BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,
Complainant,

v.

PUGET SOUND PILOTS,
Respondent.

Docket TP-__

TESTIMONY OF

ERIC C. KLAPPERICH

ON BEHALF OF PUGET SOUND PILOTS

JUNE 29, 2022
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I. IDENTIFICATION OF WITNESS

Q: What is your name, business address, and current occupation?
A: My name is Captain Eric Klapperich. My business address is 2003 Western Ave, Suite 200, Seattle, Washington 98121. I am a member and current Vice President of the Puget Sound Pilots. I hold a 1,600 Gross Ton (“GT”) Master license and First Class Pilot endorsement from the U.S. Coast Guard, as well as a Washington State pilot’s license that is specific to the Puget Sound Pilotage District.

Q: How long have you been a Puget Sound Pilot?
A: I have been a pilot operating independently under my own license as a member of the Puget Sound Pilots for approximately 14 years.

Q: How did you become a Puget Sound Pilot?
A: Becoming a Puget Sound Pilot is a very rigorous process that takes many years to complete. I describe the application process and training program in detail in my testimony below. At the outset, however, it is important to understand that the path to becoming a pilot begins long before a prospective pilot is even qualified to apply to sit for the training program entrance exam. Obtaining the multiple licenses and certifications necessary to become a pilot (for example, STCW Training, firefighting, radar, ECDIS, BRM, Security on Board, HAZMAT, and many others) takes approximately 20 years to accumulate.

I began my maritime career as a deckhand on small coastal freighters at Western Pioneer in 1986. Between 1986 and 1990, I earned an A.B. Ticket (Able Bodied Seaman) and a 500 GT Mates License. In 1990, as a newly licensed mate, I joined Western Towboat Co. in Seattle,
where I was promoted to tugboat captain in 1993. Being a tugboat captain is itself a highly skilled position that requires instinctual ship handling abilities and sound judgment. Many of our association’s members served as tugboat captains before becoming pilots precisely because that job develops the ship handling skills that are so critical to piloting on Puget Sound.

Over the next 12 years working as a tug Captain all over Puget Sound, Canada and Alaska, I obtained a 1600 GT Masters license and successfully completed all of the federal requirements to obtain a First Class Pilot endorsement on my license. These requirements included approximately 327 round trips on specified routes throughout Puget Sound from the Canadian border to Olympia. These trips include the main ship channel, harbors, ferry routes and waterways throughout the District. I was able to complete all the required pilotage trips, while working as a tug captain. The pilotage district is divided into 25 chart sections, known as chartlets, that must be drawn by memory and require a 90% passing grade. Once a specific route was completed and I was able to draw the corresponding chartlet for approval, it was endorsed on my license.

In addition to chart exams, I was required to prepare written route descriptions for each drawn chart, which are extensive exam summaries describing in detail, pertinent aspects of Puget Sound such as wind and weather, and local tides and currents. After successfully drawing all charts and preparing all written route descriptions, I earned my First Class Pilot endorsement for all of Puget Sound and the adjacent areas including Lake Washington, Haro Strait, Boundary Pass, and the Straits of Georgia. Completing the federal requirements was an incredibly daunting commitment that required me to take a lot of time away from my wife and two young kids. However, obtaining my first-class pilot endorsement was both a personal goal and a necessary prerequisite that allowed me to qualify for the pilot’s exam.
In early 2005, the Board of Pilotage Commissioners ("BPC") announced the exam date for November 2005. In August of 2005, I took a three month leave of absence from Western Towboat Co to study and prepare for the exam. After months of studying for hours each day, I sat and successfully passed the written exam and was invited to the simulator portion. My simulator score was added to my written score, and I was placed on the trainee list with the other successful applicants. That testing process was the most stressful situation I had experienced to that point in life. It was a very demanding process that tested my knowledge, situational awareness, judgment, and ship handling.

In August 2007, I began the Puget Sound Pilot training program. The seven-month training program that I participated in before becoming a pilot was also incredibly rigorous and stressful, and required my full attention while observing, training, and being evaluated. I was ultimately able to successfully complete the training program, become a pilot and member of our association, and obtain my state license in February 2008.

Q: Has the training program changed since you became a pilot?

A: Yes. The 2005 exam was the last year for which applicants were required to obtain their federal First Class Pilot endorsement as a prerequisite to sit for the exam. The successful applicants from the 2005 exam were the last group of trainees whose training program was shorter than it is today because applicants were required to have all trips, routes and charts completed and endorsed before applying. Today, an applicant may sit for the exam before obtaining his or her First Class Pilot endorsement and may complete the federal requirements during the training program if the applicant is admitted. This change has extended the training program from seven months to up to three years.
Q: What was the purpose of this change?
A: Under the old system, a prospective applicant was required to spend years attaining local knowledge before becoming eligible to sit for the exam. As a practical matter, this limited our applicant pool primarily to captains from within our region. This change was part of a deliberate strategy to attract a national applicant pool with a diverse range of maritime experience.

II. PURPOSE OF TESTIMONY

Q: What is the purpose of your testimony?
A: I have been asked to testify regarding several topics based on my training and experience as a Puget Sound Pilot.

First, I have been asked to discuss PSP’s mission, which is to ensure maritime safety on our district’s waterways. It is a common misconception that maritime pilots work for the shipping industry, or that our primary responsibility is to the ships and shipowners that are subject to compulsory pilotage. In fact, however, our duty is to act on behalf of Washington State in service of the public interest and to maintain professional judgment that is independent of any commercial considerations that do not comport with the needs of maritime safety.

Second, I have been asked to describe the training and license requirements that an aspiring pilot must complete in order to become a Puget Sound Pilot. The process to become a Puget Sound Pilot is arduous. Qualified applicants to the training program are already licensed masters with significant sea time and experience. From that elite applicant pool, only the most well-qualified candidates are admitted into the training program, where they go on to spend years honing their bridge presence, shiphandling abilities, local knowledge, and judgment under the
supervision of licensed pilots. The result of this process is that only the most highly qualified and skilled candidates become Puget Sound Pilots.

Third, I will address the levels of licensure and continued training and education that Puget Sound Pilots accrue after successfully completing the training program and receiving a state pilot’s license from the Board of Pilotage Commissioners. A licensee does not become an “unlimited” pilot authorized to pilot a ship of any size on any route until his or her sixth year of active service. Even after a Puget Sound Pilot achieves unlimited status, that pilot continues his or her training and education through simulator and manned model exercises. This ongoing education is critical to ensure that we continue to maintain and improve safe operations as ship technology changes and ships become larger and more difficult to maneuver.

Fourth, I have been asked to address the challenges and risks that Puget Sound Pilots encounter in the line of duty. Piloting is a very difficult job, and Puget Sound is an exceptionally large and complex pilotage district. The challenges our pilots encounter are diverse and significant. I describe in detail below three examples of particularly difficult jobs that our pilots perform on a regular basis. I also describe the ways in which the challenges pilots face have evolved as the size of the largest ships calling at Puget Sound has increased dramatically in recent years.

Lastly, I have also been asked to opine on PSP’s use of international gross tonnage or “GT ITC” as a measure of calculating pilotage rates. Fair and reasonable pilotage rates should (and do) take into account the relative difficulty of piloting a particular ship which, in turn, correlates closely to the ship’s size. Because GT ITC more accurately captures the size of a ship’s structures, it is a better proxy for the difficulty and risk of piloting a ship than other measurements such as domestic gross registered tonnage or “GRT” and, therefore, is the more
appropriate metric to calculate pilotage rates for all ships irrespective of whether they are engaged in international or domestic commerce.

