

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

APPLICATION OF THE PORT OF	§	BEFORE THE STATE OFFICE
CORPUS CHRISTI AUTHORITY OF	§	
NUECES COUNTY FOR TEXAS	§	
POLLUTANT DISCHARGE	§	OF
ELIMINATION SYSTEM (TPDES)	§	
PERMIT NO. WQ0005253000	§	ADMINISTRATIVE HEARINGS

**PORT ARANSAS CONSERVANCY’S RESPONSE
TO THE PORT’S MOTION TO EXCLUDE EXPERTS**

TO THE HONORABLE ADMINISTRATIVE LAW JUDGES:

COMES, NOW, Port Aransas Conservancy (PAC) and files this response to the motion to exclude PAC’s experts filed by the Port of Corpus Christi Authority of Nueces County (Port). In support hereof, PAC shows the following:

I. SUMMARY

With no apparent sense of irony, the Port starts its motion with the statement “Protestants’ expert witnesses have no more reliable data or science to support their opinions than they did in the last proceeding.” This is particularly ironic in light of the fact that the Administrative Law Judges (ALJs) and the Commissioners clearly found PAC’s experts reliable and the errors pointed out by PAC’s experts were the basis for the Executive Director recommending a remand and the Commissioners agreeing and remanding this docket.

The comparison between the different sets of experts is remarkable. While many of the Port’s experts base their opinions solely upon literature review and experiences with water bodies everywhere else but the actual waterbody in issue here, PAC’s experts conducted actual analyses and have relied on their extensive knowledge of the actual waterbody in issue, based on decades of experience and research with it. It is as if the question were presented “What is life like in Austin?” and the Port offered testimony from people who have never even visited Austin (but have read a few “Top Ten” lists and Yelp reviews on the internet), while PAC has presented the testimony of life-long Austin residents. But, not only are PAC’s experts very familiar with the local waterbody, they are also some of the foremost experts in the country in their scientific fields.

For example, Dr. Socolofsky, a professor at Texas A&M University in College Station, studied under the creator of the CORMIX model, Dr. Jirka. He has worked over the years with the current owner, Dr. Doneker. Dr. Socolofsky has also developed a model similar to the CORMIX model using the CORMIX model to validate his model. He is not just a user of the model, he understands its design and inner workings. He also is responsible for the first uses of the SUNTANS model in Galveston and Corpus Christi bays. A fuller description of why he is, by far, the most qualified expert to address the modeling is provided below.

The Port's motion to exclude is nearly 100 pages of rehashed arguments and attacks on PAC's experts, who are clearly some of the most pre-eminently qualified experts to speak to the issues in dispute in this case. The Port's attacks mostly boil down to a simple disagreement with the experts' positions, not a legitimate attack on the testimony or qualifications of the experts. The Port simply does not like the testimony, so it hopes to keep it out of the record. Moreover, the Port's nearly 100-page filing presents a litany of specious arguments by the Port—which are an obvious attempt to harass PAC and to hamper its time in preparing for the hearing. As is demonstrated below, PAC's experts are clearly qualified to offer the opinions they have and there is no basis for excluding their testimony.

II. DISCUSSION

A. Legal Standards

A court should allow the opinion testimony of an expert if the expert's opinion is based on sufficient facts or data, as required by Texas Rules of Evidence 702 and 703. Tex. R. Evid. 705(c). A court should allow the opinion testimony of an expert if each part of the expert's opinions is reliable. *Whirlpool Corp. v. Camacho*, 298 S.W.3d 631, 637 (Tex. 2009). In determining whether expert testimony is reliable, a court should consider the *Daubert-Robinson* factors and whether the analytical gap between the expert's methodology and the opinion offered is too great. *See Daubert v. Merrell Dow Pharms, Inc.*, 509 U.S. 579, 93-94 (1993).

The *Daubert-Robinson* factors include the following: (1) the extent to which the expert's theory has been or can be tested, (2) the technique's potential rate of error, (3) whether the theory has been subjected to peer review or publication, (4) whether the underlying theory or technique has been generally accepted as valid by the relevant scientific community, (5) the extent to which the technique relies on the expert's subjective interpretation, and (6) the nonjudicial uses of the

theory or technique. *See Daubert*, 509 U.S. at 93-94. These factors are nonexclusive and may not apply to all expert testimony. *Cooper Tire & Rubber v. Mendez*, 204 S.W.3d 797, 801 (Tex. 2006).

