Appendix C

2007 Ocean-Going Ship Survey
Summary of Results

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2007 OCEAN-GOING SHIP SURVEY
SUMMARY OF RESULTS

Stationary Source Division
Emissions Assessment Branch

California Environmental Protection Agency
Air Resources Board

2007 Ocean-going Ship Survey Summary of Results

TABLE OF CONTENTS

List of Tables

List of Figures

I. INTRODUCTION AND BACKGROUND

The Air Resources Board (ARB) conducted an Ocean-Going Vessel Survey (Survey) in February 2007. The Survey targeted the owners or operators of tankers, cruise lines, auto carriers, container ships, etc. (both domestic and foreign-flagged) that visited California ports in 2006. The purpose of the Survey was to gather information to help update the statewide emissions inventory for ocean-going vessels (OGVs), support the development of a proposed regulation to reduce emissions from the operation of OGV main engines, and to better understand dockside power needs while loading/unloading in California ports.

This report provides an overview of the results from the Survey. A copy of the Survey is provided as an attachment. The Survey requested information on ocean-going vessels that visited California ports. OGV is defined as a marine vessel that meets any one of the following criteria:

(1) the vessel is 400 feet or greater in length overall (LOA) as defined in 50 CFR § 679.2, as adopted June 19, 1996;
(2) the vessel is 10,000 gross tons (GT ITC) or more per the convention measurement (international) system as defined in 46 CFR 69.51-.61, as adopted September 12, 1989; or
(3) the vessel is propelled by a marine diesel engine with a per-cylinder displacement of 30 liters or greater.

Generally, vessels such as container ships, bulk carriers, tankers, and cruise ships meet the definition of an OGV, while harbor craft such as ferries, fishing vessels, and tug/tow boats do not.

The Survey contained two parts. Part I requested company and contact information; while Part II requested ship and main and auxiliary engine information (refer to Appendix: 2006 Ocean-Going Ship Survey). Part II requested ship owners and operators to provide information on potential vessel modifications for using marine distillate fuels.

The Survey initially was distributed via ARB's maritime list serve. This list serve includes many owners/operators of OGVs that visit California ports. Subsequently ARB staff targeted shipping lines that we known to have operated OGVs that visited California ports in 2006, but did not respond to the initial List Serve announcement Survey. There are approximately 2,000 ocean-going vessels that visited California's ports in 2006, and these vessels made nearly 11,000 port calls. The owners of 178 companies provided information on approximately 761 vessels or main engines and 2,500 auxiliary engines. Thus, we believe the information received from respondents to our Survey represent approximately 40 percent of the total oceangoing ships that visit California annually.

In the following sections, the results for the survey are presented including information regarding the vessels, main engine specifications, auxiliary engine specifications, and port activity of the vessel. Not all surveys had data entered for every data field. Blank

data fields were not included in average or population numbers in the survey summaries.

II. SHIP INFORMATION SURVEY RESULTS

The respondents to the survey were requested to provide general information on the vessels that they owned or operated including the vessel type, country flag of each vessel, age of the vessel, and electrical power. Information for 761 vessels was collected in the survey.

A. Vessel Type

Shown below are the types of vessels reported that visited California ports in 2006. Container ships were the most commercial ship reported, about 40 percent of the ships reported in the Survey, followed by tankers (25%), and bulk carriers (19%).

Table 1: Vessel Types

Vessel Type	Number of Vessels	Percent of Total
Auto Carrier/Ro-Ro	85	11
Bulk Carrier/General Cargo	145	19
Container Ship	294	39
Motor Ship/Container	6	1
Passenger	36	5
Product Carrier	1	<1
Reefer	7	1
Tanker	187	25
Total	**761**	**100**

B. Country Flag

The survey requested vessel owners/operators to report the country under which the flag of the vessel is registered. Over 39 countries were reported, while eight countries represented about two-thirds of the vessels. Shown below is a list of the countries or geographic areas and the percentage of vessels reporting to the Survey registered in each area.

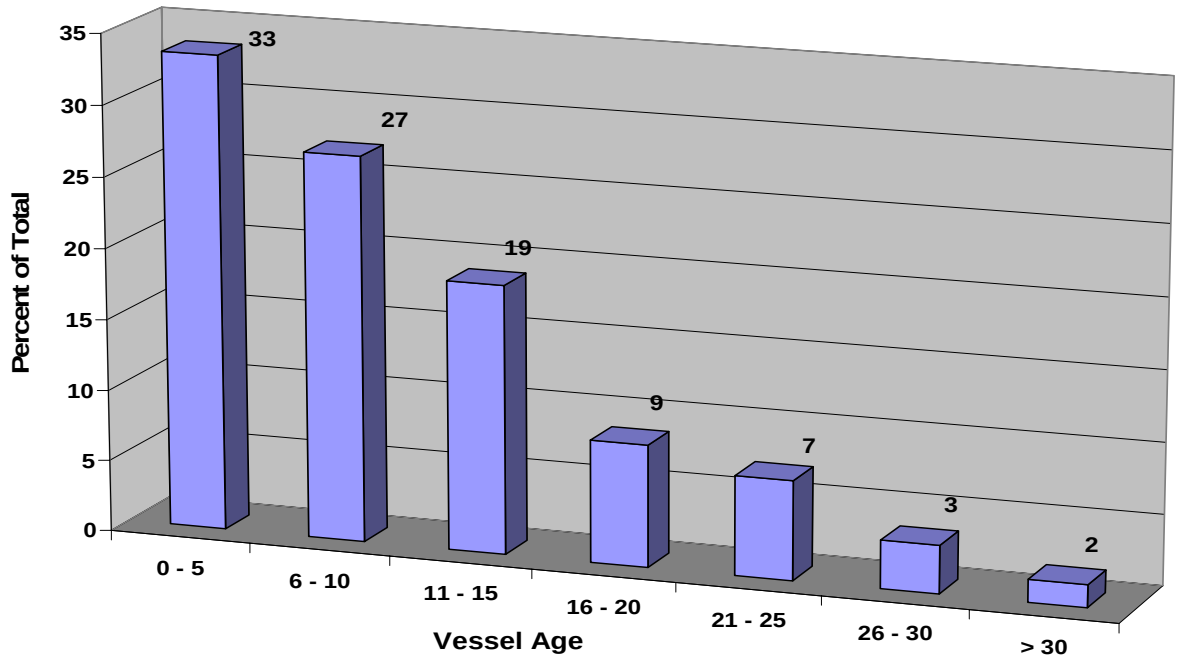
Table 2: Registered Country Flag of Vessel

Country or Geographic Area	Percent of Vessels Responding to Survey
Panama	20
United States	8
United Kingdom (2 countries)	5
Liberia	12
Bahamas/Bermuda	11
Hong Kong/China	13
European and Mediterranean Countries (21 countries)	17
Singapore	4
Japan/Korea	2
Marshall Islands	5
Other Countries (6 countries)	3

C. Vessel Age

The age of the vessels reported in the survey ranged from 38 years old to new, with an average vessel age of about nine years. Approximately 80 percent of the vessels were less than 15 years old. The distribution of vessel age is shown in Figure 1.

Figure 1: Age Distribution of Vessels



D. Electrical Power

The survey requested information regarding the ship electrical power. Specifically the survey asked what the voltage, frequency in hertz, and phase of power generated by the ships generators for ship board power such as lighting and navigation. Shown below are the survey results. The information revealed that the majority of vessel types use

440 volts. The 31 vessels that reported significantly greater voltage represents passenger and container ships.

Table 3: Available Ship Power

Voltage	Number of Vessels	Percent of Vessels
440	487	66
450	152	20
6,600	24	3
480	16	2
220	12	2
11,000	7	1
Other	43	6

III. SURVEY RESULTS FOR PROPULSION ENGINES

The respondents to the survey were requested to provide information on their main or propulsion engines, including make, model, and age. For most vessels there is a single main engine used for propulsion. However, diesel-electric vessels, such as cruise ships, also use gen-sets for both shipboard electricity and propulsion. These gensets were reported as auxiliary engines in the next section of this report. While the survey identified 761 different vessels approximately 60 surveys did not identify a "date built" for their main engine.

