

## EXHIBIT E



Monday, November 15, 2021

By Mail and by Electronic Submittal

Clerk's Office,  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814  
(<https://www.arb.ca.gov/lispub/comm/bclist.php>)

**Re: Proposed Amendments to the  
Commercial Harbor Craft Regulation**

California Air Resources Board,

On behalf of Crowley Maritime Corporation and its affiliates ("Crowley"), thank you for the opportunity to comment to the California Air Resources Board ("CARB") regarding the Proposed Amendments to the Commercial Harbor Craft (CHC) Regulation, specifically the Airborne Toxic Control Measure for Commercial Harbor Craft (Section 93118.5).

Crowley applauds CARB's continuing leadership in the stewardship of California's air quality, and expresses its appreciation for CARB's recognition that the U.S. domestic maritime industry, of which Crowley is a leader, plays a substantial role supporting the economies of West Coast states, including California, and the livelihood of their citizens.

**I. Summary of Crowley's Position**

Crowley is grateful that CARB has chosen to engage with us to achieve a solution that recognizes the unique nature of articulated tug barges (ATBs). Crowley seeks to continue this active dialogue in the hope of achieving cost-effective solutions that will both lower emissions and enable Crowley's ATB fleet to continue to serve California.

The proposed amended CHC Regulation continues to fail to address the unique nature of ATBs. Unless Crowley is able to use an Alternative Control of Emissions ("ACE") plan, the engine retrofit and replacement requirements of the proposed CHC Regulation would render Crowley's ATBs uneconomical to operate in California.



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This would substantially disrupt interstate commerce by forcing the trade of clean petroleum products to and from California to use oil tankers that are less flexible. It would also render such fuel transportation more expensive.

Crowley welcomes the proposed amendments' embrace of alternative compliance pathways, but the guidance they give on appropriate ACE plans do not allow for meaningful alternatives for Crowley's fleet of ATBs. The regulations need to be further refined to ensure more flexibility for compliance as to ACE plans.

Above all, Crowley urges CARB to work with Crowley to design, approve, and deploy alternative compliance pathways to include those discussed herein.

## **II. Standing and CARB's Recognition of the Unique Nature of ATBs**

### **A. Crowley's Background and Standing to Provide This Comment**

Crowley owns and operates a diverse fleet of ocean-going vessels and harbor tugboats and offers a wide range of environmentally safe and reliable transportation options to meet many commercial and government customer requirements. As CARB is aware, Crowley is the largest independent operator of American-owned and -operated Jones Act-compliant vessels, which include ATBs, tugboats, and self-propelled tank vessels. Indeed, Crowley is the largest employer of coastal and deep-sea mariners in the United States.

Founded in San Francisco in 1892, Crowley-affiliated companies operate harbor, coastal and oceangoing cargo vessels that are either based in, or regularly call at, California ports. Crowley's California operations have helped to drive the Golden State's economy forward for the past 130 years. As one of the oldest operators of vessels in California waters, Crowley has a unique perspective and expertise serving the needs of Californians from Crescent City to San Diego.

Crowley has demonstrated safe, reliable, and environmentally-conscious operation of tankers and ATBs. Above all, we have shown an ongoing commitment to sustainable transportation solutions.

For example, Crowley invested \$18 million to build the first zero-emissions electric tug in the United States. The e-tug will operate at the Port of San Diego's Tenth Avenue Marine Terminal and will be operational by mid-2023. Over the first 10 years of its use, the e-tug's operation will, versus a conventional tug, reduce 178 tons of nitrogen oxide, 2.5 tons of diesel particulate matter, and 3,100 metric tons of carbon dioxide. Furthermore, this

innovating vessel will eliminate the need for the fuel required of a traditional tug - 30,000 gallons (114,000 liters) of diesel every year. The e-tug project is also an example of Crowley's collaborative partnerships with a broad array of stakeholders, including the West Coast Collaborative, DERA, MARAD, the San Diego County APCD, and CARB, in the pursuit of commercially-viable solutions to the current climate and air quality crises. The e-tug, the eWolf, will act as a beacon of transformation across American ports, reducing both greenhouse gas (GHG) and other air emissions (e.g., PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>x</sub>) that have had an adverse impact on communities and ecosystems proximate to United States port infrastructure.