A. **Puget Sound Pilots’ Mission is to Ensure Maritime Safety.**

Q: When was the Puget Sound Pilots association formed?

A: The Puget Sound Pilots have existed as an unincorporated association in its current form since 1935. We have been protecting Puget Sound and the public trust for more than 85 years.

Q: What is PSP’s mission?

A: Our mission statement, which is available on our website, states: “The mission of the Pilots is to ensure against the loss of lives, loss of or damage to property and vessels, and to protect the marine environment by maintaining efficient and competent pilotage service on our State’s inland waters within the Puget Sound Pilotage District.”

Q: Does PSP’s mission statement accurately reflect your understanding of your responsibility as an individual pilot?

A: Absolutely. Speaking for myself and, I am confident, every one of my fellow pilots, safety is our unequivocal number one priority, to the exclusion, whenever necessary, of any other concern. Protecting against the loss of human life is, of course, our most important responsibility. In addition, pilots are committed to the protection of property and the environment, which includes Puget Sound’s diverse ecology and natural resources that belong to the citizens of the State of Washington. Pilots are acutely aware of the ecological sensitivity of Puget Sound and the massive catastrophe that could result from an oil spill or other serious maritime accident.
Simply put, our job – 24 hours a day, 365 days a year – is to prevent that type of devastating event from happening. As I describe in detail below, every member of our association has undergone extensive training and education to provide the best achievable protection of our state’s waterways.

Q: Are there any misconceptions that you have encountered regarding the nature of pilots’ role and their mission?

A: Within the piloting community, and specifically within PSP, our mission of safety above all else is clearly and universally understood. I do think, however, that outside the piloting community there is a common misconception that pilots’ role is primarily to provide a service to shippers and to support their commercial interests. That is simply not the case. While pilots certainly do our best to serve our shipping customers in an efficient and timely manner, we do so impartially and do not allow economic considerations to interfere with the exercise of our independent judgment or cause us to lose focus on our mission of ensuring safety.

Q: How is a pilot’s role different from that of a ship’s master or other members of the bridge team?

A: A pilot’s role is very different from a ship’s master and other deck officers. My understanding based on decades of experience in the maritime industry is that ship captains are subject to an incredible amount of economic pressure to save money from their owner, charterer, agents, or business operations. In the maritime industry, and especially in international shipping, time is extremely valuable, and even a short delay can be very costly. As a result, economic priorities can, and sometimes do, influence captains to take unsafe routes, sail in unsafe weather
conditions, or otherwise cut corners to save time and maximize profit. A lack of appropriate
regard for safety among international shippers is, unfortunately, a fairly common problem that is
widely known within the maritime community. For an in-depth discussion of this important topic
I encourage the UTC to review The Outlaw Sea – A World of Freedom, Chaos, and Crime by
William Langewiesche, and Voyages of Abuse – Seafarers, Human Rights and International
Shipping by A.D. Cooper.

   In addition to pilots’ intimate local knowledge of their pilotage ground, compulsory
pilotage exists, in part, to prevent economic considerations or the bridge team’s other external
concerns from interfering with a ship’s safe navigation while sailing on Washington State’s
coastal or inland waterways. Pilots are not members of the ship’s bridge team, are not servants of
the vessel or its owner, and are therefore not influenced by economic pressures that can distort
the exercise of sound judgment and safe navigation. The pilot’s independence is intentional, as
reflected in the official statement on the piloting profession that was adopted in 1997 by the
Board of Trustees of the American Pilots Association and is widely known and taught
throughout our industry. That statement requires pilots to “exercise independent judgment
without regard to any desires that do not comport with the needs of maritime safety.”

B. Only Highly Skilled and Experienced Mariners are Eligible to Apply for the
Pilot Training Program.

Q: What qualities or character traits must a mariner possess to become a Puget Sound
Pilot?

A. There are several. First, a pilot must be physically fit. Both the Coast Guard and the
Board of Pilotage Commissioners require pilots to pass regular physical examinations, and for
good reason. Most significantly, pilots must be capable of safely executing a pilot transfer, which
requires the pilot to embark and disembark a ship while in transit using a pilot boat and pilot
ladder. The transfer process can be very physically strenuous, particularly when wind or sea
conditions cause the ship to pitch or roll, which may require the pilot to ascend the pilot ladder in
challenging conditions while in motion. Puget Sound Pilot Captain Sandy Bendixen, describes
the pilot transfer process and the safety risks it presents (especially when, as happens too often,
ships and their crew fail to provide a transfer arrangement that complies with international
standards) in detail in her testimony.

Second, a pilot must be highly intelligent and an effective communicator. The amount of
critical information that a pilot must internalize, commit to memory, and apply in real time is
staggering. Pilots must possess a deep understanding of relevant scientific principles. Pilots must
calculate and understand how multiple factors (e.g., tide, current, underkeel clearance and
hydrodynamics) may impact the safe maneuvering of a vessel and its ship handling
characteristics. Pilots must also have complete mastery of the local geography and marine
environment, including the ability to accurately draw from memory the entire Puget Sound
Pilotage District navigation chart (which comprises no less than 25 discrete chartlets), including
correctly placing navigation aids, shipping lanes, water depths, underwater hazards, and other
markers.

Third, and perhaps most importantly, a pilot must possess sound judgment and
confidence in his or her decision-making in critical situations. This is developed through training
and honed by experience. As I discuss below, our training and preparation is what enables pilots
to safely handle virtually every class of ship along multiple routes in the everchanging conditions
of the Puget Sound environment.

Q: Who may apply to become a Puget Sound Pilot?
Section 363-116-0751 of the Washington Administrative Code sets out minimum licensure and sea time requirements to apply to the training program and sit for the written portion of the entrance exam. Pilots come from a variety of maritime backgrounds (e.g., open water, ferry, tug) and this background typically determines the license that the prospective applicant holds at the time he or she applies. While there is some variation regarding minimum sea time requirements depending on the applicant’s maritime background, generally the applicant must have accumulated a minimum of two years sailing on his or her master’s license. Reaching the level of experience that is necessary to meet this requirement, however, takes much more than two years.

Q: Could you please describe an example of one of the career paths to becoming a pilot?

A: Yes. A candidate who comes from a towing background (like I did), typically would begin their career as a deckhand. The first licensing step for such a candidate is to obtain an A.B. Ticket or Able Body Seaman license. This requires the licensing candidate to pass an exam that addresses topics including the safe launching and operation of a lifeboat, deck safety, rules of the road, knot tying, and other fundamental maritime skills.

Next, the candidate must apply for and sit for a 1,600 GT Mate’s license. Assuming the candidate passes the mate’s exam – a difficult process that requires several weeks of preparation and study, typically at a maritime learning center – he or she would need to accumulate at least two years of sea time (a process that typically takes four years) before becoming eligible to apply for a 1,600 GT Master’s license. Assuming a mariner passes the master’s exam – which is itself a very significant accomplishment – the aspiring pilot must then accumulate two more years of sea
time (which, again, takes four years) sailing on that upgraded license just to meet the minimum requirements to apply for the pilot training program.