A. Engine Type and Engine Age

The engine type was dominated by diesel piston engines with only a small fraction being either gas or steam turbine. Over 96 percent of the main engines are two-stroke. These results are provided in table 4 and table 5. Figure 2 shows the age distribution of main engines, which reveals about 80 percent of the main engines are less than 15 years old, with 32 percent less than 5 years old, and the average age of a main engine is 12 years.

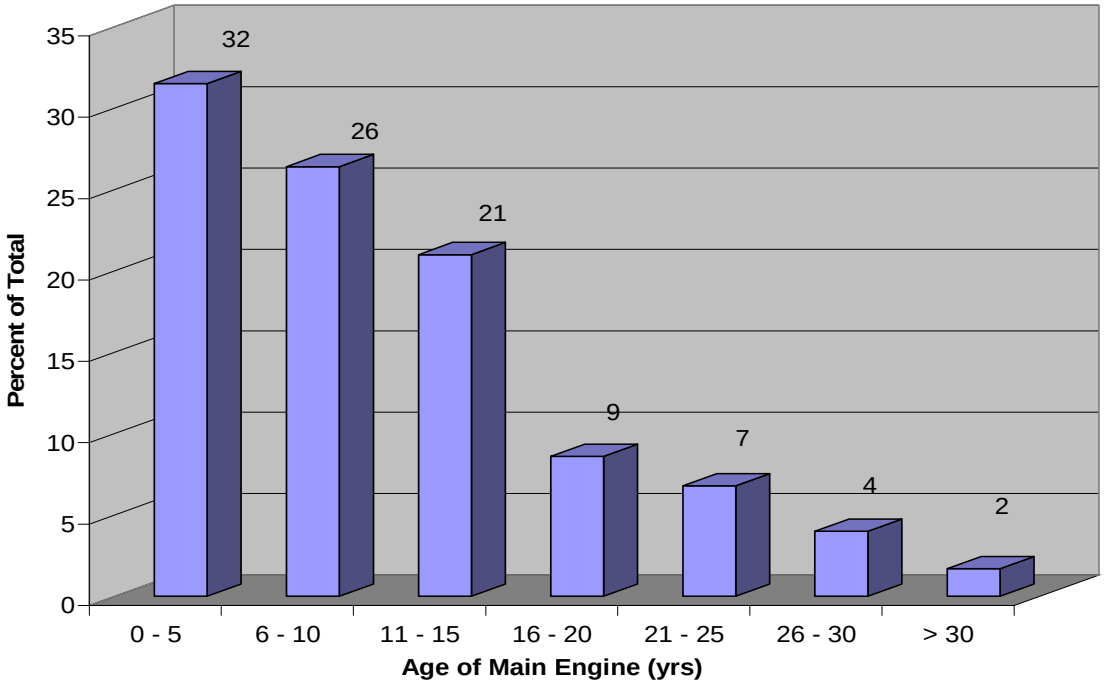
Table 4: Propulsion Engine Types

Engine Type	Number of Engines	Percent of Total Main Engines
Diesel piston	704	98
Steam turbine	8	1
Gas turbine	6	1

Table 5: Diesel Piston Engine Types

Diesel Piston Engine	Number of Engines	Percent of Total Diesel Engines
2 stroke	670	96
4 stroke	26	4

Figure 2: Age Distribution of Main Engines



B. Engine Manufacturer

The survey respondents reported several different engine manufacturers; however three companies, Man B&W, Sulzer, and Mitsubishi were shown to make the majority of the engines. The Man B&W and Sulzer engines that are clearly identified are shown below. Most of the other engines are likely Man B&W or Sulzer designs produced by the shipyards under licensing agreements.

Table 6: Propulsion Engine Manufacturer

Engine Maker	Number of Engine Makes	Percent of Total Engines
Man B&W	479	66
Sulzer	117	16
Mitsubishi	88	12
Sulzer/Wartsila	14	2
General Electric	12	2
Other	13	2

C. Propulsion Engine Fuel Type

Ocean-going vessels are typically constructed with multiple fuel tanks that allow the storage of either distillate or residual fuels. The storage of multiple fuels allows the operator of a vessel to use compliant marine fuels that may be required for use while at dockside, or navigating in coastal waterways, or cruising in international waters.

The Survey requested the respondents to identify the marine fuel used in their main propulsion engine and the sulfur content of each fuel. We asked the respondents to provide this information for a "tank one" and a "tank two." It's important to note that the Survey only asked for the type of fuel stored in either of two tanks. While OGVs are typically built with more than two tanks, the information provided substantiates our understanding most OGVs propel their vessels with residual marine fuel.

Table 7: Propulsion Fuel Type in Tank One

Fuel Stored in Tank Number One	Number of Vessels Reporting Fuel Type	Percent of Total Engines Reporting Fuel Type
Residual	647	93
Distillate	47	7

Table 8 reveals 78 percent of the reporting vessels store distillate marine fuel in one of their tanks.

Table 8: Propulsion Fuel Type in Tank Two

Fuel Stored in Tank Number Two	Number of Vessels Reporting Fuel Type	Percent of Total Engines Reporting Fuel Type
Distillate	260	78
Residual	72	22

The minimum, maximum, and average sulfur content of fuel stored in tank number one and tank number two are shown in Table 9 and Table 10.

Table 9: Sulfur Content of Fuel in Tank One

Percent Sulfur Content of Main Engine Fuel			
Tank No. 1	Minimum	Maximum	Average
Distillate	0.03	3.50	2.02
Residual	0.80	4.50	2.85

Table 10: Sulfur Content of Fuel in Tank Two

Percent Sulfur Content of Main Engine Fuel			
Tank No. 2	Minimum	Maximum	Average
Distillate	0.01	3.00	0.57
Residual	0.18	3.92	1.70

D. Propulsion Engines at Sea

The Survey requested propulsion information on vessels direct drive main engines, including rated power at maximum continuous rating (MCR), average cruise power, and average cruise speed while at sea. The minimum, maximum, and average values for MCR, average cruise power and average cruise speed at sea by engine type are provided in Table 11 through Table 13.

Table 11: Rated Power at MCR for Main Engine

	Rated Power at MCR (kW)		
Main Engine Type	Minimum	Maximum	Average
Diesel Piston	952	69,618	23,727
Gas Turbine	8,880	12,528	10,019
Steam Turbine	20,880	23,862	22,371

Table 12: Average Cruise Power for Main Engine

	Average Cruise Power (kw)		
Main Engine Type	Minimum	Maximum	Average
Diesel Piston	8	66,514	19,088
Gas Turbine	6,000	9,023	6,712
Steam Turbine	17,524	21,029	19,985

Table 13: Average Cruise Speed for Main Engine

	Average Cruise Speed (knots)		
Main Engine Type	Minimum	Maximum	Average
Diesel Piston	5	27	18
Gas Turbine	12	14	13
Steam Turbine	15	22	19

The information provided in table 11 through table 13 reveals diesel piston main engines operate over a significantly greater range in MCR, average power, or cruise speeds when compared to gas or steam turbine engines. Since 98 percent of OGVs are operated by diesel piston main engines, we then looked at the breakdown of vessel types. Table 14 through table 16 presents the MCR, cruise power, and cruise speed by vessel type for OGVs whose main engine type is diesel piston.

