

September 8, 2026

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) has reviewed STAX Engineering's (STAX) test plan and design change request for the Xcraft-1 system (STAXbox 1-1 and STAXbox 1-2) and all verified duplicate systems to treat emissions from auxiliary engines and boilers on tanker vessels.

The Xcraft-1 system and its verified duplicates are currently approved under Executive Order (EO) G-25-200-001 for tanker vessels as a CARB Approved Emissions Control Strategy (CAECS) for compliance with the Control Measure for Ocean-Going Vessels At Berth (Cal. Code Regs., tit. 17, § 93130 et seq.) (2020 At Berth Regulation). Under this EO, STAX is authorized to operate in the following four modes: one STAXbox per auxiliary engine, two STAXboxes operating simultaneously in dual-train mode where each STAXbox is controlling one auxiliary engine, one STAXbox using a "Y" manifold to control two auxiliary engines while the other STAXbox is not in operation, or one STAXbox using a "Y" manifold to control two auxiliary engines while the other STAXbox controls one auxiliary engine. All duplicate systems verified by CARB may operate under these same approved configurations.

On May 1, 2026, STAX submitted a test plan and a design change request to modify the EO. The change would allow a collection system that routes emissions from multiple sources into two STAXbox trains using a single hood connector. This connector combines exhaust from several auxiliary engines and boilers and directs it to the two STAXbox trains. The test plan proposes eight possible combinations of these emission sources.

CARB staff reviewed the test plan, provided comments on June 4, 2026, and August 8, 2026, and received a revised version on July 13, 2026, and August 8, 2026.

Approval and Conditions

CARB approves the revised test plan submitted on August 8, 2026 (Approved Test Plan), under the requirements of the 2020 At Berth Regulation and CARB's Recommended Emissions Testing Guidelines for Ocean-Going Vessels.

This approval is based on the system description, design, and procedures described in the Approved Test Plan. No changes to the Xcraft-1 system (STAXbox 1-1 and STAXbox 1-2), or any verified duplicate system, are allowed without prior CARB approval.

To receive EO approval for the hood connector configuration, STAX must:

- Complete all testing outlined in the Approved Test Plan.
- Submit all test reports to CARB.

Any deviation from the Approved Test Plan without prior CARB approval may result in the application for the proposed amendment to a CAECS being deemed incomplete or disapproved by CARB's Executive Officer. Examples of deviations include:

- Testing on vessel visits not included in the Approved Test Plan.
- Operating any system outside the approved system configuration.

The testing in the Approved Test Plan is limited to eight different configurations: two auxiliary engines; three auxiliary engines; four auxiliary engines; five auxiliary engines; two auxiliary engines and one auxiliary boiler; two auxiliary engines and two auxiliary boilers; three auxiliary engines and one auxiliary boiler; and, three auxiliary engines and two auxiliary boilers. CARB may request results from any additional testing beyond what is described in the plan. All configurations may be tested using the Xcraft-1 base system or any verified duplicate system.

Use of Research Exceptions

The Approved Test Plan evaluates the hood connector design using 8 different combinations of emission sources. Each combination includes a mix of auxiliary engines and auxiliary boilers. **For each configuration, 5 research exception vessel visits are allowed, and visits cannot be moved from one configuration to another.** This results in a total of 40 visits. These visits may be conducted using the Xcraft-1 base system or any verified duplicate system.

Therefore, up to **40** vessel visits completed under the Approved Test Plan may qualify for the research exception under California Code of Regulations sections 93130.8(d) or 93130.10(e). These exceptions only apply to testing described in the Approved Test Plan and conducted after its approval.

STAX is responsible for:

- Tracking the use of the 40 approved research exception visits.

- Providing the Approved Test Plan to each participating vessel.
- Coordinating with vessel operators to ensure they understand the testing and which visit number they represent.

If more visits are needed, STAX must request additional approval from CARB.

Reporting Requirements

All research exception visits must be reported by the terminal operator, vessel operator, and STAX. Specifically:

- **Within 7 days of vessel departure**, STAX must email shorepower@arb.ca.gov with:
 - Vessel type, name, and IMO number;
 - Test plan name and CARB approval date;
 - Tests performed and on what emission source configuration and with what Xcraft; and,
 - Number of research exceptions used and remaining.
- **Before vessel arrival**, terminal operators must confirm and record the visit's research exception status with CARB and follow all requirements in section 93130.10(e).
- **Within 30 days of vessel departure**, vessel operators must report the visit in their vessel visit report per section 93130.8(d).

Failure by STAX to report within 7 days of vessel departure may result in the application being deemed incomplete or disapproved by the Executive Officer.

If you have any questions, please contact shorepower@arb.ca.gov.

Sincerely,



Tracy Haynes, Chief, Freight Activity Branch, Transportation and Toxics Division

Attachment: STAX hood connector to two train test plan (08052026) Final Final.PDF