**Q:** Are some career paths to becoming a pilot considered more difficult than others?

**A:** While there are several different maritime career paths to become a pilot, I would not describe any particular path as being more difficult or less difficult. Rather, each career path develops different (and, of course, some overlapping) strengths. For this reason, it is extremely important for PSP to maintain a pilot corps that includes pilots from diverse professional backgrounds. However, the minimum eligibility thresholds contained in WAC 363-116-0751 ensure that every applicant to the training program regardless of their background is already an accomplished, seasoned mariner. This skilled applicant pool is then further narrowed through a highly selective examination and training program designed to identify and select only the most highly skilled candidates.

**C. The Application and Training Process to Become a Puget Sound Pilot is Selective and Difficult.**

**Q:** Once a candidate meets the minimum eligibility requirements, what is the process to become a pilot trainee?

**A:** To be clear, simply meeting the minimum qualifications to apply to the pilot training program in no way guarantees the applicant a spot as a trainee. Once a candidate submits a qualified application, he or she may register to take the written examination at the next test date offered by the Washington Board of Pilotage Commissioners. The subject matter of the written exam is extensive and covers topics that range from seamanship and ship handling, to federal laws affecting mariners and pilots including environmental laws, to the operation of marine
radar, VHF radio, and navigational equipment. The written exam is very challenging and requires intensive study. As I mentioned above, I personally took a three-month leave of absence from Western Tugboat Co. to prepare for the exam, during which I studied full time. A list of topics that are fair game for the written exam is contained at WAC 363-116-076(3).

Q: How is success or failure on the written exam assessed?
A: The written exam is developed by the BPC and a “cut score” is set by a psychometric expert and subject matter experts. Each applicant’s exam is then individually graded. Applicants who do not meet or exceed the cut score are dismissed. Those who score higher than the cut score on the 200-question written exam may participate in the simulator evaluation.

Q: Please describe the simulator evaluation?
A: Like the written exam, the simulator evaluation is very stressful and challenging.

Applicants are evaluated by a panel of evaluators that includes BPC board members who hold or have held at minimum a 1600 GT Master’s license as well as two non-board members who hold or have held a state pilot’s license within the last 10 years. The simulator evaluation tests critical skills including the applicant’s ship handling ability, communication skills, and ability to respond appropriately to both routine and emergency situations. A description of the factors considered in the evaluation is contained at WAC 363-116-077.

As with the written examination, a cut score is set by a psychometric expert and subject matter experts for the simulator evaluation, and applicants who score below the cut are dismissed. Candidates who pass the simulator are placed on a ranked list based on their combined simulator and written examination scores. Applicants are then selected from this list.
and invited to join the training program in ranked order as open positions become available. If an applicant does not begin the training program within four years of the written examination, the applicant is removed from the list.

Q: Once an applicant is admitted to the training program, what is required to successfully complete the program and obtain a Washington State pilot’s license?

A: First, the prospective trainee will be offered a Training Program Agreement by BPC that sets forth the trainee’s rights and responsibilities. An example of the Training Program Agreement is Exhibit ECK-02. Once the trainee executes the Training Program Agreement, he or she is officially in the training program and will be assigned a Training Program that assigns the trainee an initial route and details other training program requirements that the trainee must complete to obtain his or her state license. An example of the Training Program Requirements document issued to a trainee upon admission to the program is Exhibit ECK-03. While my testimony describes in general terms the training program’s contents, I encourage the UTC to consult Exhibits ECK-02 and ECK-03 for greater detail on this topic.

Q: Who administers the training program?

A: The training program is administered by the Training Evaluation Committee as a subcommittee of the BPC. The chair of the committee is an active state-licensed pilot and pilot commissioner. The State also maintains an employed position of Training Program Administrator who handles the administrative tasks associated with operating the training program. The training program is very rigorous and typically takes between 20 and 24 months to complete.
Q: Please describe the program’s basic elements?

A: The basic elements of the training program requirements are described at WAC 363-116-078. Each trainee’s progress is overseen and regularly evaluated by a trainee evaluation committee or “TEC” that includes a minimum of three state-licensed pilots.

At the beginning of the training program, the TEC assigns the trainee an initial route between a commonly navigated port or terminal and the district’s seaward boundary. Within the first eight months of training, the trainee must take and pass multiple conning quizzes (these are very specific tests that include local knowledge questions such as how close the shallows are to a particular point of land, how close particular berths are in feet, the depth of water at a particular berth in feet and tenths of feet, etc.) for the assigned route with scores of at least 80%, must take and pass a local knowledge exam for the assigned route with a score of at least 85%, and must obtain a First Class Pilot endorsement on the trainee’s federal license for the assigned, initial route. As I discuss in more detail below, obtaining the federal endorsement requires the trainee to accurately describe the routes in detail and draw the required chartlets for that route from memory. If the trainee fails to timely complete these requirements or obtain an extension, he or she is dismissed from the training program. To complete the training program, the trainee must successfully pass the conning quiz and local knowledge exam for all routes.

Trainees typically complete well over 250 trips (typically around 300) with licensed pilots during the training program. These trips are completed in three phases: observation trips, training trips, and the evaluation trips. Each phase involves dozens of trips aboard different classes of ships on a wide range of routes, in order to expose the trainee to as many diverse
scenarios as possible. All trips must be successfully completed and logged before a candidate is eligible for his or her state license.

Q: Please describe the trainee’s job during observation trips?
A: During observation trips, the trainee’s job is to observe and ask questions. At this stage, the trainee is not permitted to control the ship, but may work on bridge presence and familiarize his or herself with bridge equipment. Once a trainee has completed observation trips and successfully passed the conning quiz and local knowledge exam for a particular route, the trainee is eligible to begin the training phase for that route.

Q: Please describe the trainee’s responsibilities during training trips?
A: During the training phase, the trainee takes control of the vessel, but engages with the licensed pilot throughout the job, with the pilot answering questions and providing input. Lastly, once the trainee has completed the required training trips, he or she begins the evaluation phase.

Q: Please describe the evaluation phase?
A: On evaluation trips, the trainee controls the ship independently without advice from the licensed pilot. The licensed pilot’s role on these trips is limited to intervening when safety requires. If a trainee receives three interventions at any point during the evaluation phase, the trainee can continue training. However, if a trainee receives a fourth intervention, the trainee is dismissed from the training program.
Q: Have you ever had to intervene during an evaluation trip and, if so, could you please describe an example?

A: Yes. I would like to give two examples. On one occasion, I was supervising a trainee on an evaluation trip in route to Everett near Scatchet Head, when the trainee gave an order to cross traffic lanes ahead of an oncoming vessel rather than continue south and allow the oncoming ship to pass. It was an inappropriate order that would have resulted in an unsafe maneuver, and I intervened. It is important to note that this trainee was an experienced captain at the time of this incident. On the second occasion, I was transiting on a loaded oil tanker approaching the south berth at Cherry Point from the north. The trainee being evaluated needed to transit past the north berth which was occupied by a tanker being loaded and surrounded by an oil boom. The trainee failed to recognize that the current was pushing us at an extreme rate onto this loading tanker and was not making sufficient corrections to the ship’s set and drift. Due to the extraordinary risk presented I intervened and made the required maneuvers to prevent potential catastrophe.

Today both of these former trainees are members of PSP and are highly competent pilots. I give these examples to demonstrate that even seasoned mariners require extensive training before they are ready to become pilots. The State’s training program is critical to ensuring that every pilot charged with protecting Puget Sound on behalf of the citizens of Washington has the tools, knowledge and experience that need to operate at the highest level of professional expertise and provide the greatest possible degree of safety.