However, in a bench trial, the *Daubert-Robinson* review is not as essential, because the judge sits as both gatekeeper and factfinder in place of a jury. *Gibbs v. Gibbs*, 210 F.3d 491, 500 (5th Cir. 2000) (“[m]ost of the safeguards provided for in [*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993),] are not as essential in a case such as this where a judge sits as the trier of fact in place of a jury.”).

B. PAC’s Experts are Not Just Well-Qualified—They are the MOST Qualified.

The Port continues to make the absurd assertion that PAC’s experts are not qualified to testify to and give opinions on the marine ecology and related matters contained within their testimony, or that their testimony is conclusory or relies on an improper foundation. Not only are PAC’s experts well-qualified, they are undoubtedly the most-qualified experts to testify to the potential harm from the proposed wastewater discharge on the marine environment. A simple review of their expertise, as set out further below, demonstrates this. Moreover, their testimony is not conclusory nor based on an improper foundation. PAC has addressed these arguments in more detail in its response to objections, a separate pleading filed concurrently with this response. So, this response focuses more on the qualifications of PAC’s experts to offer the testimony they have offered.

But, to be clear, determining which experts are more persuasive is not the issue at this stage of the proceeding. And that is precisely the main problem with the Port’s motion to exclude—it rests upon its witnesses’ views of the standards, modeling, bathymetry, and other applicable criteria being accepted by the ALJs as correct. Basically, the Port’s argument is mainly this: Our (the Port’s) experts disagree with PAC’s experts, so clearly PAC’s experts are not qualified to opine on the matters to which they testify. But, the Port’s arguments hinge upon the ALJs first accepting many of the Port’s arguments, and its witnesses’ positions, which are actually disputed by PAC and PAC’s experts.

For example, the Port challenges testimony by PAC’s experts based on or related to modeling by Scott Socolofsky or referencing testing done by Dr. Nielsen. The Port disagrees with the methodology and conclusions reached by Drs. Socolofsky and Nielsen, but such challenges are based upon the opinions and conclusions of the Port’s witnesses. To agree with the Port’s

arguments in its motion to exclude would require the ALJs to decide now that it believes the Port's witnesses are more credible than PAC's experts. Such is not proper at this stage of the proceeding, and the Port's arguments do not provide a proper basis for either objections or a motion to exclude. As is seen below, PAC's experts are eminently qualified to offer all of the testimony and opinions they have provided, their testimony properly supports the basis of their opinions, and their opinions are neither conclusory nor resting upon an improper foundation. The Port's motion to exclude should be denied in its entirety.

1. Greg Stunz, Ph.D.

Dr. Stunz is the Endowed Chair for Fisheries and Ocean Health at the Harte Research Institute for Gulf of Mexico Studies. He received a Bachelor of Science degree in Biology from the University of Texas at San Antonio, a Master of Science degree in Wildlife and Fisheries Science from Texas A&M University, and a Ph.D. in Wildlife and Fisheries Science, also from Texas A&M University. In his role at the Harte Research Institute, he leads a team of approximately 15 scientists and students studying varying aspects of marine biology and in particular marine fisheries. He is also heavily engaged with fisheries management through appointments with various committees and councils. Specifically, his research focuses on marine biology with an emphasis in sportfisheries. His research program is very diverse and focuses on marine ecological issues related to ocean health such as understanding the ecological role of marine habitats, fisheries ecology of exploited species, migration patterns of marine life, tidal inlet dynamics, and marine fisheries management.

Dr. Stunz's curriculum vitae (CV) is 66 pages long and includes research on data collection for recreational fish populations, habitat value, recreational fisheries policy and management, sportfish use of essential fish habitat, restoring nursery habitat for reef fish, tracking seatrout in tidal inlets, and mortality of Black Drum. He has been published in peer reviewed journals more than 60 times, on topics such as the interaction between habitat and fish size, tidal inlets as spawning corridors for Red Drum, and the reproductive potential of Red Snapper. He has a cumulative total of more than \$30 million in research grants on various topics of marine ecology and fisheries science, is a regular on Discovery Channel - Shark Week, and has given testimony before Congress regarding marine fisheries. Dr. Stunz has been appointed by Governor Abbott to safeguard our State's interests as a Voting Member of the Gulf of Mexico Fishery Management

Council. He has also been appointed by the U.S. Department of Commerce to interpret model outputs to inform billion-dollar level decisions for fisheries in the Gulf of Mexico. He was previously hired by the City of Corpus Christi to perform a siting analysis for a desalination plant. There can be no legitimate dispute as to his qualifications as an expert.