The development of this future-focused technology is not just an example of what is possible: it represents the next generation of clean-tech assets that will be deployed to Californian and American ports over the coming decade. We must ensure that California's regulatory framework enhances, and does not risk impeding, these important innovations.

We submit that, because of Crowley's extensive experience with vessel operations across a broad range of vessel types, and the direct implication of the proposed regulation, Crowley is uniquely qualified to submit these comments to CARB. Crowley respectfully asks that CARB take note of its serious concerns about the proposed CHC Regulation.

#### **B. Crowley's ATBs**

Over many years, Crowley has proven itself to be an innovator and leader in high-risk bulk liquid cargo transportation through the development of an unrivaled ATB fleet that includes the newest and most sophisticated United States-flagged vessels. Crowley's fleet of ATBs range in size from 14,600 deadweight tons (DWT) to 45,000 DWT; our ATBs safely and reliably carry bulk liquid throughout the United States East, Gulf and West Coasts, including Alaska, as well as international ports.

Crowley's fleet of ATBs are one of the keys to unlocking the energy transition in the state of California for our future energy needs, to include bio, renewable, and synthetic energies that will be used to transition other industries away from conventional fossil fuels.

Crowley operates seven of the nine ATBs currently operating on the U.S. West Coast: three 550 Class ATBs (e.g., Sea Reliance/550-1, Sound Reliance/550-2, and Ocean Reliance/550-3), three 650 Class ATBs (e.g., Vision/650-10, Gulf Reliance/650-2 and Commitment/650-6, and a newer ATB (e.g., The Aveogan/Oliver Leavitt) that is currently operated primarily in the Alaska market.

The 550 Class ATBs were developed and designed specifically for West Coast operations and weather conditions, with advanced safety features, such as double hulls, segregated ballast, and radar gauging systems. The 550 Class ATBs have a capacity of 155,000 barrels at 96% capacity and are designed to carry clean petroleum products, providing maximum cargo flexibility. In addition, the 550 Class ATBs include several innovative safety features that make operations in California more efficient, reliable, and environmentally conscious.

The three 650 Class ATBs are part of a fleet of ten 650 Class vessels. Each 650 Class ATB has a capacity of 178,000 barrels at 96% capacity. The 650 Class ATBs have a proven design for full ocean service, coupled with systems that enable multiple trading capabilities, to allow for use in the U.S. Gulf to West Coast, and West Coast trades. The 650 Class ATBs are designed to carry clean petroleum products, and heated cargoes to provide maximum cargo flexibility.

Crowley's ATBs feature other safety features, including a cargo pump in each of the 14 cargo tanks to assure maximum cargo integrity and fuel segregation flexibility.

### **C. History of the Regulation and the Recognition of the Unique Nature of ATBs**

Crowley has been actively engaged with CARB, especially over the past 2½ years, to address the unique nature of ATBs. The focus of these discussions has been what Crowley sees as CARB's misapprehension of the nature of ATB operations, which has resulted in their being covered by what Crowley respectfully submits is the wrong regulatory scheme.

The initial phase of the CHC regulations issued in 2007, and their 2010 amendments, chose to include ATBs within the definition of "commercial harbor craft", despite the fact that, especially from an operational perspective, it made, and makes, no practical sense to do so.

ATBs do not operate like traditional harbor craft. The operational profile of larger ATBs, as employed in Crowley's fleet, is equivalent to that of self-propelled ocean-going tank vessels (Medium Range "MR" Tankers). As Crowley has demonstrated in its prior submissions to and discussions with CARB, ATBs are ocean-going tank vessels. Unlike harbor craft, ATBs do not operate predominantly in California ports and harbors. The operational profile of ATBs, when in California to load or discharge cargoes, bears no resemblance to the operations of harbor tugs.

When the revisions of the 2007 Ocean-Going Vessels At Berth Regulation (At Berth Regulation) were proposed in 2019, an opportunity arose for CARB to recognize the anomaly of regulating ATBs as if they were harbor craft, and to include ATBs in the At Berth Regulation, so that they could be regulated in the same way as other ocean-going tank

vessels. Since at least as early as the spring of 2019, Crowley has made clear, in both its public comments and its informal discussions with CARB Staff and Board Members, that the exclusion of ATBs from the At Berth Regulation would be a serious mistake, based on a misconception of the nature of ATBs and their operation, and that this regulatory error should and could be rectified through amendment of the At Berth Regulation to include ATBs, like other ocean-going tank vessels.