Q: Is passing all of the BPC-required conning quizzes and local knowledge exams, and completing all required observation, training, and evaluation trips, sufficient for a trainee to receive a state license?
A: No. In addition to the training program requirements administered by the BPC and
overseen by the TEC, the trainee must also obtain a First Class Pilot endorsement on his or her
federal license for every route within the pilotage district. In addition to logging trips, the trainee
must write from memory a detailed description of each route for which endorsement is sought.
Exhibit ECK-04 to my testimony is a copy of a route description prepared by Puget Sound Pilot
Captain Trevor Bozina for Chart 18421, which is Rosario Strait. Exhibit ECK-04 is just one
element of the many required route descriptions that trainees must commit to memory to receive
their federal endorsement. As Exhibit ECK-04 demonstrates, these route descriptions are very
detailed and include information regarding prevailing tides and currents, the type and direction of
vessel traffic and cross traffic, the applicable vessel traffic system, special areas and operating
requirements, special harbor rules, anchorages, geography, and man-made features.

To obtain the required federal endorsement, the trainee must also draw from memory
each of the 25 chart sections that comprise the charted area of the Puget Sound Pilotage District
with near perfect accuracy. Like the route description exams, these chart tests are administered at
the local Coast Guard Regional Exam Center. Trainees are provided with a blank chart section or
“chartlet” for a particular area that includes instructions to identify and draw a long list of items
including prudent courses, water depths every two inches (some drawn chartlets are as much as
three feet by four feet in size), shoaling, land cover, traffic lanes, cable areas, and, most
importantly, navigation aids. An example of a blank chartlet for Rosario Strait is reproduced
below:
The trainee is then given a limited amount of time to draw the chart by correctly identifying and placing on the blank chart all of the required information. Once the applicant completes the chart, the examiner compares the drawn chart on a lighted table to an actual NOAA chart of the same area. Each drawn marker must touch the marker on the actual chart, with a minimum score of 90% required to pass.
The chartlets for Admiralty Inlet, Anacortes, and Rosario Strait are considered intermediate, difficult, and very difficult, respectively. Each of these chartlets as drawn by me or one of my fellow pilots from memory is reproduced below:

Intermediate: Admiralty Strait
Difficult: Anacortes
Very difficult: Rosario Strait

A nearly complete set of chartlets drawn from memory by Captain Bozina is attached as Exhibit ECK-05.

Once the trainee successfully completes all 25 charts and corresponding route descriptions, the trainee is eligible to receive the First Class Pilot endorsement on his or her federal license. Only after the trainee receives the First Class Pilot endorsement and completes
all other requirements of the training program, does he or she become eligible for issuance of a state pilot’s license by vote of the Board of Pilotage Commissioners.

**Q:** What is your opinion of the process to become a Puget Sound Pilot?

**A:** In my opinion, the process to become a Puget Sound Pilot is absolutely necessary to ensure that every one of our members possesses the elite skill, knowledge, and judgment that are required to ensure the best possible protection of our district’s waterways. Of course, it is also imperative that our association offer competitive compensation, working conditions, and benefits, in order to recruit and retain an elite, diverse pilot corps from among a very small pool of candidates throughout the country. I believe there is a clear relationship between the competitiveness of the compensation we offer and the quality of trainee that we are able to recruit and retain.

**D. Puget Sound Pilots’ Education and Professional Development Continues Throughout Our Careers.**

**Q:** Once a trainee completes the training program and receives his or her federal First Class Pilot endorsement and state license, is that person qualified to pilot any ship on any route in Puget Sound?

**A:** No. New pilots begin at what we refer to within our association as “level zero,” which is the lowest level of licensure and carries significant restrictions. In the first year of active service, a licensed limited pilot is prohibited from piloting a loaded oil tanker of any size, may not pilot any vessel (regardless of class) above 38,000 GT ITC, and is barred from piloting any ship greater than 3,000 GT ITC on the Duwamish Waterway. These restrictions are lifted gradually with the new pilot’s limited license being upgraded on an annual basis.
A limited pilot’s annual license upgrades do not, however, happen automatically. Rather, during each of his or her first five years, a limited pilot must take a minimum of eight “upgrade trips” on ships of the next step up in size for the applicable class of ship, and specified routes, under the supervision and evaluation of a more senior pilot. A pilot finally attains an “unlimited” license no earlier than his or her sixth year of active service. A table listing the license restrictions applicable to each of a pilot’s first five years of service is contained at WAC 363-116-082. Please note that what PSP refers to internally as “level zero” corresponds to license year one in the WAC, “level one” corresponds to license year two, and so on.

Q: Other than upgrade trips, once a Puget Sound Pilot trainee completes the training program, is that pilot’s training and education complete?

A: No. A Puget Sound Pilot’s training and education continues throughout his or her career. For example, every five years each Puget Sound Pilot – regardless of seniority – must participate in manned model training. These weeklong trainings are held at special facilities (typically in France, Poland, England or Australia), where pilots practice ship handling skills and maneuvers on scaled model ships. Exercises include all types of scenarios and events. Information regarding manned model training and its application is available at https://www.portrevel.com/. These programs are extremely valuable and help ensure that pilots are regularly upgrading their training and skill sets.

Q: Do Puget Sound Pilots also participate in simulator-based training exercises?
A: Yes. Pilots participate in simulator training, typically through the Marine Institute of Technology and Graduate Studies. These full day or multiday simulator courses include multiple exercises.

Q: Please describe the simulator training courses that Puget Sound Pilots participate in?

A: Pilots participate in simulator training courses that address a number of subjects. For example, tethered escort training simulates emergency ship handling with loaded oil tankers in Puget Sound’s most environmentally sensitive areas, with tug simulation being provided simultaneously in another simulation room with the tugboat companies that provide escort services. Other training subjects include Azipod training (Azipod is a 360’ thrusting propeller system that is commonly deployed on large cruise ships) and Ultra Large Container Vessel training that provides pilots simulation training for taking large ships into our restricted and congested waterways, both of which are mandatory courses for license upgrades that authorize pilots to control the massive cruise ships and container vessels that are increasingly common callers at our local ports. Pilots also participate in bridge resource management training that is focused on responding to all situations that can occur while piloting on the bridge and using the bridge team effectively.

Q: Have Puget Sound Pilots also participated in live training exercises?

A: Yes. Several of our pilots have had the opportunity to participate in live drills at sea aboard a loaded oil tanker and share that data and experience. This exercise, which was administered by Polar Tankers in coordination with PSP, Foss Maritime and the U.S. Coast
Guard, involved multiple types of emergency situations in open water on the Strait of Juan De Fuca. While the extraordinary cost of live drills makes them impractical to hold on a regular basis, this unique opportunity provides an excellent example of pilots’ ongoing commitment to continued education at every level, including the ship crew and tug operators.

Q: Do Puget Sound Pilots also participate in less formal education through information sharing?

A: Absolutely. Pilots participate in constant educational dialogue among ourselves. If an adverse event or incident generates a lesson to be learned, it will be brought to a board meeting and, where appropriate, shared with the pilot group at large. PSP has an established safe practices committee, and educational advice and experiences are regularly shared by email. As a general matter, the Port Angeles pilot station is a hub for communicating relevant experience, best practices, and shared learning.