His expertise is directly related to the issues presented in reviewing the application and the draft permit. He is as qualified as anyone—including TCEQ staff—to opine on requirements that may be necessary to ensure the protection of aquatic life, including whether the draft permit contains all such requirements necessary to do so. In his testimony, he explains the basis of it and provides clear opinions. His testimony is neither conclusory, nor lacking in foundation. It is based on science, and it is not inconsistent with his prior testimony (which is not even a basis for excluding testimony regardless). The Port’s motion to exclude any part of Dr. Stunz’s testimony should be denied.

2. Scott Socolofsky, Ph.D.

Dr. Socolofsky is a Professor in the Zachry Department of Civil and Environmental Engineering at Texas A&M University in College Station, Texas. Dr. Socolofsky received a bachelor’s degree in Civil and Environmental Engineering from the University of Colorado, Boulder. He received a Master’s degree in 1997 and a Ph.D. in 2001, both in Civil and Environmental Engineering, from the Massachusetts Institute of Technology. From January 2000 to December 2001, he was a post-doctoral scholar under Professor Gerhard Jirka at the Institute for Hydromechanics, University of Karlsruhe, Germany. Dr. Jirka is the “father” of the CORMIX model.

As the J. Walter “Deak” Porter ’22 and James W. “Bud” Porter ’51 Chair professor in the Zachary Department of Civil and Environmental Engineering at Texas A&M University, Dr. Socolofsky teaches courses in the Environmental, Water Resources, and Coastal Engineering Division. His courses are in environmental fluid mechanics. He is the developer of the Texas A&M Oil Spill/Outfall Calculator (TAMOC), which is an open-source programming suite of numerical models for near-field analysis of oil spills and outfall discharges. This was developed through funding from the Gulf of Mexico Research Initiative (GoMRI), the Bureau of Safety and Environmental Enforcement (BSEE) through the National Oceanographic and Atmosphere Administration (NOAA), and the Department of Homeland Security (DHS) through the Arctic

Domain Awareness Center (ADAC) at the University of Alaska, Anchorage. Dr. Socolofsky has applied this program to study oil spills, including the Deepwater Horizon oil spill, and for planning purposes for oil production and exploration. This suite of models is being used by industry and federal agencies in the U.S. and Canada to study the nearfield dynamics of marine oil spills.

In other research funded through the Texas Sea Grant College Program and from a grant related to Hurricane Harvey from the National Science Foundation, Dr. Socolofsky has studied mixing and transport through inlets and in bays along the Texas coast. He has extensive experience with evaluating flows in both the Corpus Christi and Galveston bay systems and passes to them. He has evaluated stratification and tidal flow conditions in the Corpus Christi and Aransas Pass systems.

He is the most qualified expert here to evaluate the SUNTANS model having work with the initial efforts to use of the SUNTANS model in the Galveston and Corpus Christi bay systems. He has used similar models and understands their limitations. He has conducted laboratory studies and field work at Galveston ship channel and Aransas Pass. He also has been funded by the Texas General Land Office's Oil Spill and Prevention Program to study the potential for oil transport through Galveston and Corpus Christi bays using numerical models and, most recently, field observation using unmanned aerial systems.

Dr. Socolofsky is also the most qualified expert to evaluate the use of the CORMIX model. Dr. Socolofsky first used the CORMIX model in the 1990s in his work for his Ph.D. When he completed his Ph.D., he took a post-doctoral position with Professor Gerhard Jirka at the University of Karlsruhe and worked for him for two years. Professor Jirka led the development of the CORMIX model for EPA when he was a Professor at Cornell University. While working for Professor Jirka, Dr. Socolofsky gained significant experience with the inner workings of the CORMIX model and the theories of jets and plumes during. He worked on and attended various projects, seminars, and workshops related to the submodels and modules within CORMIX, and he also attended CORMIX training conducted by Dr. Robert Doneker in the early 2000s. Dr. Doneker is the person who has taken the EPA CORMIX model and made it available to universities, government agencies, industries and the public through his company MixZon, Inc. Further, Dr. Socolofsky has known Dr. Doneker personally and professionally for many years. He has conferred with him regarding the use of CORMIX in this case. And Dr. Socolofsky has developed

his own model that is similar to the CORMIX model and relied on the CORMIX model to validate his model.