Table 14: Rated Power at MCR for Diesel Piston Main Engine

	Rated Power at MCR (kW)		
Vessel Type	**Minimum**	**Maximum**	**Average**
Auto Carrier/Ro-Ro	1,412	25,839	11,869
Bulk Carrier/General Cargo	952	15,670	8,371
Container Ship	1,240	69,618	40,523
Motor Ship/Container	57,200	68,640	62,880
Passenger	5,460	18,642	9,407
Product Carrier	9,612	9,612	9,612
Reefer	7,060	12,528	9,469
Tanker	6,115	31,190	13,138

Table 15: Average Cruise Power for Diesel Piston Main Engine

	Average Cruise Power (kW)		
Vessel Type	**Minimum**	**Maximum**	**Average**
Auto Carrier/Ro-Ro	3,350	22,000	9,704
Bulk Carrier/General Cargo	8	14,500	6,904
Container Ship	1,400	66,514	32,121
Motor Ship/Container	40,000	50,000	43,333
Passenger	4,800	22,680	13,247
Product Carrier	7,830	7,830	7,830
Reefer	5,727	10,800	7,589
Tanker	5,071	24,802	11,272

Table 16: Average Cruise Speed for Diesel Piston Main Engine

	Average Cruise Speed (knots)		
Vessel Type	**Minimum**	**Maximum**	**Average**
Auto Carrier/Ro-Ro	14	21	18
Bulk Carrier/General Cargo	13	20	14
Container Ship	14	27	23
Motor Ship/Container	22	24	23
Passenger	12	22	18
Product Carrier	15	15	15
Reefer	17	20	19
Tanker	5	17	15

E. Main Engine Modifications - Improve Fuel Efficiency or Reduce Emissions

The Survey requested the respondents to describe any engine modifications completed to either improve fuel efficiency or reduce emissions. While 761 owners or operators responded to our survey only 55 or 7 percent reported modifications being completed for these purposes. The major types of modifications to main engines are described as follows:

- Electronic cylinder oil control
- Fuel additives, homogenizers
- Low sulfur cylinder oil piping
- Modified fuel injectors
- NOx adjustment, e.g., emission control
- Slide valves, alpha lubrication system

Table 17 shows the types of vessels reporting modifications to their main engines to improve fuel efficiency or reduce emissions:

Table 17: Modifications by Vessel Type

Vessel Type	Number of Vessels	Percent of Total
Container Ships	35	64
Tankers	10	18
Bulk Carrier/General	4	7
Auto Carrier/Ro-Ro	2	4
Passenger	1	2
Others	3	6

F. Vessel Modifications

The Survey asked respondents to provide information on modifications they would need to be able to use low sulfur distillate fuels within various distances of the California shoreline. Table 18 presents a summary of the respondents' answers for the 761 vessels reported on in the Survey. Of the 178 companies reporting in the survey, 23 or 13% of the companies reported the need to perform modifications. [1]

Table 18: Number of Vessels Reporting Modifications to Use Low Sulfur MGO

Nautical Miles	Yes	No	No Response	Total	Percent
24 nm	168	501	92	761	22
50 nm	196	465	100	761	26
100 nm	213	451	97	761	28

Table 19 identifies the number and types of modifications reported to allow the use of low sulfur MGO in main engine.

[1] Of these, 2 companies had over half of the vessels that were reported needing modifications. Neither company could provide follow-up information to confirm that these modifications were essential to use low sulfur distillate fuels. Another company reported on 4 vessels needing modifications and follow-up discussions confirmed that the reported modifications were to comply with potential Emission Control Areas (ECA) requirements.

Table 19: Equipment Modifications Reported to Use Low Sulfur MGO

	24 Nautical Miles	50 Nautical Miles	100 Nautical Miles
Equipment Type	Number of Vessels	Number of Vessels	Number of Vessels
Fuel Tanks	96	105	136
Cylinder Lube Oil Systems	46	60	69
Fuel Valves	10	17	17
Fuel Piping & Pumps	80	93	98
Engine Fuel Pumps	17	23	31
Engine Fuel Injectors	11	21	22
Other	22	26	36
Total	282	345	409

The Survey also asked the respondents to provide cost estimates for the reported modifications. If unable to provide individual cost estimates, we requested the respondents to estimate total modification costs. Table 20 through Table 25 presents the number of modifications and the minimum, maximum, and average costs by individual equipment modified and estimated total vessel costs.
Range in costs for OGVs operating within 24 nautical miles:

Table 20: Total Costs by Vessel Type

Vessel Type	Number	Minimum	Maximum	Average
Auto Carrier/Ro-Ro	43	$107,000	$400,000	$114,146
Bulk Carrier/General Cargo	16	$107,000	$107,000	$107,000
Container Ship	73	$107,000	$178,000	$155,429
Tanker	32	$60,000	$2,150,000	$1,234,250

Table 21: Costs by Equipment Modified

Equipment Type	Number	Minimum	Maximum	Average
Fuel Tanks	96	$5,000	$1,000,000	$149,141
Cylinder Lube Oil Systems	46	$2,000	$500,000	$122,563
Fuel Valves	10	$10,000	$10,000	$10,000
Fuel Piping & Pumps	80	$10,000	$250,000	$60,564
Engine Fuel Pumps	17	$120,000	$180,000	$129,000
Engine Fuel Injectors	11	$10,000	$10,000	$10,000
Other	22	$169,098	$169,098	$169,098

Range in costs for OGVs operating within 50 nautical miles:

Table 22: Total Costs by Vessel Type

Vessel Type	Number	Minimum	Maximum	Average
Auto Carrier/Ro-Ro	50	$142,000	$400,000	$148,293
Bulk Carrier/ General Cargo	17	$142,000	$142,000	$142,000
Container Ship	88	$1,000	$237,000	$170,412
Tanker	31	$142,000	$2,150,000	$1,289,000

Table 23: Costs by Equipment Modified

Equipment Type	Number	Minimum	Maximum	Average
Fuel Tanks	105	$5,000	$1,000,000	$146,820
Cylinder Lube Oil Systems	60	$200	$500,000	$91,390
Fuel Valves	17	$10,000	$10,000	$10,000
Fuel Piping & Pumps	93	$10,000	$250,000	$78,866
Engine Fuel Pumps	23	$120,000	$180,000	$126,667
Engine Fuel Injectors	21	$10,000	$30,000	$14,000
Other	26	$10,000	$50,000	$18,333

Range in costs for OGVs operating within 100 nautical miles:

Table 24: Total Costs by Vessel Type

Vessel Type	Number	Minimum	Maximum	Average
Auto Carrier/Ro-Ro	50	$142,000	$400,000	$148,293
Bulk Carrier/General Cargo	22	$142,000	$142,000	$142,000
Container Ship	90	$1,000	$237,000	$170,412
Tanker	38	$60,000	$2,150,000	$1,113,429

Table 25: Costs by Equipment Modified

Equipment Type	Number	Minimum	Maximum	Average
Fuel Tanks	136	$5,000	$1,000,000	$132,259
Cylinder Lube Oil Systems	69	$2,000	$500,000	$114,422
Fuel Valves	17	$10,000	$10,000	$10,000
Fuel Piping & Pumps	98	$5,000	$250,000	$76,081
Engine Fuel Pumps	31	$20,000	$120,000	$91,667
Engine Fuel Injectors	22	$10,000	$10,000	$10,000
Other	36	$10,000	$250,000	$123,750

IV. AUXILIARY ENGINE SURVEY RESULTS

For each OGV the survey requested information on the number, make, model, date built, engine type, and annual activity of auxiliary engines, which included all diesel-

electric engines whether they are used for ship propulsion or on-board power. Diesel-electric engines, whether for ship propulsion or on-board power, were reported as auxiliary engines. In this section, summaries are provided of the information received by the respondents on auxiliary engines. As you may know, auxiliary engines provide power to on-board equipment such as electrical lights, refrigeration units, and radios.

The respondents provided information on 2,500 auxiliary engines that included 2,409 diesel piston engines and 51 turbine engines. Of the vessels reported in the survey, all OGVs reported having at least one auxiliary engine. Six auxiliary engines were the maximum number reported, with an average of three engines per vessel.