E. Puget Sound is an Exceptionally Large, Diverse, and Challenging Pilotage Ground.

Q: What makes navigating the Puget Sound Pilotage District challenging?

A. The Puget Sound Pilotage District is one of the largest pilotage districts in the United States. The District extends from the Canadian border in the North to Olympia in the South. To put the District’s size in perspective, it is larger than the San Francisco Bay, Columbia River, Columbia River Bar and Grays Harbor pilotage districts combined. For the Commission’s reference, a map of the District is reproduced below:
In addition, the below image shows a representation of the total square mileage of our district alongside other pilotage districts to help illustrate the relative difference in size:
Q: How does Puget Sound’s sheer size affect the difficulty of piloting in this District?
A: The sheer size of our District and its location within the dynamic Pacific Northwest marine environment creates an almost infinite range of challenges to which every Puget Sound Pilot must be prepared to respond. The geography of our District is diverse and maritime conditions are unpredictable and highly variable. Wind speed and direction, currents, local swells, swell size, and a daily average ten-foot, semi-diurnal tidal range, along with minus tides and king tides, are among the environmental factors that regularly test a pilot’s skill, experience, instincts and judgment in extremely consequential situations.

Q: Does Puget Sound also experience a diverse range of vessel traffic?

A: Absolutely. Our District welcomes a diverse range of ships, each of which has key differences in size, operation, cargo and maneuvering characteristics. The diversity of ships subject to pilotage, combined with our District’s complex environment (both natural and manmade), means that no two transits or maneuvers are ever alike.

In any given two-week watch cycle, a Puget Sound Pilot may be dispatched any time day or night to navigate a 1,200-foot container ship through a congested waterway, successfully dock a nearly 1,000-foot loaded oil tanker carrying approximately 37.8 million gallons or 900,000 barrels of crude oil in sustained high winds with current (the force of just one knot of current is roughly equal to approximately 30 knots of wind), pilot a 560-foot loaded cement ship backwards (i.e., stern first) up the winding, two mile stretch of constricted Duwamish River with minimal underkeel clearance and passing through a bridge with as little as 27 feet of clearance on either side, or perform any combination of these extraordinarily difficult assignments. To successfully meet these and countless other challenges, each Puget Sound Pilot must draw
constantly on his or her deep local knowledge and experience-guided instincts to pilot safely on our District’s varied waterways.

F. The Challenges that Puget Sound Pilots Encounter are Constantly Evolving and Increasing.

Q: Have the challenges you face as a Puget Sound Pilot changed during your tenure?
A: There is no question that the challenges that my fellow pilots and I face on a day-to-day basis have grown progressively more difficult and intense in recent years. Most significantly, ships – especially the container ships that call at the Ports of Seattle and Tacoma – have become much larger and less maneuverable both with respect to their engine and rudder configuration and due to reduced available waterway space.

Q: Please describe the increase in container ship size that you have experienced during your tenure as a pilot?
A: When I began piloting in 2008, the largest container ships that called Puget Sound were just under 1000 feet and about 140 feet wide. Those ships were around 76,000 GT ITC, with a draft around 40 feet, and carried approximately 7,000 twenty-foot equivalent units or TEUs. Today’s ULCVs (Ultra Large Container Vessels) that call Seattle and Tacoma are much larger. The image reproduced below shows the growth of container ships over time:
Q: Please provide an example of some of the larger ships that call Puget Sound?

A: Some MSC container ships calling Seattle are about 1200 feet long and 168 feet wide with an average draft approaching 50 feet. The GT ITC of these ships is around 142,000, and they carry up to 14,000 TEUs. These larger ships are much more difficult to pilot, especially in

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the narrow, restricted and shallow waterways that are defining features of our District’s largest
and most congested ports.

Q: Were Puget Sound’s constricted waterways such as the East Waterway and West
Waterway at the Port of Seattle designed to accommodate vessels as large as the
containerships that you see calling today?
A: Our waterways were originally built to accommodate much smaller ships than the
massive container ships that now routinely call at the Ports of Seattle and Tacoma. Aside from
limited dredging (which is offset by these ships’ deeper drafts and does not increase available
space for maneuvering), the physical size of the District’s constricted waterways has not
changed. This, coupled with the much larger shoreside facilities that have been built to receive
and offload these ships’ massive cargo loads has reduced the margin for error and added
tremendous risk not only to the pilot and crew, but also to the marine environment and
Washington’s economy.

Q: Do the newer, larger ships also have deeper drafts?
A: The increased weight of the new much larger container ships has deepened these ships’
drafts and reduced the available under-keel clearance or “UKC” to at or near the 10% of draft
minimum that our guidelines require. For example, the greatest available depths at West
Waterway Seattle are located in an extraordinarily narrow channel or “gate” that is only about
400 feet wide with a maximum dredged depth of 46 feet. This gate provides a deep-water
channel for entering the West Waterway, with shallower depths on both sides, outside of this
channel. This means that large container ships with drafts of up to 50 feet must be brought in on
an approximately 10-foot high tide in order to leave five feet, or 10% of draft for UKC safety. If
the pilot fails to keep the ship within this gate or miscalculates the timing and position of the
tide, the ship could touch the bottom and potentially cause significant damage to the ship.

The lack of UKC also significantly changes the ship’s handling characteristics related to
the ever-changing pressures under and around the ship, making it less responsive and sluggish to
rudder and engine commands. When piloting a ship with a small UKC, a pilot needs to give
larger rudder orders for longer periods of time, and occasionally more, or longer engine starts for
rudder effectiveness, while managing the ship’s speed. Some bowthrusters are also less
responsive when operating with a small UKC, which requires increased use of tug assist. Add in
typical conditions such as 15 knots of wind applying force to 12,000 square meters (2.97 acres)
of sail area and current from the Duwamish River applying forces against the ship’s hull, and
piloting these massive ships, at all hours of the day and night, becomes very demanding and
stressful.

Q: Do any other factors limit maneuverability of large container ships within Puget
Sound’s constricted waterways?

A: Additional factors further limit the waterway in which pilots must maneuver the
increasingly large ships calling Puget Sound. For example, 10-15 knots of wind may require
three degrees of “leeway,” which means that instead of steering the vessel at a 180-degree true
course, the pilot must steer at 183 degrees to make a 180-degree course over the ground. When
you apply the added leeway, a ship that is nominally 168-feet wide creates an actual swept path
of as much as 230 feet, which further reduces or limits the available dredged channel width, or
clearance for any permanent underwater obstructions.

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Another challenge for pilots when piloting larger ships in restricted waterways, is the outreach of cranes, which have become much larger to accommodate the ULCVs’ enormous payloads. A good example of this is in the East Waterway between pier 18 on the west side and pier 30 on the east. The waterway is 740 feet wide. With the increased outreach of the container cranes to load/offload these larger ships, the width of the waterway between crane tips reaching across the waterway is reduced from 740 feet to 281 feet. When one subtracts room for the necessary placement of 100-foot tugboats, tug line to maneuver and perform at a high level, and the ship’s actual swept path, the waterway quickly becomes very narrow with almost no space for maneuvering.

Q: Does the work of shoreside personnel present maneuvering challenges in constricted waterways?