Given Dr. Socolofsky's extensive modeling experience—and intimate and experiential knowledge of CORMIX—it takes a lot of gall for the Port to challenge his application of the modeling. But, again, it is not surprising given that the Port desperately wants to keep his knowledgeable testimony out of the record because it reveals the errors in the analysis and modeling by the Port and the ED is in this case. But, as seen above, Dr. Socolofsky is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

3. Kristin Nielsen, Ph.D.

Dr. Nielsen is an Assistant Professor at UTMSI in Port Aransas, Texas, where her lab researches how chemical and physical environmental stressors (separately and in combination with one another) adversely impact the health of aquatic ecosystems. Although her work incorporates levels of biological organization through the whole ecosystem level, she primarily focuses on how environmental stressors impact fish development. Her teaching responsibilities at the University of Texas include Marine Environmental Science, as well as a graduate level course in Aquatic Toxicology and Risk Assessment.

Dr. Nielsen earned a B.A. in Biology from Texas A&M University and a Ph.D. in Aquatic Toxicology from the University of North Texas (UNT). Her dissertation research examined the maternal transfer and developmental toxicity of dietary methylmercury to early life stage fish (*Pimephales promelas*). Prior to being asked to serve as an expert for this case, Dr. Nielsen authored a report titled *Proposed Harbor Island Seawater Reverse Osmosis Desalination Facility: A Prospective Evaluation of Toxicological Risk* that prospectively evaluated potential ecotoxicological risks associated with the discharge of effluent from the Port of Corpus Christi's proposed desalination facility to the Corpus Christi Ship Channel and the surrounding habitat. As the report indicates, this study was requested and funded by the UTMSI Marine Science Council and was conducted as part of her responsibilities as a faculty member at the University of Texas. It was published in 2021.

Dr. Nielsen also conducted multiple studies investigating the survival and growth implications of anthropogenic-mediated salinity stress to early life stage red drum (*Sciaenops ocellatus*). As with the report she prepared for the UTSMI Marine Science Advisory Council, these toxicity studies were funded entirely by UTSMI departmental funds and were conducted as a part of her responsibilities as a faculty member at the UTSMI. The results of these studies were documented in a report titled *Estimating impacts of hypersalinity on early life stage red drum (Sciaenops ocellatus)*. The associated manuscript is currently undergoing peer review at *Estuaries & Coasts*, the Coastal and Estuarine Research Federation's scientific journal.

As noted in PAC's response to objections, Dr. Nielsen's testing and analyses is not covered by Texas Water Code §5.134, because she is not an "environmental testing laboratory" as she did not perform any testing to determine the components of the Port's discharge. Rather, she evaluated the impacts of salinity on aquatic life. Accordingly, the Port's challenges to her testing are without merit. Dr. Nielsen is eminently qualified to offer the testimony she has, and to be able to understand the necessary predicate and foundation for her testimony. Her expertise is directly related to the issues she testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to her testimony are without merit and should be denied.

4. Larry McKinney, Ph.D.

Dr. McKinney is employed as the Chair of Gulf Strategies at the Harte Research Institute for Gulf of Mexico Studies at Texas A&M University-Corpus Christi. Dr. McKinney received his Bachelor of Science in Zoology from Texas A&M University, and his Ph.D. in Biology from Texas A&M University. After graduation, he was a Smithsonian Summer Fellow. Dr. McKinney currently serve in a senior leadership role with the Harte Research Institute, advising institute scientists studying issues related to the Gulf of Mexico, including ecology, species conservation, water resource development, economics, habitat loss, and fisheries. Along with reviewing and advising on the scientific aspects of the Harte Research Institute mission, Dr. McKinney is also charged with taking the results of the scientific studies and developing effective policies and actions to advance the institute's vision of an ecologically and economically sustainable Gulf of Mexico.

Prior to his current chair position, Dr. McKinney was the Executive Director of the Harte Research Institute from 2008 to August 2020. Prior to his work at the institute, he was employed

by the Texas Parks and Wildlife Department (TPWD) from 1986 to 2008, where he assembled and led the Resource Protection Division, eventually totaling some 144 experts, including hydrologists, chemists, freshwater/marine ecologists, attorneys, and economists. The division's primary responsibility was to review every state and federal permit or action that might affect fish and wildlife and act on those evaluations to eliminate, reduce or mitigate negative impacts through research, science-based comments or consultation, administrative hearings, legislative recommendations, and direct mitigation or corrective action. Dr. McKinney eventually directed the Coastal Fisheries Division, overseeing all fisheries related matters for the state of Texas, and filled the role of Senior Director of Aquatic Resources, overseeing all water-related programs.

