

Harbor Craft Workgroup Meeting

**May 6, 2004
9:00 AM to 12:00 PM**

**Phone in Information
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**Cal-EPA Headquarters Building
Second Floor, Conference Room 230
1001 I Street
Sacramento, California 95814**

Agenda

- 1. Welcome and Introductions**
- 2. Harbor Craft Regulation Development**
 - **Recap March 23, 2004 Workshop**
- 3. Potential Regulatory Approaches (see attachment)**
 - **Emission Performance Standards**
 - **Accelerate Engine Turnover**
 - **Apply Technology Retrofits**
 - **Combination**
- 4. Next Steps / Open Forum**

Attachment

COMMERCIAL HARBOR CRAFT WORKGROUP

May 6, 2004

Outlined below are possible strategies to begin discussion and create ideas to lead to a technologically feasible and economically practicable Commercial Harbor Craft (CHC) Regulation.

Potential Emission Reduction Strategies

A. Establish Performance Standards

One option is to establish an emission performance standard that a vessel engine would need to meet. For example, engines of a specific horsepower and age would need to meet an xx g/bhp-hr emission rate by a certain date.

Pros	Cons
Owner Decides Strategy	Potential High Cost
Specific Emission Goals	Set Standards, Lack of Flexibility
Simple Enforcement	Need for More Proven Technologies in Marine Applications

B. Accelerate Engine Turnover

Another option would be to implement a strategy that accelerates engine turnover of the CHC fleet to newer engines. For example, the oldest, or highest emitting engines could be targeted first. Engine would be required to be replaced by a specified date.

Pros	Cons
Specific Emission Goals	Potential High Cost
Engines Available Now	Set Turnover Rate, Lack of Flexibility
Simple Enforcement	Difficulty Replacing Engines
Target High Emitters First (Older Engines)	Possible Need for Exemptions

C. Apply Technology Retrofits

A third option would be to require the use of an emission reduction retrofit technology. For example, this strategy could require the use of a diesel oxidation catalyst or emulsified fuel on all engines, until a new engine is installed or could require installation of the highest level of verified equipment.

Pros	Cons
Specific Emission Goals	Potential High Cost
Tailored to Vessel or Engine Type	PM/NOx Trade-off
Tailored to Pollutant	Lack of Proven Technologies in Marine Application

D. Combination of A, B and C

Additional Elements

Each of the following approaches could be used in implementing the main proposed emission reduction strategies:

1. Phase-In

Requirements could be phased in based on characteristics of the engine (age, size, use), the vessel (size, use, location), or the fleet of vessels owned by one operator. For example, an owner of several vessels could be required to have 25% of their fleet meet the standards by 2006, 50% by 2007, and 75% by 2008.

2. Fleet Averaging

The emission reduction goals could be reached by averaging the emissions of a fleet. This technique can be used for any number of vessels, collectively reducing emissions to an established average emission standard. The goals could be met in a variety of ways, operational controls, available technologies, engine replacement with a newer cleaner engine, and then the resulting emission reductions would be averaged for the fleet.

3. Targeting Different Use Categories

Focus on specific fleets or engine use types to reduce emissions. For example, vessels would be targeted to reduce PM that operate closer to shore and vessels that operate further from shore achieve the NOx goals. This category could be segregated by engine use or target the operating time.

Commercial Harbor Craft Regulation Concepts Matrix

		EXAMPLE REGULATORY CONCEPTS		
		Establish Performance Standards	Accelerated Engine Turnover	Apply Technology Retrofits
E L E M E N T S	Phase-In	xx g/bhp-hr by 20xx and / or xx g/bhp-hr by 20xx	Pre-1970 vessel engines by 20xx, pre-1980 engines by 20xx	Install a retrofit by 20xx until 20xx, then repower
	Averaging	xx g/bhp-hr goal set for a fleet of vessels	Repowering more vessels of a certain fleet than required to offset fewer repower of another fleets older engines to reach an average age of >20xx	xx g/bhp-hr average emission goal met by using retrofits by installing DPF's with larger reductions to meet goal of all DOC's
	Target Different Use Categories	xx g/bhp-hr for auxiliary and xx g/bhp-hr for propulsion engines	Tugs and Ferries with 1996 (?) and older engines by 20xx	Require a Diesel Oxidation Catalyst installed on all vessels that operate 75% time 0 -10 miles from shore