A: Sometimes, yes. Shoreside personnel do not always position these massive cranes properly, which can interfere with a pilot’s carefully planned approach and create additional safety hazards. One of our pilots recently encountered this issue, as documented in a Pilot’s Report of Marine Safety Occurrence dated March 21, 2022, that was recently submitted to the Board of Pilotage Commissioners. The reported incident involved a near miss at Pier 4 on the Blair Waterway. As that pilot explains in his report, “[d]ue to the size of the ships, it is not always possible to determine the exact crane location in relation to the bow until after the ship is alongside,” and “an error of only 1 or 2 degrees can be enough for the bow to make contact with the cranes.”

In that case, the cranes were out of position and the required shoreside support was not present. As the pilot approached, he determined that “[g]iven the difficult weather and the size of
the ship, stopping the maneuver could have proven to be hazardous.” Remarkably, the pilot was able to safely maneuver the ship alongside while avoiding contact with the shoreside facility. A copy of the pilot’s report is Exhibit ECK-06 to my testimony. The report provides insight into the complex real-time adjustments and decision-making that pilots must exercise in order to safely execute our duties. Unfortunately, this example of a shoreside operational mistake is an unacceptably frequent occurrence.

Q: Could you briefly summarize the increased challenges of piloting in recent years that you have experienced?

A: In short, while the ships entering our District and the shoreside equipment at our local ports have grown steadily larger, the restricted waterways on which Puget Sound Pilots must safely navigate these ships have for the most part stayed the same size. The result is that piloting has become increasingly difficult and more challenging with less room for error and a reduced safety margin with a substantial increase risk. Puget Sound Pilots are constantly adapting and upgrading our training, technology, and best practices to meet these new challenges.

Q: Are the challenges presented by environmental factors changing as well?

A: Yes. As I explained above, the multiple environmental variables that affect piloting within our District can – and often do – present extraordinary challenges. It is not unusual, for example, to encounter sustained southwest winds of 30 knots or more during the winter months at exposed berths such as the oil refinery terminals located at Cherry Point and Anacortes. Due to the open nature of the Cherry Point Terminal, high winds are often joined by localized swells and strong currents. These elements, especially when encountered in combination, can decrease
the effectiveness of tug assist and make docking and undocking large ships extremely difficult and dangerous.

There is broad consensus in the scientific community that human-caused climate change will result in increased frequency and intensity of adverse weather events. This consensus is articulated in the Ruggiero, et al. and University of Washington reports that are Exhibits ECK-07 and ECK-08 to my testimony. Specifically, the University of Washington report explains that the Pacific Northwest and Puget Sound are highly likely to experience increasingly intense weather events as climate change progresses.

Assuming that the scientific forecast regarding the effects of climate change on the Puget Sound area is accurate, there is no question that increased frequency and intensity of severe weather events will make piloting on the District’s exposed waterways even more challenging. Simply put, extreme maritime conditions increase the risk of a serious incident. For this reason, climate change presents a potentially significant and evolving challenge and risk factor for pilotage on Puget Sound and the environment and citizens of Washington State.

G. **Specific Examples Illustrate the Challenges that Puget Sound Pilots Encounter in Our Mission to Provide Best Achievable Protection of Puget Sound’s Coastal and Inland Waterways.**

Q: Could you please describe specific examples of jobs that are representative of the types of challenges that Puget Sound Pilots face in the course of their duties?
A: Yes. I would like to give three examples.

1. **Transiting a container ship through the West Waterway.**

Q: What is the first example?
A: The first example I would like to address is piloting a container ship on a transit through the Port of Seattle’s West Waterway. Exhibit ECK-09 to my testimony shows drone footage of
me performing this job alongside a view of the dashboard of my Personal Piloting Unit or “PPU”
computer system. Specifically, the video shows me piloting the approximately 1,200-foot MSC
Camille on June 19, 2022. *I have narrated the video in order to provide the UTC with a first-hand
perspective of the execution of this very difficult assignment.*

There are multiple restricted waterways within the District including Seattle’s West
Waterway and East Waterway, and the Blair Waterway in Tacoma. Each presents its own unique
maneuvering challenges. Seattle’s East Waterway, for example, is often highly congested due to
its multiple container terminals. Navigating Seattle’s West Waterway is especially challenging
because it requires pilots to maneuver large container ships stern first in an unmarked narrow
channel of water that has not been dredged to an appropriate depth. Like the above-described
maneuvers at Cherry Point, pilots often perform these difficult maneuvers in adverse weather
conditions.

A chart showing the Port of Seattle’s West Waterway and East Waterway is reproduced
below:

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As can be seen from ECK-09 and the image above, Seattle’s West Waterway is very narrow. Within the waterway, an even narrower channel or “gate” further limits the pilot’s safe zone of navigation. The West Waterway’s gate is shown by the red vertical lines at the waterway’s entrance. In the adjacent East Waterway the green line denotes the dredged channel, while the red line denotes the crane outreach.
Through this narrow gate, a pilot must maneuver massive container ships including ULCVs that, as described earlier in my testimony, are increasingly common within our district. The enormous size of these ships is almost impossible to overstate. ULCVs may exceed 1,200 feet length-over-all, with containers stacked as high as 90 feet or more above deck, and drafts of up to 50 feet. Notably, the West Waterway’s gate has a lowest depth of just 46 feet, which means that the pilot must execute the transit and bring a deep-draft ship to berth during the window of high tide when there is sufficient water depth to accommodate a vessel with a draft in excess of 46 feet. Any misjudged line up while entering or transiting the gate could result in a grounding, risking a serious marine incident and potentially damaging the bottom of the ship. If the transit is not precisely timed, the ship may be forced to go to anchor and wait for the next high tide, potentially costing the shipper hundreds of thousands of dollars in terminal costs.

Container ships transiting the East and West Waterways forward or bow first, and the Blair Waterway-maintain a speed around three knots over the ground. However, to maintain the ship’s maneuverability (which is crucial within the restricted waterway) and keep water flow over the rudder, the pilot will try to keep the ship’s engines at “dead slow ahead,” or minimum RPMs. On some ships, dead slow ahead implies an over-ground speed of about five to six knots, even up to eight knots, and possibly as much as 10 knots – nearly four times faster than the acceptable, safe speed. This requires a pilot to use a tug or combination of tugs to help manage a safe speed. A failure to recognize conditions and keep the ship’s speed down can result in damage from hydrodynamics caused by the ship’s displacement. Too much speed along with the ship’s displacement can cause moored ship’s lines to part, barges to break loose and marinas to sustain potential damage. On top of this, prevailing summer winds from the north often act as tail...
winds that—especially when applied to a ULCV’s enormous sail area—can increase the ship’s ability to continue to “carry her way” along with ordinary speed under power.

To keep the ship’s speed down to a safe level when transiting a waterway, the pilot relies on tugs, tug design, and their unique abilities and available applications. The pilot strategically places the tugs on the bow and stern of the ship, or forward and aft along the side of the ship. A pilot may sometimes use up to four tugs when adverse weather conditions require them. In addition to controlling the ship, the pilot must give very precise, and constant adjustments to the position of and force applied by each tug, in order to maintain the correct speed and course over ground, or move the ship laterally while taking advantage of the ship’s pivot point and turning lever. Most containerships have bowthrusters, which are also a vital tool in these waterway transits that can be very effective for maintaining course over ground or assist with lateral movement while working against the rudder.