From 1980 to 1986, Dr. McKinney served as the Director of the Texas A&M University Environmental Engineering Lab at Galveston, where he led the biological assessment of the largest brine disposal project ever undertaken to create the U.S. Strategic Petroleum Reserve's storage facilities. Including his graduate research, Dr. McKinney has spent more than 50 years studying marine environmental issues and management of ecological resources around the world, but most often in the Gulf of Mexico and specifically the Texas coast. He has been directly involved in scientific studies assessing the impacts of brine discharge at three different locations within the Gulf of Mexico. Dr. McKinney has studied desalination siting issues along the Texas Gulf Coast for many years and his training, experience, and direct research in these areas make him one of the most qualified experts to comment on and provide testimony regarding impacts to marine life that may result from discharging concentrated brine into the Aransas Pass Tidal Inlet, one of Texas's five major inlets.

Dr. McKinney is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

5. Andrew Esbaugh, Ph.D.

Dr. Andrew J. Esbaugh is a comparative physiologist and toxicologist that focuses on the interaction between environmental factors and animal performance. He specializes in the effects of environmental stress on performance in aquatic organisms, and he has substantial expertise pertaining to the ability of marine and freshwater fishes to tolerate changing salinity.

Dr. Esbaugh obtained his undergraduate degree (B.Sc. with Honours; Biology) from Acadia University in Nova Scotia, Canada. He obtained his Ph.D. in Biology from Queen's University in Ontario, Canada, where he studied the evolution of respiratory systems in fishes. I gained additional educational experience as a post-doctoral fellow at the University of Ottawa in Ontario, Canada), as well as the University of Miami. In these positions, he studied the effects of environmental factors on fish and other aquatic organisms.

Dr. Esbaugh has been studying comparative physiology for 20 years and has held a faculty position at UTMSI since 2012. His research program examines questions related to salt and water balance in fishes, and also performs toxicity-based studies on marine fishes. Dr. Esbaugh has published multiple papers on subjects related to ion transport pathways in the gills, esophageal desalination and intestinal water processing, including several papers involving hypersalinity acclimation. His background and experience includes a focus on salinity and its impact upon aquatic life, and he has performed numerous studies related to developing water quality criteria for metals in aquatic systems, including lead, copper and arsenic, and performed research on the effects of Deepwater Horizon oil on marine fishes that included both early and juvenile life stages. He has extensive experience working as a toxicologist, including performing acute and chronic toxicity testing using methodology consistent with whole effluent toxicity (WET) testing. His experience includes developing lethality dose response tests for the embryos of fast growing marine fish species, including red drum, mahi and cobia.

In the last 10 years, he has received research grants of more than \$2.8 million, including a \$570,000 research grant from the National Science Foundation to study Respiratory Acclimation of Marine Fish to Ocean Deoxygenation. He has been an author of peer-reviewed publications more than 75 times on topics such as the effects of salinity in the estuarine red drum and hypoxia in marine fish, and is a frequent speaker at conferences and seminars. Dr. Esbaugh is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

6. Daniel Schlenk, Ph.D.

Dr. Schlenk is a Professor of Aquatic Ecotoxicology at the University of California, Riverside. He has been studying the fate and effects of chemicals and salinity, alone and in combination, on aquatic organisms for approximately 25 years. He received his B.S. in Toxicology from Northeast Louisiana University (University of Louisiana Monroe) and his PH.D. in Biochemical Toxicology from Oregon State University. He was a postdoctoral fellow at Duke University from 1989 to 1991.

Dr. Schlenk has particular expertise with the impacts of salinity and desalination discharges. Of the more than 320 peer-reviewed articles and book chapters he has authored, approximately 50 have focused on the impacts of salinity or desalinization discharge on biota. In his own laboratory, he has evaluated the impacts of desalinization discharge from the Monterey Bay Aquarium on fish development. In addition, his lab has evaluated the impact of reverse osmosis treatment (the same process used in desalinization) on removal of endocrine disrupting substances. He also has worked extensively with the Orange County Sanitation District which discharges a mixture of secondary wastewater and brine resulting from reverse osmosis treatment (similar to desalinization) and evaluated the impact of this discharge on biota.

Since 2016, Dr. Schlenk has been an associate editor of the *Journal Environmental Science and Technology*. Since 2016, he also has been an associate editor of the *Journal Environmental Science and Technology Letters*. He has been on the editorial boards of *Aquatic Toxicology* since 2001, *Marine Environmental Research* since 2000, and *Toxicological Sciences* since 2000. He also was co-editor in chief for *Aquatic Toxicology* from 2005 to 2011.

In support of the development of California's 2015 Ocean Plan, Dr. Schlenk served on a Science Advisory Panel that was convened to advise the State of California on the best practices for brine disposal in coastal waters. The panel was comprised of members with expertise in physical oceanography, modeling, ecology, and toxicology. On that panel, Dr. Schlenk provided expert analysis regarding the ecological and toxicological impacts of desalination brine discharges upon aquatic life. The recommendations of the panel he served on were noted by the TPWD and GLO in the Marine Seawater Desalination Diversion and Discharge Zones Study they jointly completed. His panel's recommendations were also referenced by the Texas Parks and Wildlife Department in that agency's comments on the Port's application under consideration in this case.