Unfortunately, CARB did not rectify this error and did not include ATBs in the At Berth Regulation.

Instead, CARB resolved to recognize the unique nature of ATBs in these proposed amendments to the CHC Regulation. On August 27, 2020, CARB adopted Resolution 20-22, which included the following:

BE IT FURTHER RESOLVED that the Board directs staff to continue to engage the articulated tug barge (ATB) industry to determine the best options for cost-effective emission reductions that recognize the unique nature of ATBs as CARB updates the commercial harbor craft regulation.

In the context of the current CHC Regulation amendments, the resolution directed CARB Staff to address the unique nature of ATBs, and to focus on achieving emissions reductions that are cost-effective for ATBs.

### III Crowley's Response

Crowley is grateful for the opportunity to collaborate and work with CARB on this issue of such great importance to the environment, the industry and to the people of California. Our experts have spoken to David Quiros, Heather Arias and others at CARB over a sustained period of time, and we thank CARB for the opportunity to do so. Crowley's response incorporates and is intended to supplement the relevant comments and response of The American Waterway Operators (AWO).

**A. Without an Alternative Compliance Pathways, Compliance with the Regulation is Not Commercially Feasible for Crowley's ATBs**

(i) The Engine Retrofit/Replacement Proposal

The proposed CHC Regulation Amendments confirm that ATBs are covered by the regulation commencing in January 1, 2023 (§93118.5(b)(4) and that ATBs are to be included in the definition of "regulated in-use vessels" to which the engine compliance mandate applies. §93118.5(e)(6.1). The Regulation would effectively require that ATB owners or operators replace every in-use engine on an ATB with a Tier 3 or Tier 4 engine that meets CARB performance standards, which are likely to include diesel particulate filters (DPF).

(ii) Cost of Retrofit

Crowley estimates that a retrofit of the engines on its ATB fleet to comply with these requirements would be around **\$9.55M** per 550-class ATB (150,000 bbl. capacity) and about **\$8.75M** per 650-class ATB (180,000 bbl. capacity).

On a fleet-wide basis, the retrofit cost is estimated to be \$38.2M for the 550 fleet, and \$87.5M for the 650 fleet, a total of \$125.7M.

(iii) Cost of Replacement

The cost of replacing new engines in the vessels, to comply with the mandate of the proposed CHC Regulation Amendments, would be even higher.

Crowley estimates that the replacement cost for the 550-class ATBs would be **\$90M** per vessel or **\$360M** for the entire 550-class Crowley fleet. Crowley estimates that the replacement cost for the 650-class ATBs would be **\$105M** per vessel or **\$1,050M** for the entire 650-class Crowley fleet.

Were Crowley to replace the vessels in its ATB fleet to comply with the requirements of the proposed CHC Regulation Amendments, the total estimated cost would be \$1,410M.

(iv) DPF Technology

At this point, it is highly questionable if DPF technology can be installed with Tier 3 or Tier 4 engines in a technically-feasible or safe manner. Although DPF devices have been used on trucks, albeit with some serious consequences such as fire danger, there is no indication that DPFs can be used on large marine engines, or that it would be safe to do so.



(v) Effect of the Engine Regulation: Driving Crowley's ATBs from California

As demonstrated above, neither an engine retrofit nor the replacement of the vessels in the Crowley ATB fleet would be cost-effective or commercially feasible. Absent the ability to comply with the emissions reduction requirements through alternative compliance pathways, the effect of these proposed CHC Regulation Amendments, as they are currently proposed, will therefore likely be that Crowley can no longer operate its ATB fleet in California. Given the flexible, safe, efficient and cost-effective transportation option provided by ATBs, the CHC Regulation's effect of removing Crowley's ATB fleet from California would have a potentially far-reaching impact for Californians.

