SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

February 14, 2019

Mr. Matthew O'Donnell, Manager
Exposure Reduction Section
Transportation and Toxics Division
California Air Resources Board

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON DRAFT CALIFORNIA AIR RESOURCES BOARD'S HEALTH ANALYSIS FOR THE DRAFT REGULATORY CONCEPT FOR OCEAN-GOING VESSELS AT BERTH AND AT ANCHOR

Dear Mr. O'Donnell,

The Ports of Los Angeles and Long Beach (Ports) appreciate this opportunity to provide comments on the California Air Resources Board (CARB) Preliminary Health Analysis on the draft regulatory concept "Control Measure for Ocean Going Vessels Operating At Berth and At Anchor."

Attached to this letter are the Ports' comments to the Preliminary Health Analysis. The Ports would like to thank CARB for continuing to release data throughout this regulatory process so that stakeholders may provide necessary feedback to help CARB improve the health analyses. After review of the information presently available, the Ports have concluded that many of the assumptions and methodologies provided remain questionable and unsubstantiated. We request that CARB review and respond to the feedback provided in the attached document, and that CARB continue to provide opportunities for formal comment as additional information is released, and the analyses updated.

We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation and the Preliminary Health Analysis. Please feel free contact our staff, Amber Coluso at (310) 732-3750 (Port of Los Angeles), and Morgan Caswell at (562) 283-7100 (Port of Long Beach), with any questions or concerns regarding this letter.

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management
Port of Los Angeles

MATTHEW ARMS
Acting Director of Environmental Planning
Port of Long Beach

CC: CARB – Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
Angela Csondes (Angela.Csondes@arb.ca.gov)
Nicole Light (Nicole.Light@arb.ca.gov)
Kaylin Huang (Kaylin.Huang@arb.ca.gov)

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON DRAFT CALIFORNIA AIR RESOURCES BOARD'S HEALTH ANALYSIS FOR THE DRAFT REGULATORY CONCEPT FOR OCEAN-GOING VESSELS AT BERTH AND AT ANCHOR

EMISSION INVENTORY

Input factors used to develop the emission inventory for the health analysis are presented in the 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results[1] (thereafter referred to as "*Emissions Inventory Report.*" Our comments on this report are presented below:

- Activity factors such as effective power (or loads) for vessel auxiliary engines and auxiliary boilers used to develop this emission inventory are based on the Port of Los Angeles (POLA) and Port of Long Beach (POLB) 2017 emissions inventories. There is no clear variation in auxiliary engine load in CARB's Emission Inventory Report by container ship size. The auxiliary engine load trend by container ship size found in 2017 (Figure 1) may change in future years. Further, it may be incorrect to extrapolate the container ship activity in POLA and POLB to other California ports because of different ship types and freight traffic flows through those ports. We request that CARB provide justification for the use of POLA and POLB 2017 load trends for estimating future year emission inventories and emission inventories for other California ports.

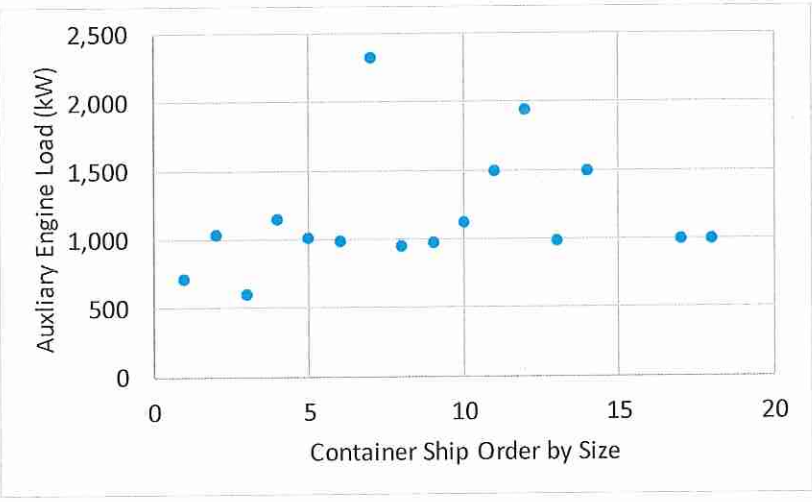

Figure 1. Container Ship Auxiliary Engine Load at Berth[2]