In addition to the panel noted above, Dr. Schlenk also served as a Scientific Advisor on a research project in Western Australia (National Centre of Excellence in Desalination Australia) that was evaluating the impacts of desalination discharge on aquatic biota, and as a Scientific Partner for the SanOcean Project through the University of Stavanger Norway/University of Cape Town, South Africa and InPART group which was a consortium focused on the impacts of desalination discharge.

Thus, it is very clear that Dr. Schlenk has extensive experience and expertise in regard to desalination, the discharge of brine, and the impacts related to such. Accordingly, Dr. Schlenk is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

7. Barney Austin, Ph.D.

Dr. Austin has a degree in Agricultural Engineering from McGill University, and a Ph.D. in Civil Engineering (Water Resources) from the University of Salford. Following completion of his Ph.D., Dr. Austin worked for the Institute of Hydrology in the United Kingdom for three years, where he was primarily involved in water availability studies, but also supported a study on the viability of desalination plants for small islands in the Pacific Ocean. Later, he worked for Générale des Eaux (which was renamed Vivendi during his tenure, and later Veolia), as Team Leader of the Metering and Special Projects Group, focusing mainly on building statistical models for estimating customer water per capita consumption.

In 1999, Dr. Austin joined the Texas Water Development Board (TWDB) where he was initially tasked with supporting the Instream Flow program as a hydrologist, conducting field work and building hydraulic models, but quickly became Team Leader of the Bays and Estuaries program, where he led and participated in field work, and helped conduct studies of the major and minor estuaries along the coast. Dr. Austin was then promoted to Chief of the Surface Water Availability Section, and later became Director of the Surface Water Resources Division, managing some 20 staff and 9 programs, including the Coastal Hydrology, Oil Spill, and Bays and Estuaries programs. During his tenure at TWDB, Dr. Austin led and participated in many field trips to the coast, including a comprehensive synoptic survey of the Nueces Estuary and Corpus

Christi Bay. He worked with Dr. Junji Matsumoto on a TxBLEND hydrodynamic model which was used to help develop estimates of freshwater inflow needs to the state's bays and estuaries, fate of chemical spills, and impacts of ship channel deepening and widening in both Corpus Christi Bay and Sabine Lake. While at TWDB, Dr. Austin became familiar with the CORMIX software and encouraged the state to fund the development of code improvements that would allow CORMIX to simulate the discharge of negatively buoyant fluids such as brine from desalination plants.

Dr. Austin left TWDB in 2009 and joined INTERA where he led the surface water division. In this capacity, he had business development responsibilities across the United States and worked on hydrology and hydraulics projects in Florida, California, Oklahoma, and Texas. Some of these projects were in the coastal zone. In 2014, he started his own company, Aqua Strategies, an engineering and water resources consulting firm with clients in Texas, Oklahoma, and overseas, where he serves as President and Chief Executive Officer. Many of his projects are in the coastal zone, dealing with salinity, dissolved oxygen, and sediment transport or erosion issues.

Dr. Austin is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

8. Scott Holt

Mr. Holt was a research scientist for 36 years with UTMSI, and his work focused on fish ecology, especially in the waterbodies around Harbor Island. Mr. Holt has Bachelors and Masters degrees in Wildlife and Fisheries Science from Texas A&M University. Mr. Holt provided graduate student supervision to (among others) James Tolan, who appears on the Port's witness list. His CV includes seven pages of publications, technical reports, oral presentations and/or published abstracts, the most recent of which was published in 2019. Mr. Holt's professional work has focused primarily on fish ecology. His research helped establish the critical importance of seagrasses in the estuarine ecosystem. He spent much of 20 years working on the ecology of the very young, planktonic stages (larval stages) of Red Drum and the larval fish migration process in the hydrographically diverse ocean/estuarine system of the Aransas Pass inlet.