A. Auxiliary Engines by Vessel Type

The number of auxiliary engines also varies by vessel type. As shown in Table 26, cruise ships have the highest average number of auxiliary engines.

Table 26: Number of Auxiliary Engines

Vessel Type	Minimum	Maximum	Average	Engines
Auto Carrier/Ro-Ro	1	4	2	243
Bulk Carrier/General Cargo	1	4	2	405
Container Ship	1	6	3	1052
Motor Ship/Container	1	5	3	24
Passenger	1	6	3	167
Product Carrier	1	3	2	3
Reefer	1	4	2	24
Tanker	1	6	2	582

B. Manufacturer and Type of Auxiliary Engines

The majority of auxiliary engines reported by respondents were diesel piston engines. The remaining vessels used gas, steam turbines, or diesel electric engines. While the manufacturers of the engines were numerous, four manufacturers made up almost 90 percent of the engines reported. The major manufacturers of auxiliary engines are shown in Table 27.

Table 27: Auxiliary Engine Manufacturer

Engine Make	Number of Engines	Percent of Total Engines
MAN B&W	806	32
Daihatsu	691	28
Yanmar	375	15
Wartsila	309	12
Sulzer	71	3
MAK	56	2
Other	192	8

Table 28 presents the number and percent of auxiliary engines by engine type.

Table 28: Auxiliary Engine Type

Auxiliary Engine Type	Number	Percent
Diesel Piston	2,409	98
Turbine	51	2

While the respondents identified the engine manufacturer for 2,460 auxiliary engines, 2,409 engines were identified as diesel piston engines. Table 29 shows 99 percent of reported diesel piston auxiliary engines are 4 stroke engines.

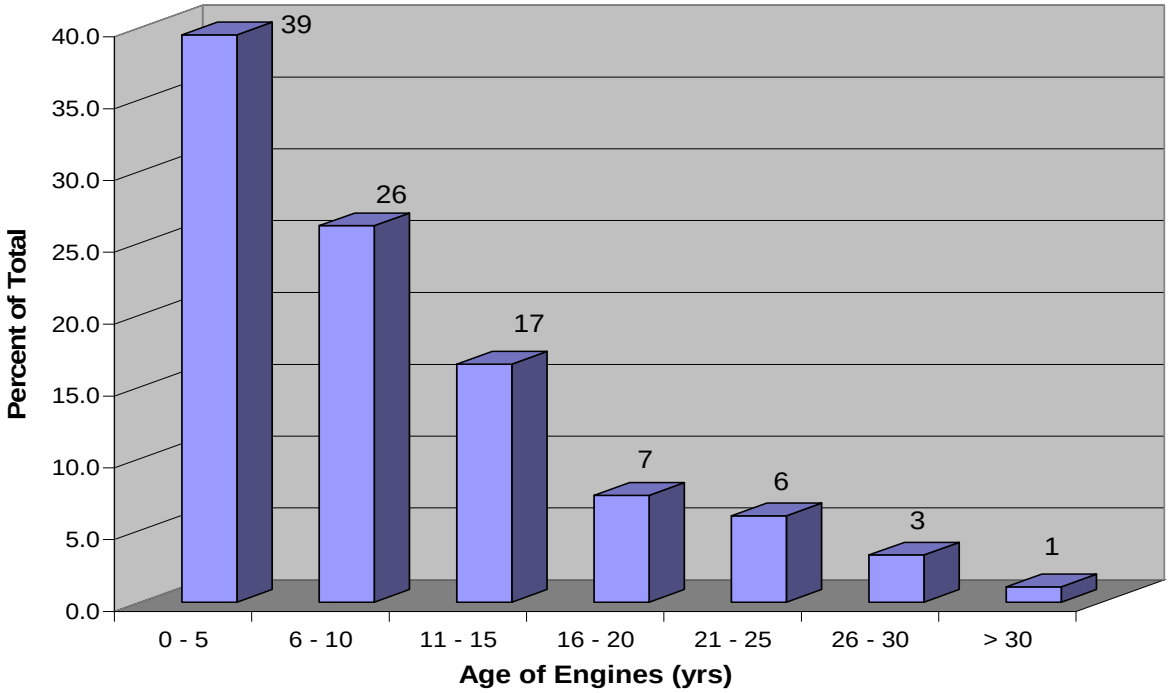
Table 29: Diesel Piston Auxiliary Engine

Auxiliary Diesel Type	Number	Percent
2 Stroke	28	1
4 Stroke	2,381	99

C. Auxiliary Engine Age

Figure 3 shows the distribution in age of the auxiliary engines. The average age of auxiliary engines reported is 10 years.

Figure 3: Age Distribution of Auxiliary Engines



D. Maximum Continuous Rating

Ranges in MCR for auxiliary engines (including diesel electric engines on cruise ships) by engine type are shown in Table 30.

Table 30: Rated Power at MCR for Auxiliary Engines

Engine Type	Minimum (kW)	Maximum (kW)	Average (kW)
Diesel Piston	24	29,970	1,893
Turbine	440	25,000	51,010

E. Type of Fuel and Sulfur Content

Table 31 provides the minimum, maximum, and average sulfur content of the fuel and distillate fuel type reported used to power the auxiliary engines when operating out to 24 nm from California shoreline.

Table 31: Percent Sulfur Content of Auxiliary Engine Fuel

Fuel	Minimum	Maximum	Average
MDO	0.01	2.00	0.52
MGO	0.002	1.50	0.42

F. Power Generated

Table 32 and Table 33 provide the average power generated by the auxiliary engines when vessels are maneuvering at ports, hotelling (dockside), or transiting at sea. The Survey requested information on a maximum of six auxiliary engines per OGV. The diesel generator sets on passenger vessels are defined as “auxiliary engines” for purposes of the survey. The power generated by these engines is much greater than for other OGVs because these engines produce electrical power for both propulsion and ship-board electricity.

Table 32: Average Total Auxiliary Power Generated

Average Power	Maneuvering (kW)	Hotelling (kW)	At Sea (kW)
Minimum	100	50	75
Average	2,192	1,145	2,5010
Maximum	30,000	12,000	80,000

Table 33: Average Total Auxiliary Power Generated by Vessel Type

Vessel Type	Hotelling kW)	Maneuvering (kW)	At Sea (kW)
Auto Carrier/Ro-Ro	605	1,005	633
Bulk Carrier/General Cargo	355	577	467
Container Ship	1,142	2,313	1,412
Motor Ship/Container	1,167	3,167	1,433
Passenger	6,730	14,416	28,171
Product Carrier	500	1,000	750
Reefer	1,125	1,107	1,000
Tanker	601	1,376	1,702

G. Vessel Modifications – Comply with Auxiliary Engine Fuel Regulation

The respondents were asked the question, "Were vessel modifications necessary to comply with the California Auxiliary Engine Fuel Regulations." And, if yes, what modifications were made, date completed, and the costs of modifications. This information is presented in Table 34 through Table 37.

Table 34: Number of Modifications to Comply- Auxiliary Engine Fuel Regulation

Modifications	Number	Percent
No	678	94
Yes	40	6
Total	718	100

Table 35: Status of Modifications to Comply- Auxiliary Engine Fuel Regulation

Vessels	Modifications Completed	Vessels Reporting Costs
40	17	13

The respondents reported the following types of vessel modifications or strategies were needed to comply with California's Auxiliary Engine Fuel Regulation:

- Fuel switching (change fuel stock with S<0.5%)
- Fuel oil system modifications
- Conversion of HFO tanks to MGO tanks and new fuel lines
- Rebuild and modify fuel injection pumps
- Rebuild and modify fuel oil pumps
- Fuel oil micronizer and smoke emission control OM 80.
- Additional storage tanks for MGO or MDO fuels
- Increase MDO storage capacity
- Install cooler for diesel oil
- Change the TBN of the lube oil and add cooling lines to the fuel oil pumps

Table 36 presents a description of the modifications completed to comply with the California auxiliary engine fuel regulation.