On some transits, the pilot must also adjust for wind force by heading the ship a few degrees to windward off azimuth. This technique allows the pilot to steer a few degrees to windward which results in a closer course over ground. This will also help relieve some of the stress on the tugs’ equipment and can at times help deflect the wind from an angle that decreases the amount of wind force applied to “the body” of the ship. The drawback of this technique is that it gives the ship a larger footprint known as a swept path. This swept path, while often necessary, increases the ship’s width profile and reduces the already minimal available space to keep the ship within the gate, off the bottom, and clear of the gantry cranes. The pilot’s active management and critical decision-making must persist throughout the entire transit with virtually zero margin for error.

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It is worth emphasizing that these ULCVs can carry as much as four million gallons of
diesel fuel. Seattle’s East and West Waterways are situated at the mouth of the Duwamish River
which is an important and sensitive native fishing ground. A serious marine incident resulting in
an oil spill in this area would have potentially catastrophic consequences. It is the elite expertise
and consistently error-free performance of Puget Sound Pilots that enables commerce to function
at our District’s economically vital container terminals while simultaneously protecting the
cultural heritage and natural resources that share the waterway.

2. **Undocking an oil tanker at Cherry Point.**

Q: What is the second example?

A: The second example is undocking an oil tanker at Cherry Point in adverse weather.

Cherry Point is located at the northern end of the District, north of Ferndale and just a few miles
south of the Canadian border. For the Commission’s reference, a chart of Cherry Point is
reproduced below:
As shown above, Cherry Point is an exposed berth with open water to the south, southwest and northwest.

The BP Cherry Point Terminal has two berths that handle foreign and domestic tankers. The south berth handles crude oil and the north berth handles refined product. The long fetch of open sea room to the southwest often produces high prevailing winds. Occasionally, these winds reach over 40 knots, which produces an extremely challenging assignment for the pilot. Any mistake or unforeseen circumstance such as a tug line parting, has the potential to damage the ship and shore facility.

Our larger tankers, foreign and domestic, are typically about 900 feet in length-over-all, over 160 feet in width, and utilize a single propeller and rudder known as “single screw” configuration. Most tankers that call our refineries are configured with a single screw propeller configuration, with the exception of some domestic carriers that deploy twin screw and twin rudder (two propellers, two rudders) configurations. While the twin screw configuration offers a pilot some added maneuverability, all of these vessels have large super structures and side shells that compound the sail area and deep drafts that make them more vulnerable to current forces.

Prevailing maritime conditions at Cherry Point change seasonally and can present extreme challenges. During the summer months, from June through September, prevailing winds from the north may increase the difficulty of bringing a ship alongside the piers. Because ships going to Cherry Point must approach against the current, any ship docking starboard side to the pier will have to anticipate north winds that can be compounded with the ebb current. This scenario requires patience and a lot of effort to perfect a balance with the tugs pushing against the wind and current.
From October to May, the prevailing winds are generally out of the south to southwest at sustained speeds of between 10 to 20 knots. However, it is not uncommon during the winter months to encounter sustained onshore winds of between 30 to 40 or even 50 knots. These winds push ships directly toward the dock, which makes both docking and undocking a ship very difficult and requires the pilot to execute a carefully planned strategy using gained knowledge and instincts to manage the available assets such as tugs to his or her advantage to combat the wind, while using the current to the pilot’s advantage to safely put the ship alongside the dock.

In addition, both berths at Cherry Point are not designed as a “dock” with a long dock face to lay against. Rather, both berths have multiple landing pads spaced out evenly so the ship’s side shell, lays on the pads with the bow and stern overhanging. There is also enough space between the pads to allow the round part of the bow or stern to get in between and come unintentionally closer to the main pier or structures on the pier.

Sustained winds of 30 knots is a critical threshold because at 35 knots of sustained wind, the oil terminals will shut down operations. If a ship has not yet arrived in conditions where the sustained winds are in the 30 to 35 knot range, the terminal will not allow her to berth and it is left to the pilot to find a new destination, usually an anchorage. If the ship is already alongside performing cargo operations and the winds hit 30 to 35 knots, cargo operations will stop and the terminal will call for a pilot to be dispatched to move the ship off the berth to prevent damage to the pier. This happens a few times each winter and can be an emergency situation with winds increasing.

When sustained winds of 35 knots or more come up from the southwest, the local swell will also increase in size. This southwest wind and swell puts pressure on the side of the ship and it will start bouncing laterally into the pier structure, putting stress on the ship’s lines and
potentially causing damage to the pier. In these situations, the ship will need to be moved off the pier. These strong winds, which sometimes reach 50 knots, apply such force on the side of the ship that a tug will be asked by the pilot to provide full power. However, the increase in swell increases the force that the tug puts on her lines as the tug surges with the swell, which adds unintended tension and possibly a parting of the line. If a tug parts one or more lines, there is serious risk of significant shoreside damage including to a number of chiksan loading arms. There is also serious risk that a forceful allision with the dock could damage or even puncture the ship’s hull. Either scenario could potentially trigger an oil spill.

To perform the maneuver of moving a ship off the Cherry Point terminal berth in extreme onshore wind, the pilot will “make fast” the tugs based on the specific conditions he or she faces on that particular day. During this maneuver, the pilot is in constant communication with each of the tug captains giving specific commands that must be immediately repeated and then carried out. Throughout this process, the high winds, swell and current create strong and often unpredictable forces that work directly against the pilot’s efforts and require the pilot to draw heavily on his or her knowledge and past experiences (such as moving the ship ahead or astern to take advantage of “the lever” that is created from the location of the pivot point) for a safe departure.

3. **Transiting a bulk carrier up the Duwamish River.**

**Q:** What is the third example?

**A:** The third example I would like to discuss is the transit of a bulk carrier through the Port of Seattle’s West Waterway and up the Duwamish River. This job is often done stern first. I use these stern first examples because these ships are not designed to go backward. Ships are designed for efficiency going forward over long distance. They are streamlined on the bow, and
more rounded on the stern for effective water flow, and even the propeller is pitched to move the
ship forward by propelling water over the rudder. When the propeller runs astern, there is no
water propelled over the rudder making the rudder less effective. Going astern becomes a real
challenge because the ship’s design is working against you and requires the use of other tools
and techniques that must be applied.

These bulk carriers are typically about 560 feet length-over-all with drafts of about 30
feet. Like the container ships, these ships transit the West Waterway backwards or stern first.
Unlike the container ships, however, these bulk carriers travel approximately two miles upriver
to the Glacier Cement and Lafarge cement facilities. An image of the Duwamish River chart is
reproduced below:
To complete this transit, the pilot must maneuver the ship stern-first through river currents that can be very powerful. At the same time, the pilot must negotiate manmade obstacles including cranes, a railroad bridge that is only 150 feet wide, and set fishing nets. As I mentioned previously, the Duwamish River is an important tribal fishing area. Native fishermen use set nets that extend into the shipping channel and are positioned using a buoy and anchor system. During
peak fishing season in the late summer months, these nets create a navigational hazard that the
pilot must safely negotiate to avoid entangling fishing gear in the ship’s propellor. Worse yet, if
one of the tugs snags a net, that tug is not available for the pilot’s needs, leaving the ship
possibly stranded in the restricted Duwamish River. Because the fishermen move their nets
regularly, no two transits are ever alike, and each trip upriver presents a unique and stressful
maneuvering challenge.

