQ. The limits need to be clear, but many are not. For example, the only provision to limit the amount of salinity anywhere is at the ZID, 18.4%, but there is no limit for the aquatic mixing zone. Moreover, the limit for the ZID does not indicate how that limit is to be monitored, or under what conditions or discharge rate. The draft permit apparently assumes the Port will prove that it satisfies the limits by modeling the discharge, but it does not say that. And, of course, the CORMIX model is not reliable for the outfall location.

TCEQ cannot use permit conditions to put off the required evaluation of impacts until after a permit is issued. Such conditions violate parties’ due process rights to have all of the required issues resolved during the hearing.¹²⁵ They cannot be left simply to the ED’s discretionary decision-making after the permit is issued. Other Requirement 9 postpones the collection of data

¹²³ Tex. Water Code §26.029(a)(2).

¹²⁴ 30 TAC §305.45(b)(8)(B)(ii).

¹²⁵ *Browning-Ferris, Inc. v. Brazoria County*, 742 S.W.2d 43, 51-53 (Tex. App—Austin, 1987, no writ).

on the conditions at the outfall, the size, strength and location of the eddy, which is one example of data needed to evaluate the validity of the CORMIX modeling, until after a permit is issued.

III. TRANSCRIPT COSTS

The Port seeks to have Protestants responsible for 100% of transcript costs, in the amount of \$17,861.26. Protestants believe that all such costs should be borne by the Port, as this hearing was necessitated by the Port and, in fact, the ED changed the draft permit right before the preliminary hearing because of errors caught by the Protestants. As such, the Protestants' request for a hearing was not frivolous and there is no basis for apportioning them 100% of transcript costs in a case where both the Port and the ED made mistakes that required the draft permit to be changed. At most, Protestants should bear no more than half the costs, and then only if the permit is denied, as requested by Protestants.

This recommendation is based upon the factors set out in the Commission's rule for apportionment of transcript costs. Specifically, 30 Tex. Admin. Code §80.23(d) identifies the following factors to be considered when determining whether to assess transcript costs to a party:

- (A) the party who requested the transcript;
- (B) the financial ability of the party to pay the costs;
- (C) the extent to which the party participated in the hearing;
- (D) the relative benefits to the various parties of having a transcript;
- (E) the budgetary constraints of a state or federal administrative agency participating in the proceeding;
- (F) in rate proceedings, the extent to which the expense of the rate proceeding is included in the utility's allowable expenses; and
- (G) any other factor which is relevant to a just and reasonable assessment of costs.

Factors A, B, and C generally weigh equally among the Port and Protestants, as each requested a copy of the transcript, each has the ability to pay, and each participated actively in the hearing. In regard to factor D, all parties generally benefitted from having a transcript, but clearly the prevailing party ultimately will receive a greater “relative benefit.” A granting of the permit benefits the Port.

Factors E, F, and G have not been shown to be relevant. Thus, the only distinguishing factor is the greater relative benefit to a party based upon the ultimate outcome of the case. However, both the Port and the ED benefited from this proceeding, as the Protestants caught an error in their modeling memo, so Protestants should not bear all of the costs of the proceeding even if they prevail. At most, Protestants should bear no more than half the cost of \$17,861.26 if the permit is denied. Otherwise, if the permit is granted, then there should be no allocation and the Port should bear all of the costs shown in its invoices.

IV. CONCLUSION

WHEREFORE, PREMISES CONSIDERED, Protestant PAC respectfully requests that the ALJs issue a Proposal for Decision recommending denial of Port’s permit application, because such fails to demonstrate that the facility to be operated will be protective of public health and the environment. Further, PAC requests such other and further relief to which PAC may show itself justly entitled.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that a copy of this document was served on all parties of record on this date, December 7, 2020, in accordance with the applicable service procedures.

/s/ Benjamin Rhem

Benjamin Rhem