Table 36: Description of Auxiliary Engine Modification Costs

Number	Cost	Description of Modifications
3	$600	Use MGO for auxiliary engine, $600 per voyage
1	$1,200	Install G/E no. 1, 2 & 3 drain pipe line to change over from H-sulfur to L-sulfur
1	$6,800	Install MDO cooler and separate operating regulator
1	$10,000	Increase MDO storage capacity by fuel tank 4P and installed new fuel line
1	$10,000	M.D.O. cooler installed
1	$25,000	Aux engine fuel-oil system modifed
1	$25,000	Conversion of HFO tanks 5 & 6 to MGO by building new bunkering/suction piping
1	$46,000	Replace parts of HFO injection pumps and fuel system, and installation of additional lubrication pipe lines
1	$60,000	Convert two tanks to increase MGO capacity
1	$130,000	Rebuild and modify fuel injection pumps
1	$140,000	Rebuild all fuel oil pumps on all diesel engines

Table 37 presents the minimum, maximum, and average auxiliary engine modification costs described in table 36.

Table 37: Min., Max., and Average Auxiliary Engine Modification Costs

Minimum	Maximum	Average
$600.00	$140,000	$50,644

V. VESSELS THAT TRANSPORT REFRIGERATED CONTAINERS

Information was also requested in the Survey for vessels that transported refrigerated containers. Respondents were asked the following questions to further our understanding of OGVs port operations when unloading or loading of refrigerated containers.

- What power is required during loading and unloading of refrigerated containers?
- What power is required while hotelling?
- On average, how many refrigerated containers are imported to or exported from a California port per vessel visit?
- Estimate the time required for unloading or loading refrigerated containers per vessel visit?

Table 38 through table 40 presents a summary of the respondent's answers to the aforementioned questions.

Table 38: Power Requirements for Vessels (kW)

Power Requirements	Minimum	Maximum	Average
Load/Unload Refrigerated Containers	5	3750	1052
Hotelling	5	3900	912

Table 39: Refrigerated Containers per Vessel Visit

Number of Containers	Minimum	Maximum	Average
Imported	1	233	44
Exported	1	8000	549

Table 40: Time to Load or Unload Refrigerated Containers (hrs)

Refrigerated Containers	Minimum	Maximum	Average
Loading	0.08	96	8
Unloading	0.03	60	5

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Second request

Return Date: July 31, 2007

California Environmental Protection Agency

Air Resources Board

THIS PACKET CONTAINS:

IF YOUR PACKET IS MISSING ANY ITEMS LISTED ABOVE, PLEASE CONTACT:

Mr. Ron Hand at (916) 327- 6683 or rhand@arb.ca.gov

Facsimile number (916) 327-6251

Survey Forms

(These are the forms you will return to
the California Air Resources Board)

CALIFORNIA AIR RESOURCES BOARD SHIP SURVEY
PART I: COMPANY AND CONTACT INFORMATION

☐ Confidential

Company Name:

Division Name:

Mailing Address: City:

State / Province: Zip Code: Country:

Contact Person: Title:

Phone: Fax: Email Address:

Do you consider any part of this survey to be confidential? ☐ No ☐ Yes

Type of Business : ☐ Deep Sea Transportation of Freight ☐ Deep Sea Transportation of Passengers ☐ Other , Specify:

Print Name:	Title:
Signature:*	Date:

*if submitting by e-mail, please type your name in the signature box

CALIFORNIA AIR RESOURCES BOARD SHIP SURVEY
Part II. SHIP AND ENGINE INFORMATION
(Please complete one form per vessel that visited California in 2006)

☐ **Confidential**

SHIP INFORMATION

Vessel Name: _____ Lloyds/IMO #: _____ Country Flag: _____ Date Built: _____

Vessel Type: _____ Ship Electrical Power: _____ Volts _____ Hertz (Hz) _____ Phase

Gross Tonnage (GT): _____ Net Tonnage (NT): _____ Deadweight Tonnage (DWT): _____ metric tons

Average Daily Fuel Consumption at Normal Cruise Speed at Sea: metric tons

Direct Drive Main Engine/s (Note: For diesel-electric/generator-set engines on cruise ships, etc. please list under "auxiliary engines" below)

Number of main engines: _____ Engine Type: ☐ diesel piston ☐ gas turbine ☐ steam turbine If diesel engine, type? ☐ two stroke ☐ four stroke

Make: _____ Date Built: _____

Model: _____ Rated Power at MCR: _____ ☐ kW ☐ hp RPM at MCR: _____

Fuel Used #1: ☐ Residual ☐ Distillate _____ %S Fuel Used #2 : ☐ Residual ☐ Distillate _____ %S

Average cruise power at sea: _____ ☐ kW ☐ hp Average cruise speed at sea: _____ Knots

Please describe any engine modifications completed to either improve fuel efficiency or reduce emissions (e.g., slide valves):

Auxiliary Engines (and all diesel-electric engines, whether for ship propulsion or on-board power). Exclude emergency/standby engines.

	Engine #1	Engine #2	Engine #3	Engine #4	Engine #5	Engine #6
Make:						
Model:						
Date Built:						
Rated Power at MCR:	☐ kW ☐ hp	☐ kW ☐ hp	☐ kW ☐ hp	☐ kW ☐ hp	☐ kW ☐ hp	☐ kW ☐ hp
Engine Type:	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke
Fuel Type used within 24 nm of CA baseline:	☐MGO %S ☐MDO %S	☐MGO %S ☐MDO %S	☐MGO %S ☐MDO %S	☐MGO %S ☐MDO %S	☐MGO %S ☐MDO %S	☐MGO %S ☐MDO %S

Average total ship power generated from engines #1-6 above	At Sea:	☐ kW ☐ hp	Maneuvering:	☐ kW ☐ hp	Hotelling:	☐ kW ☐ hp

☐ **Confidential**

Auxiliary Engine QUESTIONS:

Did you make vessel modifications to comply with the California Auxiliary Engine Fuel Regulation? (California Health and Safety Code, sections 43013, 43018, and 39666; title 13, California Code of Regulations (CCR), section 2299.1; title 17, CCR, section 93118)
☐ Yes ☐ No If Yes, what modifications did you make?
Date modifications completed:
Cost of modifications: $
Where were the modifications performed?

Main Engine QUESTIONS:

Would requiring low sulfur MGO use in main engines while operating out to **24 nautical miles from the California baseline** require modification of the vessel?
☐ Yes ☐ No If Yes, please comment below.

Check boxes for modifications required and estimate cost (if unable to provide individual cost estimates, please estimate total modification cost $):

☐ fuel tank(s) $ ☐ cylinder lube oil system $ ☐ fuel valves $ ☐ fuel piping and pumps $

☐ engine fuel pumps $ ☐ engine fuel injectors $

☐ Other, please explain other modifications that will be required and estimate the associated costs:

Would requiring low sulfur MGO use in main engines while operating out to **50 nautical miles from the California baseline** require modification of the vessel?
☐ Yes ☐ No If Yes, please comment below.

Check boxes for modifications required and estimate cost (if unable to provide individual cost estimates, please estimate total modification cost $):

☐ fuel tank(s) $ ☐ cylinder lube oil system $ ☐ fuel valves $ ☐ fuel piping and pumps $

☐ engine fuel pumps $ ☐ engine fuel injectors $

☐ Other, please explain other modifications that will be required and estimate the associated costs:

Would requiring low sulfur MGO use in main engines while operating out to **100 nautical miles from the California baseline** require modification of the vessel?
☐ Yes ☐ No If Yes, please comment below.

