

August 27, 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) revised Test Plan and design change request (Request) for the mobile water-based Xcraft system (Xcraft-1 with STAXbox 1-1 and STAXbox 1-2) to treat emissions from tanker vessel auxiliary engines and auxiliary boilers.

On November 23, 2021, STAX submitted a test plan to obtain approval for the barge-based Xcap and STAXbox to be used 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). On March 7, 2022, CARB approved STAX's test plan (dated February 21, 2022) and issued a test plan approval letter.

The Xcraft-1 system is currently approved under Executive Order (EO) G-25-200 for tanker vessels that operate only auxiliary engines as a CAECS for compliance with the 2020 At Berth Regulation.

Under EO G-25-200, STAX is currently authorized to operate either one STAXbox to control a single auxiliary engine on a tanker vessel, or two STAXboxes operating simultaneously in dual-train mode to control two auxiliary engines on the same tanker vessel, where each STAXbox controls only one auxiliary engine.

STAX submitted a revised test plan on May 16, 2025, to treat emissions from tanker vessel auxiliary engines and auxiliary boilers. STAX requested that CARB disregard the original test plan approved on March 7, 2022. The revised Test Plan included modifications to the continuous emission monitoring system (CEMS), removal of the Xcap, and the addition of the flexible ducting capture hood.

The revised test plan and design change request seek to modify EO G-25-200 to allow control of auxiliary boilers on tanker vessels.

CARB staff reviewed the revised test plan and provided comments to STAX on July 18, 2025, and August 7, 2025. To address staff's comments, STAX revised and resubmitted the Test Plan on July 25, 2025, and August 7, 2025.

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 revised Test Plan submitted on August 7, 2025 (Test Plan) 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's previous test plan approval letter (dated March 7, 2022) and STAX's approved test plan dated February 21, 2022 are now considered superseded.

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 (STAXbox 1-1 and STAXbox 1-2) system without prior CARB approval. In order to receive EO approval to treat emissions from tanker vessel auxiliary boilers, STAX will need to complete all testing outlined in its 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. Another example of deviating from the approved Test Plan would be operating outside of the specified configurations. The approved Test Plan requires two STAXboxes to operate simultaneously in dual train mode, with one controlling an auxiliary engine and the other controlling an auxiliary boiler. CARB reserves the right to request the results of any testing conducted for the Xcraft-1 beyond the testing described in the approved Test Plan).

To complete the testing outlined in the Test Plan, a total of six vessel visits that coincide with the tests specified in the approved Test Plan may count as a compliant visit under the research exceptions in section 93130.8(d) or 93130.10(e) of the 2020 At Berth Regulation; however, these sections only apply to testing identified in the Test Plan and conducted after the Test Plan was approved. All testing must adhere to the system description, design, and operational procedures outlined in the approved Test Plan.

STAX is responsible for tracking the usage of the six approved vessel visits that may utilize the research exception, and STAX must provide a copy of the approved Test Plan to each vessel participating in the research. STAX is also responsible for communicating with the vessel operator to ensure the operator knows what tests are being performed during the

visit and which number out of the six approved visits the vessel is participating in. As noted above, any tests completed in excess of those approved in the Request would not be eligible for the research exception to compliance with the 2020 At Berth Regulation set forth in section 93130.8(d) or 93130.10(e). If more than six vessel visits are needed to complete all the testing outlined in the approved Test Plan, STAX must seek additional approval from CARB.

The terminal operator, vessel operator, and CAECS operator (STAX) all must report research exception visits to CARB.

- Within seven (7) days after vessel departure, the CAECS operator (STAX) must report the research exception visit to CARB via email at shorepower@arb.ca.gov. In the report, STAX must include:
 - the vessel type, name, and IMO number,
 - name of the test plan and date of CARB approval,
 - what tests were performed during the visit,
 - the number of approved research exceptions used, and
 - how many research exceptions remain available.
- Before vessel arrival, terminal operators must confirm and record a visit's research exception status with CARB, and follow all other requirements in Section 93130.10(e).
- Within 30 days of vessel departure, the vessel operator must report the research exception visit to CARB in the vessel visit report, and follow all other requirements in Section 93130.8(d).

The Executive Officer may deem the application incomplete or disapprove the application if STAX fails to report the use of a research exception for testing within seven days of the vessel's departure.

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

Sincerely,



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

Attachment: 7_25_25_STAX CARB Test Plan.tanker.aux.engines.boilers.003 v4.PDF

cc: Angela Csondes, Section Manager, Marine Strategies Section