If the interstate clean petroleum product trade with California no longer has the option to use ATBs, it would instead be forced to charter MR Tankers to carry such products to and from California ports. ATBs of more than 120,000 bbl. capacity are the functional equivalent of MR Tankers and are, therefore, relatively interchangeable in operational markets. MR Tankers are not proposed to be regulated under this current rulemaking because they must comply with CARB's previous At Berth Regulation.

The proposed amended CHC Regulation would therefore not have its intended beneficial effect on California emissions. Should the CHC Regulation be issued as proposed, without addressing the ACE for ATBs, ATBs will be displaced on the West Coast with MR Tankers enjoying a lower regulatory threshold and having the perverse result of increasing the carbon intensity and particulate matter discharges for the equivalent of cargo carried in and to and from California ports.

This would also have a substantial adverse impact on interstate commerce.

Regulating ATBs as harbor craft is inconsistent with the federal regulatory scheme and regulations of other jurisdictions. Crowley ATBs operate at multiple ports of call across the United States and internationally. They are regulated as ocean-going vessels under numerous applicable regulations, subjecting them to domestic and international emission and engineering control specifications. If regulated as harbor craft under the proposed CHC Regulation, ATBs and self-propelled tank vessels will face significantly different emissions control requirements in California, despite performing the same function elsewhere and regulated as oceangoing vessels. This would be neither rational nor fair commercially, because self-propelled bulk liquid tankers – many of which fly foreign flags of convenience to escape many of the requirements of U.S. environmental and regulations – are ATBs' competition in interstate and international commerce and regulated under the CARB At Berth Regulation.



**C. Alternative Compliance Pathways: In General**

Under the circumstances, the feasibility of the alternative compliance pathways under the proposed CHC regulation is crucial to the continuing operation of Crowley's ATBs in California. In our view, identifying flexible and workable alternative compliance pathways is the only cost-effective option for ATB's, and is consistent with Resolution 20-22's direction to CARB to **recognize the unique nature of ATBs**.

Crowley appreciates the attention that CARB staff have applied to the option of alternative compliance pathways ("ACP"), as set forth in the proposed Section 93118.5(f).

We also acknowledge that because the Alternative Control of Emissions ("ACE") plans are necessarily specific to the applicant's fleet and operations, their consideration and approval by CARB's Executive Officer (EO) will be based on a plan-by-plan basis, so that the Regulation is necessarily general when it comes to ACE plans.

However, Crowley believes that the ACP provisions of the proposed Regulation could benefit from more specificity and more clarity. This will enable owners and operators like Crowley better guidance on designing ACE plans.

Crowley has begun preliminary work on preparing its ACE plan in order to achieve equal or greater emission reductions than Crowley's Normal Compliance Baseline. In this context, Crowley, with the support of Starcrest Consulting Group LLC, has modeled the emissions associated with Crowley's fleet of ATBs. We would be pleased to share that data with CARB to illustrate the issues Crowley anticipates in designing an effective ACE plan.

One of the main questions raised by the Section 93118.5(f)(E) requirements for alternative emission control strategies (AECS) concerns fleet averaging. The definition of "fleet" in the proposed regulation is,

"the total number of harbor craft owned, rented, or leased by an owner or operator in an air district or distinct locale within Regulated California Waters; or, the statewide population of a specific vessel type. On and after January 1, 2023, "fleet" also includes chartered harbor craft and extends to harbor craft in an air basin".

As that definition applies to Crowley and its diverse fleet of ocean-going vessels, including ATBs, and harbor tugboats, operating in California, this definition is unclear.

Crowley submits that it would be more consistent with the overall intent of the CHC regulation for the definition of “fleet”, in the context of fleet averaging, to include the statewide population of all vessels included within CARB’s definition of “Harbor Craft”. Moreover, given the diverse nature of Crowley’s operations, we would propose that, for the purpose of “fleet averaging”, all of Crowley’s affiliates be included within the definition of owner or operator.

**D. Alternative Compliance Pathways; AECS Options**

Crowley submits that there should be no requirement that an approved AECS should involve a “combination” of two or more of the examples listed in Section 93118.5(f)(1)(E). The focus of the ACE plan should be on achieving a reduction in emissions that is equal to or greater than that achieved through an engine retrofit or replacement. To require that the AECS must combine one or more strategies is unnecessary and unduly restrictive.