Check boxes for modifications required and estimate cost (if unable to provide individual cost estimates, please estimate total modification cost $):

☐ fuel tank(s) $ ☐ cylinder lube oil system $ ☐ fuel valves $ ☐ fuel piping and pumps $

☐ engine fuel pumps $ ☐ engine fuel injectors $

☐ Other, please explain other modifications that will be required and estimate the associated costs:

Vessels That Transport Refrigerated Containers

What power is required during loading and unloading of refrigerated containers? kW	What power is required while hotelling? kW
On average, how many refrigerated containers are imported to a California port?	Exported?
Time required for unloading refrigerated containers: hours	Time required for loading refrigerated containers: hours
Please comment on any seasonal impacts on refrigerated container volume in the comments section.	

Comments (please use extra sheets if necessary):

Survey Overview
and
Instructions

SURVEY OVERVIEW

The California Air Resources Board's (ARB) oceangoing vessel survey (Survey) is intended to collect information about the various oceangoing vessels operating in California's coastal waters. This information is being collected to help support emission reduction activities. Below, we have provided information about the Survey in a question and answer format.

What is the ARB's authority to conduct this Survey?

This request for information is made pursuant to sections 39600, 39607, 39665, 39701, 41511 and 43013 of the California Health and Safety Code, title 17, California Code of Regulations (CCR), sections 91100 to 91102. These sections authorize the ARB to require the submission of information needed by the ARB to estimate atmospheric emissions and carry out its other statutory responsibilities.

Who should complete the Survey form?

All owners/operators of oceangoing vessels that visited California in 2006 are being asked to complete the Survey. OGV means any marine vessel that meets any one of the following criteria:

(1) a vessel greater than or equal to 400 feet in length overall (LOA) as defined in 50 CFR § 679.2, as adopted June 19, 1996.

(2) a vessel of 10,000 gross tons (GT ITC) or greater per the convention measurement (international system) as defined in 46 CFR 69.51-.61, as adopted September 12, 1989.

(3) a vessel propelled by a marine diesel engine with a per-cylinder displacement of 30 liters or more (United States Environmental Protection Agency "category 3" engine).

This Survey is not intended to apply to commercial harbor craft such as commercial fishing vessels, tugs, or ferry vessels that do not otherwise meet any of the above criteria.

Why is the Survey necessary?

The ARB maintains a statewide emissions inventory for all sources of air emissions such as cars, trucks, marine vessels, construction equipment, industrial facilities, and architectural coatings. The

ARB's emissions inventory is regularly updated to reflect the most up-to-date emission information, including results of surveys such as this one.

The oceangoing vessel (OGV) component in the emissions inventory was last updated in 2004. It is necessary for us to gather information about the current in-use fleets entering California coastal waters.

The Survey is also designed to provide technical information that will help us develop more effective programs to reduce emissions from oceangoing ships.

Do I have to complete the Survey?

Yes. State law requires that you provide the requested information by completing and returning the Survey. If the Survey does not apply to you, please state in the Survey why it does not apply to you and return it to the address indicated.

If I submitted the Survey in 2004, do I need to complete this Survey?

Yes. All owners or operators of ships that visited California in 2006 should fill out and return this Survey.

What information needs to be provided in the Survey?

The Survey requests specific information about each vessel. This includes information related to vessel operation and ownership. The Survey also requests information on the propulsion and auxiliary engines, including the make and model, the rated power, the year engines were built, and any modifications required to operate on marine gas oil. Information on the typical operating parameters is also requested, including normal cruise speed at sea, and average total ship in-use power generated.

If the Survey information is claimed as confidential, how will it be treated?

The ARB has adopted regulations to protect the confidentiality of trade secrets (Title 17, CCR, sections 91000 to 91022). A summary of ARB's confidentiality regulations can be found in Section II of the Survey on the "Confidential Information Submittal Form." You should fill out this form if you wish to designate any Survey information as confidential.

When do I need to return the Survey, and where do I send it?

Please return the Survey by July 31, 2007 to:

California Air Resources Board
Stationary Source Division
Attn: Mr. Ron Hand
P.O. Box 2815
Sacramento, CA 95812-2815
CONFIDENTIAL MATERIALS ENCLOSED (if applicable)

Or e-mail completed surveys to:

rhand@arb.ca.gov

In an effort to simplify and streamline the data gathering process, we have made the Survey forms available electronically. You may download a copy from our website:

http://www.arb.ca.gov/msprog/offroad/marinevess/survey.htm

Who can I call if I have questions about the Survey?

If you have any questions, please contact either of the following staff persons:

Paul Milkey	(916) 327-2957	pmilkey@arb.ca.gov
Ron Hand	(916) 327-6683	rhand@arb.ca.gov
Bonnie Soriano	(916) 327-6888	bsoriano@arb.ca.gov

SURVEY INSTRUCTIONS

Before you begin filling out the Survey form, please read the instructions carefully. Included for your assistance are sample forms.

THE SURVEY FORM

Explanations for each Survey data field are provided below. If you own and/or operate more than one vessel, please complete the ship and engine information (Part II) for each vessel you own/operate. If you need additional forms, those can be downloaded from the

http://www.arb.ca.gov/msprog/offroad/marinevess/survey.htm

If that method is unavailable to you, please contact Kathleen Truesdell at (916) 327-5638 or ktruesde@arb.ca.gov, and she will work with you to make arrangements to get you additional forms.

Part I: Survey Data Fields

Company and Contact Information

Company Name/Division Name: Please enter the name of the company that owns/operates the vessel in the Survey.

Contact Name (and title): Enter the name and title of the person to be contacted by the ARB if we have questions about the information provided.

Address/City/State/ZIP Code: Mailing address, city, state, ZIP code, and country of the company.

Phone/Fax Number: Enter the phone and fax number of the contact person.

E-mail Address: Enter the e-mail address of the contact person.

Confidential: Please indicate if you would like the ARB to treat your information as confidential. If you designate information as confidential, you also need to fill out the confidential information submittal form **(see page 16 of this package)** and return it with your Survey.

Type of Business: Please place a mark (an "x" or a check mark) in the appropriate box indicating whether the business is involved in the deep sea transportation of freight, deep sea transportation of passengers, or another type of oceangoing vessel business.

Sign and Date: Please print name, title and date. Sign name in the designated area.

Part II: Ship and Engine Information

Ship Information

Confidential: Please indicate if you would like the ARB to treat your information as confidential. If you designate information as confidential, you also need to fill out the confidential information submittal form **(see page 16 of this package)** and return it with your Survey.

Vessel Name: Enter the vessel name for which the data is being provided.
Lloyds/IMO Number: Enter the vessel Lloyds Registration # or International Maritime Organization (IMO) documentation number assigned to your vessel.
Country Flag: Enter the name of the country the vessel is registered under.
Date Vessel Built: Enter the date the vessel was built.
Vessel Type: Enter the most appropriate vessel type. (e.g. container, tanker, bulk carrier, passenger cruise, auto carrier, general cargo, reefer, RoRo, or other)
Ship Electric Power: Enter the voltage, frequency in hertz , and phase of the power generated for ship board power (such as lighting and navigation) by ships generator(s).
Tonnage: Enter Gross Tonnage (GT), Net Tonnage (NT), and Deadweight Tonnage (DWT) in metric tons.
Fuel Consumption: Enter average daily fuel consumption at average cruise speed at sea.

Main Engine Information

Number of Main Engines: Enter number of main engines. For most cargo vessels there will be a single main engine (used primarily for propulsion). For diesel-electric vessels (such as cruise ships) where propulsion is provided by gen-sets that also provide power for shipboard electricity, skip this section and enter gen-sets as "auxiliary engines".
Engine Type: Please place a mark (an "x" or a check mark) in the appropriate box indicating whether the engine is a diesel piston engine, gas turbine, or steam turbine. For diesel main engines, mark whether the engine is a two- or a four-stroke engine.
Engine Make and Model: Please provide the name of the manufacturer and the model of each main engine on the vessel. If there is more than one main engine of the same:

make, model, horsepower, and age, you would write "X2" next to the make and model information.
or,
if there are more than two main engines and they are different types, explain under "comments".