---

[1] ARB. 2019, "2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results," Available at https://www.arb.ca.gov/msei/ordiesel/draft2019ogvinv.pdf

[2] Data obtained from Table 7 in Section 3.3 of the *Emission Inventory Report.*

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

- There is considerable uncertainty about the effective power/load for boilers on tanker ships. These boilers are used at high loads only while offloading cargo; at other times (during docking, preparing to leave, or taking on cargo) they use much lower base loads as evidenced by low loads at anchor. In previous emission inventories[3], boiler loads were expected to average 3,000 kW compared with up to 6,000 kW in this emissions inventory (Table 8 in Section 3.3 of the *Emissions Inventory Report*). We request that CARB provide the justification for the use of up to 6,000 kW load for boilers on tanker ships.
- Many tankers do not use boilers to power offloading pumps and rely on ship diesel engines instead. We request that CARB consider the fraction of tanker vessels using these engines for that purpose rather than boilers in their emission inventory development.
- As stated in Section 4 of the *Emissions Inventory Report* growth trends were developed using Port-specific and national trends forecasting. However, based on historical activity data, it does not seem likely that the stated growth factors (in Table 12 of the *Emissions Inventory Report*) will be met. We request that CARB review historic growth rates and provide justification for why the CARB forecasted average annual growth rate of 4.5% per year for container vessels is reasonable.

HEALTH RISK (CANCER AND CHRONIC) ANALYSIS

- Section IV.C.1 of *CARB's Health Analysis* report describes the basis for selecting the meteorological data for the POLA and POLB areas. According to this section, the Source-Dominated Station (SODS, Terminal Island Station) was used as the most representative station. At this station, the wind primarily blows from the south and from the northwest. Other studies, including the Port of Long Beach Middle Harbor Redevelopment EIR (Middle Harbor EIR)[4] and the Final Bay-Wide Regional Human Health Risk Assessment Tool for Diesel Exhaust Particulate Matter study ("ENVIRON Study")[5] which have evaluated POLB and POLA, divided the port area into two zones, the inner and outer harbor. The Middle Harbor EIR modeling used the St. Peter and Paul School (SPPS) station for the Inner harbor and the Berth 47 station for the outer harbor. The ENVIRON study used the Terminal Island Treatment Plant (TITP) station for the inner harbor, and the Berth 47 station for the outer harbor. Meteorological data for the SPPS station is similar to the TITP/SODS station. However, meteorological data at the Berth 47 station shows that wind primarily blows from the west-southwest. This indicates that the sources in the outer harbor could be significantly affected by the different meteorology in that area that is not captured by the single meteorological station used in *CARB's Health Analysis*. We request that CARB provide justification for the selection of a singular meteorological station in *CARB's Health Analysis* as opposed to using multiple stations.

---

3 CARB. 2018. Mobile Source Emissions Inventory – Off-road Diesel Vehicles. Available at: https://www.arb.ca.gov/msei/ordiesel.htm. Accessed: January 2019.

4 POLB. 2009. Health Risk Assessment for the Port of Long Beach Middle Harbor Redevelopment Project. April. Available at: http://www.polb.com/civica/filebank/blobdload.asp?BlobID=6240. Accessed: January 2019.

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

- The exposure settings assumed in *CARB's Health Analysis* does not reflect the actual exposure scenarios that would occur if the Draft Regulatory Concept becomes effective. Localized cancer and chronic non-cancer health effects were analyzed for the existing regulation (i.e. 2016), each of the three phases included in the Draft Regulatory Concept (i.e., 2021, 2025, and 2031) with one additional scenario for the year of 2023. Estimated emissions for these years were used to calculate 70-year population-wide cancer risk estimates and 30-year individual cancer risk estimates. In other words, for each scenario, CARB's health risk analysis assumed that the population or individual is exposed to emissions for that scenario for a total of 70 years (for population-wide cancer risk estimates) or 30 years (for individual cancer risk estimates), respectively. However, if the Draft Regulatory Concept becomes effective, the population would be exposed to the 2016 emissions for 5 years, 2021 emissions for 2 years, 2023 emissions for 2 years, 2025 emissions for 6 years, then 2031 emissions for 55 years (for the population-wide cancer risk estimates) or 15 years (for the individual cancer risk estimates). We request that CARB revise the analysis to include cancer risk estimates for the Draft Regulatory Concept based on the actual scenario-specific exposure durations described above.
- The health risk modeling databases released by CARB for the Ports of Los Angeles and Long Beach ('POLA_POLB_DraftConcept_Risk' and 'POLA_POLB_Baseline_Risk') seem to only include the 70-year population-wide cancer risk calculations, and do not include the 30-year individual cancer risk calculations or the chronic non-cancer health index calculations. Further, the modeling database for the Port of Richmond ('2016Richmond_Risk') includes the emissions and risk results for the 2016 (Existing) risk scenario and does not provide results for the Draft Regulatory Concept. We request that CARB release modeling files that provide all the results presented in the body of the report, so we can review and provide appropriate comments.