Crowley also submits that Section 93118.5(f)(1)(E) would benefit from including more specific examples, so that owners and operators are better informed about how the EO will approach the approval process for an ACE plan.

Specifically, Crowley submits that the following could be included in Section 93118.5(f)(1)(E) as examples of alternative emission control strategies.

- Funding of accelerated conversion of cargo handling equipment used at marine terminals and ports in communities affected by the fleet’s operations. This will achieve the goal of the regulation to reduce emissions for those affected by the operations of the applicant’s harbor craft, but would be more economically-efficient than other options.
- Funding of the acceleration of the conversion of drayage trucks that operate out of California’s ports from diesel to alternative energies, to achieve demonstrated emissions benefits.
- Funding the expansion of shore-side port infrastructure for cold ironing and other EV uses; including the investing in roll-on-dock containerized clean power solutions that can accelerate the pace of shore-power deployment.
- Coordinating with SDAPCD to reduce cancer risk for each permitted stationary source, including portable equipment and vessels, in or around port communities.

- Working in partnership with infrastructure owners to accelerate the build out of ZEV HD/MD truck charging infrastructure, powered by all renewable sources and backed by a power purchase agreement.
- Expanding investment in nature-based solutions to climate change and sea level rise impacts, including increase tree canopy coverage in port communities, the revitalization of emissions-sequestering wetlands, and other land use investments that serve as buffers both between industrial and residential uses, and against the impacts of climate change in accordance with the recommendations put forth in California's Fourth Climate Change Assessment (2018) in and around port communities.
- Allocating resources and expertise towards a private 5G edge computing network to support marine innovation, fuel entrepreneurship, and technological activation to leverage efficiencies and reduce emissions.
- Implementing an incentive program for zero and near-zero vehicles for low-income residents in disadvantaged areas in or around port communities.
- Developing and implementing a residential air filtration and/or air monitoring program for residents in or around port communities.
- Piloting a short-haul on-road electric truck pilot program that seeks to displace diesel vehicle miles traveled (VMT) annually. This strategy would yield emission reduction benefits and demonstrate continued leadership and collaboration on and around California's ports. The pilot would include an evaluation component to identify lessons learned and recommend action(s) to accelerate the transition to ZEV heavy-duty on-road electric trucks.
- Investing in the development of new energy production capacity – such as renewable diesel, RNG, and biodiesel – to increase the availability of science-backed clean marine fuels for the California market.
- Co-investing with the State of California on the development of zero emissions alternative assets to the ATBs in question, ensuring our continued ability to support the California market's energy needs while showcasing the possible innovation in public-private partnerships against the impacts of climate change.

These are just a few ideas to expand the scope of ACE plans to achieve equivalent or greater emissions reductions than would result from vessel engine retrofitting or replacement.

Although the current definition, particularly Section 93118.5(f)(1)(E)8. (“any other measures that sufficiently reduce emissions”) is broadly-written, Crowley submits that more examples, including some or all of the above, would help clarify what form of ACE plan would meet CARB’s requirements.

#### **IV. Concluding Comment**

Crowley urges CARB to continue to engage with Crowley to design, approve, and deploy alternative compliance pathways, to include those outlined above, which meet the intended outcome of the CHC Regulation. Such collaboration and innovation would benefit California’s and CARB’s long term emission goals.

In California, Crowley’s ATBs have the capacity to enable the efficient movement of next generation energy sources today, leveraging a broad array of advances in drop-in fuels, efficiency technologies, and solutions that are on the horizon of commercial viability. Rather than drive Crowley’s ATB fleet out of the State, the CHC Regulation should include effective alternative compliance pathways to achieve the emissions reduction mandated.

Crowley is not advocating that CARB alter or lower its ambitions with respect to emissions reduction, response to climate change, or building a better future for all Californians. Our focus is on enabling Crowley’s ATBs, avoiding unintended consequences and offering, with our decades of operational experience in California’s liquid cargo transportation market, to support CARB in reaching its goals and fulfilling its mission.

Yours respectfully,

**CROWLEY MARITIME CORPORATION**

/s/

**Crowley Signatory** [Art Mead]  
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