The Port takes issue with a number of opinions of Mr. Holt, including his opinions on the potential harm to aquatic life from the discharge. Such challenges are rich in light of the Port's testimony regarding harm. The Port's expert, Lance Fontenot, offers the opinion that only a limited number of early life stages of marine organisms may temporarily be exposed to increased salinity, but that exposure will not cause harm. Mr. Fontenot is a Ph.D, whose dissertation focused on snakes and frogs. In this case he was retained to perform a "desktop" exercise that involved a review of 180 literature references. During his deposition he qualified many of his answers as "based on the literature references." In other words, Dr. Fontenot has little or no personal experience or expertise with this marine environment or the life cycle of relevant species – but he can read. And among the literature references Dr. Fontenot must rely on to answer comparatively basic questions about topics like the red drum life cycle, are the following papers, each of which cites to and relies on research, and papers co-authored by, Scott Holt:

Habitat Suitability Index Models: Larval and Juvenile Red Drum, Fish and Wildlife Service, U.S. Dep't of the Interior (1984) [Bates: Port Authority 037137]

The effects of weathering and chemical dispersion on Deepwater Horizon crude oil toxicity to mahi-mahi early life stages, Esbaugh, et al. (2015) [Bates: Port Authority 037667]

Stressor-Response Model for the Spotted Sea Trout, Mazzotti, et al. (2008) [Bates: Port Authority 038515]

Habitat Partitioning and Seasonal Movement of Red Drum and Spotted Seatrout, Moulton, et al. (2016) [Bates: Port Authority 038657]

So apparently the Port believes that Dr. Fontenot can rely on Scott Holt's research for a basic understanding of the life cycle of red drum –but the very source of some of that information is supposedly "unqualified" to testify. The Port's positions are patently absurd and should be seen for what they are—an effort to harass PAC and the protesting parties.

It is clear that Mr. Holt is qualified to give the opinions he gives. Mr. Holt has a B.S. and an M.S. in Wildlife and Fisheries Science, and he was a researcher at UTMSI in Port Aransas from 1974 to 2010. He supervised graduate students and his CV lists 7 pages of publications, technical reports, and published abstracts on topics such as recruitment of estuarine-dependent fish, distribution and habitat associations of larvae in the Gulf of Mexico, distribution of Red Drum spawning sites, nursery environment cycles of larval red drum, physical processes and the supply

of larvae to the Aransas Pass Inlet, and the condition of larval and juvenile red drum from estuarine nursery habitats. Mr. Holt described his own career as a scientist thus:

I was a Research Scientist for from 1974 until retirement in 2010 at the University of Texas Marine Science Institute in Port Aransas, Texas. . . . I worked in two areas that provided significant information for fish ecologist and resource managers. First, our extensive work on the juvenile stages showed the almost exclusive use of seagrasses as nursery habitat for newly settled red drum in our area and helped establish the concept of the critical importance of seagrasses in the estuarine ecosystem. Second, I spent a good part of 20 years working on the ecology of the very young, planktonic stages (generally referred to as larvae, or larval stages) of these fishes. There were, and still are, few marine ecologists who specialize on these life-history stages. I was proud to be a part of the small, world-wide cadre of researchers in that field.

Of all the experts offered in this case, Mr. Holt is perhaps the most qualified to offer opinions on the potential harm from the discharge, as he knows the waterbody and local aquatic life and ecology as well as any. The Port's challenges to his testimony are without merit and should be denied.

9. Bruce Wiland

Mr. Wiland is a professional engineer specializing in environmental engineering, and he has been registered in the State of Texas since 1978. He has a Bachelor of Engineering Science from The University of Texas at Austin, and a Master of Science in Environmental Health Engineering from The University of Texas at Austin. From 1976 to 1986, Mr. Wiland worked for the state environmental agency that has gone through a number of name changes and is now known as the Texas Commission on Environmental Quality, where he was responsible for performing work in water resource analysis and mathematical modeling of water quality. He worked for the consulting engineering firm Jones & Neuse from 1986 to 1991, where he directed a staff of engineers and biologists responsible for water quality projects, environmental site assessments, environmental audits, evaluation of regulatory impacts, and preliminary engineering assistance in industrial wastewater design. Mr. Wiland has been an independent engineering consultant since 1991, conducting engineering and environmental studies and evaluations for water quality, air quality, and hazardous and solid waste projects and developed water quality models for the State of Texas and State of Louisiana environmental agencies.

Mr. Wiland has conducted numerous computer modeling simulations including both steady-state and dynamic models. He developed the QUAL-TX water quality model used by the State of Texas and the LA-QUAL water quality model used by the State of Louisiana to evaluate impacts of wastewater discharges. He has work experience related to four desalination or reverse osmosis projects. He has worked with a wastewater discharge permit applicant in three instances (City of Electra, North Texas Municipal Water District, and Chem-Tex) and for a protestant in one instance (a discharge into Possum Kingdom reservoir). He has worked on projects involving CORMIX. While working for the State, Mr. Wiland participated in a number of administrative permit hearings testifying for the Executive Director, and while working for Jones & Neuse, he also participated in a number of administrative permit hearings testifying as an expert witness for permit applicants. As an independent consultant, Mr. Wiland has provided testimony in his expert capacity in two district court proceedings, and a number of administrative proceedings.