PM MORTALITY AND ILLNESS ANALYSIS

The methods used for this analysis and specific citations for each incidence and valuation estimate are vague and not clearly documented. Hence, we are unable to clearly understand the methodology used in this analysis. We suggest that CARB provide more detailed information on methods and basis for this analysis. Some preliminary comments based on the available information on the PM mortality and morbidity analysis are provided below:

- For the health impact analysis using direct modeling approach (Section IV. A.1), *CARB's Health Analysis* refers to a concentration response function from BenMAP developed by USEPA[6] which selected concentration response coefficients (health impact per unit of PM increase/decrease) derived from epidemiological studies. There are a variety of these values available in the source document, based on varying assumptions. It is not clear which values were chosen or how the decisions were made on value selection process. We suggest that CARB provide more detailed information on what data were used and the basis for selecting the data.

---

[6] U.S. EPA, 2017a. United States Environmental Protection Agency, Environmental Benefits Mapping and Analysis Program: Community Edition (BenMAP-CE) User Manual and Appendices. Research Triangle Park, NC. Available at: www.epa.gov/benmap. Accessed: January 2019.

- The description of the methodology used to estimate the PM Mortality and Illness in Section IV.A.2 of *CARB's Health Analysis* referred to as Incidents-Per-Ton (IPT) appears to indicate that CARB is using a ratio of the results in previous studies to estimate the changes in health outcomes that are reported in Table 21 in Section IV.B. Using such an approach is incorrect as health outcomes are highly dependent on location of sources and receptors. We suggest that CARB provide additional technical details on the methodology and approach used to estimate these health outcomes as we may have more specific concerns on the details.
- Moving on to Section IV.B, there is no clear explanation on how the incident counts shown in Tables 19 through 21 were estimated. We suggest that CARB provide more detailed information or supporting calculations on the method used and the basis of incident counts.
- Further, the estimates for cardiopulmonary mortality presented in Table 21 in Section IV.B *CARB's Health Analysis* are small, ranging from zero to 117. We have a strong technical concern about applying the statistical mortality effects to small emission concentrations associated with the at-berth emissions to estimate mortality as it does not appear to be appropriate. We would need more detailed information on the calculation approach used by CARB to evaluate this analysis in further detail.
- The information provided in Section IV.A of *CARB's Health Analysis* does not clearly state the method(s) used to conduct the valuation analysis. Further, details on the confidence intervals, inflation factors, and other assumptions used for the valuation estimates are also not provided. In order to better understand this analysis, we request more detailed information on the valuation analysis methodology be provided, so we can review and comment on the same.
- Finally, as stated in the 2016 Air Quality Management Plan (AQMP),[7] nitrogen dioxide (NO_2) and particular matter ($PM_{2.5}$) concentration levels in the vicinity of the Ports of Los Angeles and Long Beach are below the state and federal air quality (health) standards. Hence, we request that *CARB's Health Analysis* should note that any reductions in health outcomes reported in the Long Beach area and other regions in California that are in attainment for the NO_X and $PM_{2.5}$ standards are beyond those required by the Federal health standards.

CONCLUSION

As described above, the *CARB's Health Analysis* does not provide sufficient detail and justification for the methodologies used to estimate the emission inventory, PM mortality, and other health outcomes. Hence, we request that CARB update their analysis and provide additional time for us to comment on the updated analysis.

---

7 Available at: https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp. Accessed: January 2019.

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675