Date Engine Built: Enter the date the engine was built.
Rated Power at Maximum Continuous Rating (MCR): Enter the main engine's MCR and indicate units (kilowatts or horsepower).
RPM at MCR: Enter the revolutions per minute at the maximum continuous rating.
Fuel Used: Enter the type(s) of fuel(s) used in the main engine(s) (residual = IFO 180 or 380, distillate = MDO or MGO) and your best estimate of the average percent sulfur content(s). If two different fuels are stored on the vessel for the main engine, please list main fuel in #1 and other in #2.
Average Cruise Power at Sea: Enter your best estimate of average (normal) cruise power at sea and indicate units (kilowatts or horsepower).
Average Cruise Speed as Sea: Enter your best estimate of average (normal) cruise speed at sea (in knots).

Auxiliary Engine Information

Engine Make and Model: Please provide the name of the manufacturer and the model of each auxiliary engine on the vessel. Please do not list emergency generators that would not normally operate in routine service.
Date Engine Built: Please enter the date the auxiliary engine was built.
Rated Power at MCR: Enter each auxiliary engine's MCR and indicate units (kilowatts or horsepower).
Engine Type: Please place a mark (an "x" or a check mark) in the appropriate box indicating whether the engine is a diesel piston engine, gas turbine, or steam turbine. For diesel engines, mark whether the engine is a two- or a four-stroke engine.
Fuel Type: Please place a mark (an "x" or a check mark) in the appropriate box indicating whether the fuel type used within 24 nautical miles of California Baseline is MDO or MGO and your best estimate of the average percent sulfur level in the fuel.
Average Total Ship In-Use Power Generated: Enter your best estimate for the total power generated from the auxiliary engines, at sea, maneuvering, and hotelling. If you cannot estimate an average put the range in the comment section. Please place a mark (an "x" or a check mark) specifying kilowatts or horsepower.

Auxiliary Engine Questions Related Vessel Modifications Made to Comply with the Auxiliary Engine Fuel Regulation.

Indicate whether modifications were made to the vessel in order to comply with the California Auxiliary Engine Fuel Regulation. If yes, please explain what modifications were made, when they were made, approximately how much the modifications cost to complete, and where the modifications were performed.

Main Engine Questions Related to the Potential Use of Low Sulfur Distillate (MGO) fuel in Main Engine(s).

Indicate whether modifications to this vessel would be needed if a regulation required the use of low sulfur MGO by main engines operating within 24 nautical miles from the California baseline.

"California Baseline" means the mean lower low water line along the California coast, as shown on the following National Oceanic and Atmospheric Administration (NOAA) Nautical Charts as authored by the NOAA Office of Coast Survey, which are incorporated herein by reference:
(A) Chart 18600, Trinidad Head to Cape Blanco (January 2002);
(B) Chart 18620, Point Arena to Trinidad Head (June 2002);
(C) Chart 18640, San Francisco to Point Arena (August 2005);
(D) Chart 18680, Point Sur to San Francisco (June 2005);
(E) Chart 18700, Point Conception to Point Sur (July 2003);
(F) Chart 18720, Point Dume to Purisima Point (January 2005); and
(G) Chart 18740, San Diego to Santa Rosa Island (April 2005).
For example, would an extra tank be needed to hold the MGO? If modifications would be required, please check the appropriate boxes and estimate the associated costs of these modifications. For modifications other than those listed, briefly explain and estimate associated cost. If you are unable to estimate cost for each modification, please estimate total cost of modifications.
Please indicate how modifications would be different if a regulation required the use of low sulfur MGO within 50 nautical miles from the California baseline.
Refrigerated Containers: If the vessel transports refrigerated containers, please estimate the power generated from the auxiliary engines at dock while unloading and loading refrigerated containers, and while hotelling. Please estimate the average number of refrigerated containers the vessel imports and exports to a California port on a typical voyage. Please estimate the number of hours it takes to unload and load refrigerated containers. If the number of refrigerated containers changes significantly by season, please explain.

Supporting Attachments

A) Survey "Example Only" Forms
B) Confidential Information Submittal Form
C) Excerpts from the California Code of Regulations pertaining to the handling of confidential information:
Title 17, California Code of Regulations, Sections 91000 to 9110

(SAMPLE)

CALIFORNIA AIR RESOURCES BOARD SHIP SURVEY
PART I: COMPANY AND CONTACT INFORMATION

☐ Confidential

Company Name: Beyer Shipping Company

Division Name: Marine Container Division

Mailing Address: 1234 Terminal Way City: Los Angeles

State / Province: CA Zip Code: 99901 Country: USA

Contact Person: Mr. Peter Beyer Title: Vice President

Phone: (555) 767-2678 Fax: (555) 767-2676 Email Address: pbeyer@address.net

Do you consider any part of this survey to be confidential?

☒ No

☐ Yes

Type of Business : ☒ Deep Sea Transportation of Freight ☐ Deep Sea Transportation of Passengers ☐ Other , Specify: _____

Print Name: Peter Beyer	Title: Vice President
Signature: Peter Beyer	Date: March 1, 2007

(SAMPLE)

CALIFORNIA AIR RESOURCES BOARD SHIP SURVEY
Part II. SHIP AND ENGINE INFORMATION

(Please complete one form per vessel that visited California in 2006) ☐ **Confidential**

SHIP INFORMATION

Vessel Name: Allison | Lloyds/IMO #: 123456789 | Country Flag: USA | Date Built: 1995

Vessel Type: Container | Ship Electrical Power: 440 | Volts 60 | Hertz (Hz) Three Phase

Gross Tonnage (GT): 50000 | Net Tonnage (NT): 25000 | Deadweight Tonnage (DWT): 55000 metric tons

Average Daily Fuel Consumption at Normal Cruise Speed at Sea: 175 metric tons

Direct Drive Main Engine/s (Note: For diesel-electric/generator-set engines on cruise ships, etc. please list under "auxiliary engines" below)

Number of main engines: 1 | Engine Type: ☒ diesel piston ☐ gas turbine ☐steam turbine | If diesel engine, type? ☒ two stroke ☐four stroke

Make: MAN B&W | Date Built: 1995

Model: ABC-XYZ 123 | Rated Power at MCR: 50,000 ☒ kW ☐ hp | RPM at MCR:

Fuel Used #1: ☒ Residual ☐ Distillate 2.5 %S | Fuel Used #2 : ☐ Residual ☒ Distillate 2.5 %S

Average cruise power at sea: 40,000 ☒ kW ☐ hp | Average cruise speed at sea: 22 Knots

Please describe any engine modifications completed to either improve fuel efficiency or reduce emissions (e.g., slide valves): **slide valves**

Auxiliary Engines (and all diesel-electric engines, whether for ship propulsion or on-board power). Exclude emergency/standby engines.

	Engine #1	Engine #2	Engine #3	Engine #4	Engine #5	Engine #6
Make:	Wartsila	Wartsila	Wartsila	Wartsila		
Model:	DEF-123	DEF-123	DEF-123	DEF-123		
Date Built:	1995	1995	1995	1995		
Rated Power at MCR:	☒ kW ☐ hp	☒ kW ☐ hp	☒ kW ☐ hp	☒ kW ☐ hp	☐ kW ☐ hp	☐ kW ☐ hp
Engine Type:	☐ Turbine ☒ Diesel Piston ☒4 stroke ☐2 stroke	☐ Turbine ☒ Diesel Piston ☒4 stroke ☐2 stroke	☐ Turbine ☒ Diesel Piston ☒4 stroke ☐2 stroke	☐ Turbine ☒ Diesel Piston ☒4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke	☐ Turbine ☐ Diesel Piston ☐4 stroke ☐2 stroke
Fuel Type used within 24 nm of CA baseline:	☒MGO 0.2 %S ☐MDO %S	☒MGO 0.2 %S ☐MDO %S	☒MGO 0.2 %S ☐MDO %S	☒MGO 0.2 %S ☐MDO %S	☐MGO %S ☐MDO %S	☐MGO %S ☐MDO %S

Average total ship power generated from engines #1-6 above	At Sea:	750 ☒ kW ☐ hp	Maneuvering:	1000 ☒ kW ☐ hp	Hotelling:	1500 ☒ kW ☐ hp

(SAMPLE)

☐ **Confidential**

Auxiliary Engine QUESTIONS:

Did you make vessel modifications to comply with the California Auxiliary Engine Fuel Regulation? (California Health and Safety Code, sections 43013, 43018, and 39666; title 13, California Code of Regulations (CCR), section 2299.1; title 17, CCR, section 93118)

☐ Yes ☒ No If Yes, what modifications did you make? _____

Date modifications completed: ____
Cost of modifications: $_____
Where were the modifications performed? _____

Main Engine QUESTIONS:

Would requiring low sulfur MGO use in main engines while operating out to **24 nautical miles from the California baseline** require modification of the vessel?
☐ Yes ☒ No If Yes, please comment below.

