



Proposed Innovative Concept

ECCS for Steam Ship Propulsion/Steam Turbine Generator Boilers in Port



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A. Contact Information

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B. Description of Innovative Concept

Pasha's Hawaii Holding (Pasha Hawaii) proposes an innovative concept to design/modify/construct a barge mounted Emission Capture and Control System (ECCS) that can be used with the marine propulsion boilers while the vessels are in port. Currently, there is no approved ECCS for use on steam powered ship propulsion boiler. The current ECCS systems are designed for Auxiliary Engines or Auxiliary Boilers which have a lower exhaust gas flow and emissions make up.

The steam ships do not have auxiliary diesel generators or auxiliary boilers that can be used in port. They have steam turbine generators that operate off the same boilers that provide steam to the main propulsion turbines.

Pasha Hawaii will work with AERAS Technologies who are currently constructing a barge mounted ECCS for use in the Port of Long Beach/Los Angeles. Their system is designed for emissions from Diesel Engines with flow rates up to 13,550 CFM. Our innovative concept is to utilize this or similar technology and adapt it to work with on steam ship's propulsion boilers.

C. Vessel Emission Reduction

The emissions generated from this type of propulsion boiler, which power the steam turbine generators in port, is unknown. Pasha Hawaii reached out to CARB staff in fall of 2021 to see if they had any data on emissions from propulsion boilers operating at low loads on ultra-low sulfur fuel, but they were not able to provide any data at the time.

Pasha Hawaii will begin the task with measuring the boiler emissions to develop a baseline on the steam ship's propulsion boiler in port at various low loads. Once we have developed this baseline, we shall be able to calculate current emissions with the boiler operating at current loads and quantify emission reductions

This measured emission data from the steam ships propulsion boilers is also required for the design of the new/modified ECCS to ensure it will meet the emission reduction stated in the regulation.

D. Proposed recordkeeping, reporting, monitoring

The ECCS will have emission monitoring equipment installed to verify the ECCS is performing as designed and is meeting the emission reduction as stated in section 93130.17(a) of the regulation. Records shall be collected and maintained as required by the Executive Officer and 93130.17(a)(13) of the regulation.



E. Memorandum of understanding or similar agreement

Pasha Hawaii currently has a teaming agreement with AERAS Technologies that will be modified to include this innovative concept.

F. Time Duration

Pasha Hawaii intends to utilize this innovative concept until the ships are upgraded with shore power capability.

G. Government Approvals

The government required approvals are CARB for the ECCS compliance with the At Berth regulation USCG for barge compliance.

H. Environmental Reviews

Environmental reviews will be conducted as required by Executive Officer.

I. Additional information

None

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