Of particular relevance, Mr. Wiland performed work as a subcontractor to James Miertschin and Associates, a subcontractor to Zephyr Engineering (who was the contractor to the ultimate client, Chemtex), where he modeled salinity in the Corpus Christi Inner Harbor from a proposed 9 million gallons per day desalination plant. As is clearly seen from the above, Mr. Wiland is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

10. Tim Osting

Mr. Osting is employed as the Principal Engineer and Chief Operating Officer of Aqua Strategies, Inc., where he primarily works on water resources projects involving surface water planning and modeling (hydraulics, hydrology, water quality, habitat), environmental flows (bays and estuaries inflows, and instream flows), and field data collection (topography, cross-sections, bathymetry, vegetation, habitat, organism abundance, sediments, etc.). He received a B.S. in Civil Engineering from the University of Texas at Austin and an M.S.E. from the University of Texas at Austin in the Environmental Water Resources Engineering program.

Prior to joining Aqua Strategies Inc., Mr. Osting worked for Espey Consultants Inc. dba RPS (also known as RPS Espey) from September 2005 through June 2014. At RPS, he was

Managing Engineer in the Water Resources group where he worked on water resources projects comparable to those in his current position at Aqua Strategies Inc. From September 2001 through August 2005, he worked for the Texas Water Development Board (TWDB) and was Instream Flow Team Leader in the Surface Water Resources Division. Between 1996 and 1998, he worked at the TWDB assisting with river studies and bay and estuary studies, including field studies, data processing and computer programming. There he was a manager over the work of Dr. Furnans.

While employed at Aqua Strategies Inc., Mr. Osting participated in a Texas Pollutant Discharge Elimination System (TPDES) permit application process where he used CORMIX to evaluate diffuser design for a plume resulting from discharge of negatively buoyant reverse osmosis reject water. He has also participated as an engineering technical consultant or expert witness in numerous civil claims related to hydrology, flooding, sediments, and water quality, including TPDES permitting actions and Texas water rights permitting actions before the State Office of Administrative Hearings.

Mr. Osting has been responsible for design of multi-year field data monitoring programs and development of standard operating procedures for state agencies executed by agency staff; measurement of topography, bathymetry, sediments, water flow, water velocity, and water quality in streams, lakes and coastal waters in Texas; and use of the data in models. He has deployed ADCPs, echosounders, and survey-grade GPS at least 50 times for many projects in stream, lake and coastal areas, as recently as December 2021 in the Brazos River. While employed at Espey Consultants, he completed comparable work at additional locations, and while employed at TWDB, he worked on stream studies and coastal studies. For the 1997 TWDB Lower Laguna Madre major estuary study, Mr. Osting installed and maintained automated instrumentation throughout the bay for roughly 6 weeks, and was also responsible for initial setup of ADCP instruments for participating staff with TWDB, TPWD, and USGS, and for computer programming for post-processing of the data.

Mr. Osting is eminently qualified to offer the testimony he has, and to be able to understand the necessary predicate and foundation for his testimony. His expertise is directly related to the issues he testifies about, is not conclusory, and does not rest on an improper foundation. The Port's challenges to his testimony are without merit and should be denied.

C. PAC Incorporates its Responses to Objections to the Testimony of PAC's Experts

Most of the Port's arguments in the motion to exclude are repetitive of its objections to the prefiled direct testimony of each of PAC's expert witnesses, as well as its objections to such experts in the original proceeding. PAC incorporates by reference its response to the Port's objections, filed this same day, as well as all prior responses to the objections to the testimony of PAC's experts, challenges to their qualifications, or the reliability of their testimony.

III. CONCLUSION

For the reasons noted above and stated in PAC's response to the Port's objections to PAC's evidence, the Port's challenges to PAC's expert testimony and exhibits are completely without merit. They are an attempt to harass PAC, rehash prior arguments that have already been ruled upon, or an effort to get into weighing the substantive credibility of each sides' experts at this time—which is not proper at this stage of the proceeding. Accordingly, the Port's motion to exclude PAC's expert testimony and exhibits should be denied in its entirety.

Respectfully submitted,

/s/ Craig R. Bennett

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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, March 9, 2022, in accordance with the applicable service procedures.

/s/ Craig R. Bennett
Craig R. Bennett