



# OVERVIEW – HARBOR CRAFT MITIGATION MEASURE TABLE

## Summary

This document provides an overview of the harbor craft tables (Table VI and VII) and how to use the information provided in the tables. Additionally, a link is included to company contact information for projects that have been achieved in practice.

## Table VI - Mitigation Measure Examples: Repowered Harbor Craft

Table VI (*Mitigation Measure Examples: Repowered Harbor Craft*) provides examples of specific harbor craft repowered with Tier 2 engines that operate within the AQMD's jurisdiction.

In particular, Table VI provides the following details organized by equipment horsepower in California Air Resources Board (CARB) defined engine power categories:

- Project or vessel where the engine repower has been achieved in practice (all listed examples are uncontrolled baseline engines repowered through the District's Carl Moyer Memorial Air Quality Standards Attainment Program and funded in 2004)
- Baseline engine:
  - Horsepower
  - Model year
- Repowered engine:
  - Horsepower
  - Model year
  - EPA Certification Level
  - Cost
- Achieved emission reductions (reduction from baseline to repowered emission rate)

Knowing the horsepower (HP) range and baseline engine model year of a given harbor craft engine, the CEQA practitioner can calculate emission reductions achieved by repowering the given uncontrolled engine using the data listed in Table VI. To do so, apply the emission reduction to the applicable uncontrolled pollutant emission rate.

As an example, a 200 HP, 1973 model year baseline engine repowered with a Tier 2 engine yields the following emission reductions: 63% NO<sub>x</sub>; 66% VOC; and 39% PM. (Refer to the 175 – 299 HP category under Table VII.) Assuming the baseline engine emits 100 pounds per hour (lb/hr) NO<sub>x</sub>, the quantity mitigated is 63 lb/hr NO<sub>x</sub>, while the repowered emission rate is 37 lb/hr NO<sub>x</sub>.

Note that the data in Table VI may be used only for the specific listed repower scenarios. Refer to Table VII for a broader range of repower scenarios and their respective emission reductions.



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Table VI can be downloaded directly from the following location:

[http://www.aqmd.gov/ceqa/handbook/mitigation/harbor\\_craft/TableVI.doc](http://www.aqmd.gov/ceqa/handbook/mitigation/harbor_craft/TableVI.doc).

## **Table VII – Harbor Craft Engine Emission Rates & Comparison of Uncontrolled to Tier 2 Rates**

Table VII (*Harbor Craft Engine Emission Rates & Comparison of Uncontrolled to Tier 2 Rates*) lists harbor craft engine emission rates and uncontrolled to Tier 2 percentage reductions. The purpose of Table VII is twofold: to provide the background data used to determine emission reductions listed in Table VI; and to provide a basis upon which emission reductions of other repower scenarios can be determined.

Table VII is divided into two sub-tables: Tables VII-A and VII-B. Table VII-A lists uncontrolled and Tier 2 harbor craft engine emission rates by engine model year and size. Uncontrolled emission rates and Tier 2 emission rates follow those prescribed under CARB Table B-18<sup>1</sup>. Model year ranges and power categories follow the CARB standard.

Table VII-B compares emission reductions from uncontrolled to Tier 2 rates. As with Table VI, knowing the horsepower (HP) range and baseline engine model year of a given harbor craft engine, the CEQA practitioner can use the data in Table VII-B to calculate emission reductions achieved by repowering the given uncontrolled engine.

The difference between Tables VI and VII is that Table VI shows control efficiencies for specific repowered projects (based on the data in Table VII), whereas Table VII shows control efficiencies for broad categories of horsepower ratings and engine model years.

Table VII can be downloaded directly from the following location:

[http://www.aqmd.gov/ceqa/handbook/mitigation/harbor\\_craft/TableVII.xls](http://www.aqmd.gov/ceqa/handbook/mitigation/harbor_craft/TableVII.xls)

## **Company Contact Information**

For additional information on the control measures achieved in practice, company contact information can be downloaded directly from the following location:

<http://www.aqmd.gov/ceqa/handbook/mitigation/AIPContact.doc>

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<sup>1</sup> CARB uncontrolled harbor craft engine emission factors are listed in CARB Table B-18 (*Harbor Craft Propulsion and Auxiliary Engine Emission Factors*) of the 2005 Carl Moyer Program Guidelines. The table is included in Part IV (Appendices) and can be downloaded from the following location:  
<http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>.