When it is tribal gillnet season and the nets are set, we will limit Duwamish River
assignments to daylight only, because of the added challenges these nets present and the
difficulty of seeing the nets at night. The East and West Waterways are also subject to tribal
treaty gillnet rights, which present navigational challenges in those waterways. But while the
Port of Seattle provides monetary incentives to tribal fishermen to move their nets to
accommodate shipping traffic in the East and West Waterways, no such arrangement exists in
the Duwamish River above Harbor Island.

H. Pilots Perform Their Duties While Maintaining a Cooperative Relationship
with the Public and Accommodating Competing Uses of Washington
Waterways.

Q: Are the three examples you describe above the only significantly challenging
situations faced by a Puget Sound Pilot?

A: No, not at all. These examples are intended to illustrate the diverse range of difficult jobs
that Puget Sound Pilots execute on a regular basis. They are by no means the only (or even the
most difficult) challenges our pilots encounter. The Port of Tacoma’s Blair Waterway, for
example, is an extremely restricted and difficult two-mile waterway to navigate. Likewise,
currents at Anacortes, in Guemes Channel, can be very strong and variable, making approaches
to oil terminals with a loaded tanker very difficult. And moving oil tankers between Cherry Point
and Anacortes – as our pilots do regularly – is a precarious transit that requires the pilot to
maneuver in narrow passages between small rocky islands, submerged obstacles, and
recreational vessel congestion, sometimes in the fog. The fact is that piloting on our District’s
waterways presents more unique challenges than are possible to address in this testimony. The
nature of our profession is that each pilot must be constantly vigilant and prepared to respond to
whatever situation he or she may encounter on the water, in any weather, night or day.

Q: Are pilots’ duties complicated by the general public’s use of the waterways?
A: At the outset, I want to be clear that pilots are partners of the public. Puget Sound Pilots
are mindful that our role is to protect the public interest and public trust uses of the waterways.
Our commitment to the public is reflected in our high level of engagement. For example, PSP
participates in a voluntary program whereby we report whale sightings to help track and protect
marine mammal populations. Nearly every year, pilots volunteer and speak at yacht clubs
throughout the Puget Sound region to help educate recreational boaters on safe practices. PSP
also serves as a founding partner of the Puget Sound Harbor Safety Committee, which is a
marine safety forum involving federal, state, and industry officials.

Still, there is no question that public use of the waterways can and often does make our
job more difficult. Commercial and recreational fisherman often exercise poor seamanship and
become obstacles to navigation. Communication with these vessels is often impossible and the
pilot is instead required to maneuver around them. The same is true of small recreational craft or
sail vessels, which often assume they have the right of way when, in fact, the opposite is true in
shipping lanes. Most recreational boat operators are not proficient with the Rules of the Road,
and boats often do not correctly gauge how fast piloted ships are traveling, which sometimes
requires the pilot to change speed or course to avoid collision. Exhibit ECK-10 to my testimony is a video that provides an example of the poor decision-making we commonly encounter from recreational boaters. That video is available by clicking this link.

I. Calculating Pilotage Rates for All Vessels Based on GT ITC Ensures Pilotage Rates are Fair, Reasonable, and Non-Discriminatory.

Q: How is the cost of pilotage calculated?

A: The rates in our pilotage tariff are calculated based on a combination of factors that includes a vessel’s gross tonnage as determined in accordance with the International Tonnage Convention of 1969. This measurement is sometimes referred to as GT ITC, and it is distinguished from the domestic measure of gross registered tonnage, which is commonly referred to as GRT. Generally speaking, GT ITC is generally based on the molded volume of all enclosed spaces of the ship, whereas GRT or net tonnage is based on the molded volume of only cargo carrying spaces of the ship, but various rules allow for the exclusion of space that is
actually used for cargo. For a more precise definition and explanation of these two similar
sounding but very different measurement systems, I would refer the Commission to the
testimony of tonnage expert Phil Essex.¹

Q: Why are pilotage rates calculated based on a ship’s GT ITC rather than its GRT if
both measure volume?

A: Pilotage rates must be fair and reasonable. To accomplish this objective, one key
principle is that a ship should be charged pilotage that is commensurate with the relative
difficulty and risk of a marine casualty of piloting that vessel. The bottom line is that larger ships
are more difficult to pilot and present greater risk, which is why GT ITC tonnage is used to
calculate a fair, just and reasonable rate.

A second key principle that follows logically is that ships’ volumetric size should be
measured in a manner that is consistent, so that ships of like size pay like rates. This is the reason
why GT ITC is a superior metric compared to GRT. GT ITC provides a more accurate and
standardized measure of a vessel’s size by including and calculating the total volume of its
external dimensions including superstructures, voids, fuel and water tanks and other volumetric
structures. GRT, on the other hand, is subject to exclusions from the total volume calculation,
only measuring those spaces which carry cargo, while also providing opportunities in ship design
to exclude cargo spaces.

Put simply, pilots are not piloting just the carrying capacity of cargo on board. Rather, we
are piloting the measurements of the entire ship. For this reason, there is no question in my mind
that GT ITC is the most fair, just, and reasonable measurement to use for all ships regardless of

¹ Exh. PE-1T.
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Exh. ECK-1T
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whether a particular ship is engaged in coastwise or foreign trade – a distinction that is completely irrelevant to the difficulty of pilotage. For a more detailed explanation of this topic, I would again invite the Commission to review Mr. Essex’s testimony.

Q: Is GT ITC used elsewhere in the governing regulations as a proxy for the difficulty of piloting a particular ship?

A: Yes. As I discussed earlier, pilots achieve different levels of licensure based on years of experience and the completion of license upgrade trips completed annually during the pilot’s first five years of active service. Less experienced pilots are significantly restricted in the size of ship they may pilot. WAC 363-116-082 measures these restrictions in terms of GT ITC (not GRT) precisely because it is a more accurate measure of the ship’s size that better correlates to the difficulty and risk of a piloting assignment.

TOTE’s vessels, the M/V MIDNIGHT SUN and M/V NORTH STAR illustrate this point. These are large ships of greater than 65,000 GT ITC. As a result, only level 3 pilots (i.e., fourth year of licensure) and above may pilot these ships. Despite their large size, however, these ships are below 36,000 GRT. If GRT were used instead of GT ITC as a proxy for the relative difficulty of piloting a ship, even a pilot with less than one year of experience would be allowed to pilot TOTE’s vessels – a result that would be clearly inappropriate and potentially dangerous. Exhibit ECK-11 to my testimony is a video of me boarding a TOTE ship that shows the size of the vessel’s large size. This video also is a good example of a pilot transfer as discussed in Captain Bendixon’s testimony.
Q: Why have TOTE Maritime’s vessels historically been assessed pilotage based on GRT rather than GT ITC?

A: The disparate treatment of TOTE Maritime’s vessels that prevailed until our association’s most recent rate case is the product of historical practice that was not justified and created a substantial undeserved windfall to TOTE. I have personally piloted TOTE’s vessels many times, and there is no question that these large, high sail area ships are just as challenging to pilot as similar vessels of comparable GT ITC. The fact that TOTE’s ships are engaged in coastwise rather than international commerce in no way changes that conclusion and is completely irrelevant to the pilotage rates that TOTE should be required to pay under a fair, just and reasonable tariff. There is no principled basis on which to grant TOTE a very substantial pilotage rate discount compared to the rates charged to every other ship of comparable size operating under pilotage on our District’s waterways.
III. CONCLUSION

Q: Does this conclude your testimony?

A: Yes.