

June 12, 2025

Michael Walker, CEO
STAX Engineering, Inc.
215 West Figueroa Street
Santa Barbara, California 90802
m.walker@staxengineering.com

Dear Michael Walker:

California Air Resources Board (CARB) staff have reviewed STAX Engineering's (STAX) Test Plan for the mobile water-based Xcraft system (Xcraft-1 with STAXbox 1-1 and STAXbox 1-2) to treat emissions from ro-ro vessel auxiliary engines.

On December 22, 2024, STAX submitted a Test Plan requesting a design change for the barge-based Xcraft-1 system. The Xcraft-1 system is currently approved under Executive Order (EO) G-24-054¹ for ro-ro vessels as a CARB Approved Emissions Control Strategy (CAECS) for compliance with the 2020 Control Measure for Ocean-Going Vessels At Berth (2020 At Berth Regulation).

Under EO G-24-054, STAX is currently authorized to use a single STAXbox system to control emissions from ro-ro vessels operating one auxiliary engine. The submitted Test Plan and design change request seek to modify EO G-24-054 to allow operation of two STAXbox systems simultaneously on ro-ro vessels operating two auxiliary engines. STAX resubmitted the revised Test Plan on May 5, 2025, and requested that CARB disregard the original submission from December 22, 2024. The May 5th submission included updates throughout to streamline reporting parameters and updates to other sections, including the contact information section and test vessels section.

The Test Plan proposes testing the Xcraft-1 using both STAXbox 1-1 and STAXbox 1-2 on two auxiliary engines. Before STAX can be approved to operate both systems simultaneously, in-use compliance testing must be completed on STAXbox 1-2. STAXbox 1-2 was approved as a CAECS through the duplicate approval process on December 23, 2024. It is considered a duplicate of STAXbox 1-1 to control emissions from one auxiliary engine on ro-ro vessels under the Approved Equipment List of EO-G-24-054. As a duplicate, STAXbox 1-2 was granted approval to operate under the same conditions previously approved for STAXbox 1-1 (approval to use a single STAXbox to control

¹ Current Executive Order G-24-054-002,
<https://ww2.arb.ca.gov/sites/default/files/2024-12/STAX%20Ro-Ro%20EO%20for%20Duplicate%20Systems%20Version%202.pdf>.

emissions from ro-ro vessels operating one auxiliary engine) and must submit in use compliance testing data within 30 vessel visits or by June 23, 2025, whichever comes first.

Since STAXbox 1-2 was approved through the duplicate in-use compliance procedure, testing data is needed to confirm the STAXbox 1-2 performance baseline. This testing is necessary to demonstrate that STAXbox 1-2 provides equivalent control efficiency, capture efficiency, and durability performance as STAXbox 1-1. Once that has been established, the data can be used to support modifications to the approved operating conditions for both systems through the design change process. Until in-use compliance testing data is submitted to CARB, STAXbox 1-2 cannot be used as a basis to expand the foundational Executive Order to allow dual-train operation.

Once verified, both STAXbox 1-1 and 1-2 may serve as the foundation for simultaneous dual-train operation, and the expanded approval can subsequently be extended to additional duplicates.

Stipulations for CARB Approval of STAX's Request

Based on CARB staff's review, and pursuant to Health and Safety Code section 93130.5(f) of the 2020 At Berth Regulation (title 17 Cal. Code Regs. §§ 93130 *et seq.*), STAX's Test Plan (submitted May 5, 2025) is hereby approved in accordance with testing requirements under the 2020 At Berth Regulation and the CARB Recommended Emissions Testing Guidelines for Ocean Going Vessels.

CARB approval is based on the system description, design, and operational procedures outlined in the approved Test Plan. No changes or modifications are permitted to the Xcraft-1 system without prior CARB approval. In order to receive EO approval to treat emissions from ro-ro vessels that operate two auxiliary engines, STAX will need to complete all testing outlined in their Test Plan and provide all reports generated from these tests.

The application requirements that STAX must meet to submit test results are outlined in section 93130.5 of the 2020 At Berth Regulation. Per section 93130.5(i) of the 2020 At Berth Regulation, if testing deviates from the approved Test Plan without prior CARB approval, the Executive Officer may deem the application incomplete or disapprove the application. An example of deviating from the Test Plan includes conducting testing on additional vessel visits beyond those approved in the Test Plan and claiming such visits qualify for the research exception set forth in section 93130.8(d) or 93130.10(e) of the 2020 At Berth Regulation. CARB reserves the right to request the results of any testing conducted beyond the testing described in the approved Test Plan.

Michael Walker
June 12, 2025
Page 3

If you have any questions, please contact Angela Csondes, Manager, Marine Strategies Section, at angela.csondes@arb.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Bonnie Soriano".

Bonnie Soriano, Chief, Freight Activity Branch, Transportation and Toxics Division

Attachment: 05_5_25_STAX CARB two_to_two Roro test plan STA-002-B.002.docx

cc: Angela Csondes, Section Manager, Marine Strategies Section