Check boxes for modifications required and estimate cost (if unable to provide individual cost estimates, please estimate total modification cost $_____):

☐ fuel tank(s) $____ ☐ cylinder lube oil system $____ ☐ fuel valves $____ ☐ fuel piping and pumps $____

☐ engine fuel pumps $____ ☐ engine fuel injectors $____

☐ Other, please explain other modifications that will be required and estimate the associated costs:

How would the above estimates change if low sulfur MGO was used in main engines while operating out to **50 nautical miles from the California baseline?**

Vessels That Transport Refrigerated Containers

What power is required during loading and unloading of refrigerated containers? 2000 kW What power is required while hotelling? 1500 kW	
On average, how many refrigerated containers are imported to a California port? 30 Exported? 30	
Time required for unloading refrigerated containers: 9 hours	Time required for loading refrigerated containers: `9 hours
Please comment on any seasonality impacts on refrigerated container volume in the comments section.	

Comments: _____

Oceangoing Vessel Survey

CONFIDENTIAL INFORMATION SUBMITTAL FORM

If you wish to designate any information contained in your survey data as **CONFIDENTIAL INFORMATION**, please provide the information requested below and return it with your completed Survey form.

In accordance with Title 17, California Code of Regulations (CCR), Sections 91000 to 91022, and the California Public Records Act (Government Code Section 6250 et seq.), the information that a company provides to the Air Resources Board (ARB) may be released (1) to the public upon request, except trade secrets which are not emissions data or other information which is exempt from disclosure or the disclosure of which is prohibited by law, and 2) to the Federal Environmental Protection Agency, which protects trade secrets as provided in Section 114(c) of the Clean Air Act and amendments thereto (42 USC 7401 et seq.) and in federal regulation, and 3) to other public agencies provided that those agencies preserve the protections afforded information which is identified as a trade secret, or otherwise exempt from disclosure by law (Section 39660(e)).

Trade secrets, as defined in Government Code 6254.7, are not public records and therefore will not be released to the public. However, the California Public Records Act states that air pollution emission data are always public records, even if the data comes within the definition of trade secrets. Even so, the information used to calculate air pollution data is not "emission data," and will not be released to the public if it is a trade secret.

If any company believes that any of the information it may provide is a trade secret or otherwise exempt from disclosure under any provision of law, it **must identify the confidential information as such at the time of submission to the ARB and must provide the name, address, and telephone number of the individual to be consulted**. If the ARB receives a request for disclosure or seeks to disclose the data claimed to be confidential, the ARB may ask the company to provide documentation of its claim of trade secret or exemption at a later date. Data identified as confidential will not be disclosed unless the ARB determines, in accordance with the above referenced regulations, that the data do not qualify for a legal exemption from disclosure. The regulations establish substantial safeguards before any such disclosure.

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In accordance with the provisions of Title 17, California Code of Regulations, Sections 91000 to 91022, and the California Public Records Act (Government Code Sections 6250 et seq.)

Enter Company Name: _____

declares that only those portions specifically identified (by checking the upper right-hand corner confidentiality box on each form) and submitted in response to the California Air Resources Board's information request on the Survey are confidential "trade secret" information, and requests that it be protected as such from public disclosure.

We have designated confidential information by page for each survey data form submitted by checking (x) the upper right-hand corner confidentiality box.

Printed Name:	Title:
Signature:	Date:
Mailing Address:	
City/State:	Zip/Country:
Telephone Number:	E-mail Address:

Division 3, Air Resources Board
Chapter 1, Air Resources Board

Subchapter 4. Disclosure of Public Records

Article 1. General

§91000. Scope and Purpose.

This subchapter shall apply to all requests to the state board under the California Public Records Act (Government Code Sections 6250 et seq.) for the disclosure of public records or for maintaining the confidentiality of data received by the state board. Written guidelines shall govern the internal review of such requests.

NOTE: Authority cited: Sections 39600 and 39601(a), Health and Safety Code. Reference: California Public Records Act, Chapter 3.5 (commencing with Section 6250), Division 7, Government Code.

§91001. Disclosure Policy.

It is the policy of the state board that all records not exempted from disclosure by state law shall be open for public inspection with the least possible delay and expense to the requesting party.

NOTE: Authority cited: Sections 39600 and 39601(a), Health and Safety Code. Reference: Section 6253, Government Code; Black Panther Party v. Kehoe (1974) 42 Cal.App.3d 645.

Article 2. Board's Requests for Information

§91010. Request Procedure.

The state board shall give notice to any person from whom it requests information that the information provided may be released (1) to the public upon request, except trade secrets which are not emission data or other information which is exempt from disclosure or the disclosure of which is prohibited by law, and (2) to the federal Environmental Protection Agency, which protects trade secrets as provided in Section 114(c) of the Clean Air Act and amendments thereto (42 USC 7401 et seq.) and in federal regulations.

NOTE: Authority cited: Sections 39600, 39601 and 39602, Health and Safety Code. Reference: Sections 39701, 41510, 41511, 41512 and 42705, Health and Safety Code; and Section 6253, Government Code.

§91011. Submissions of Confidential Data.

Any person submitting to the state board any records containing data claimed to be “trade secret” or otherwise exempt from disclosure under Government Code Section 6254 or 6254.7 or under other applicable provisions of law shall, at the time of

submission, identify in writing the portions of the records containing such data as "confidential" and shall provide the name,
address and telephone number of the individual to be contacted if the state board receives a request for disclosure of or seeks to disclose the data claimed to be confidential. Emission data shall not be identified as confidential. The state board shall not disclose data identified as confidential, except in accordance with the requirements of this subchapter or Section 39660(e) of the Health and Safety Code.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code.
Reference: Sections 39660, 39701, 41500, 41511, 41512 and 42705, Health and Safety Code; Sections 6253, 6254 and 6254.7, Government Code; Natural Resources Defense Council v. EPA, 489 F.2d 390 (5th Cir. 1974) (6 ERC 1248);
Northern California Police Practices Project v. Craig (1979) 90 Cal.App.3d 116; Uribe v. Howie (1971) 19 Cal.App.3d 194.

Article 3. Inspection of Public Records

§91020. Disclosure Policy.

§91021. Disclosure Procedure.

NOTE: Authority cited: Section 39601, Health and Safety Code.
Reference: Sections 6253-6257, Government Code.

§91022. Disclosure of Confidential Data.

(a) This section shall apply to all data in the custody of the state board

(1) designated "trade secret" prior to the adoption of this subchapter,

(2) considered by the state board or identified by the person who submitted the data as confidential pursuant to this subchapter, or

(3) received from a federal, state or local agency, including an air pollution control district, with a confidential designation, subject to the following exceptions:

(A) Except for the time limits specifically provided in subsection (b), only subsections (c) and (d) of this section shall apply to information submitted pursuant to Health and Safety Code section 39660(e).

(B) Appropriate portions of an application for approval, accreditation, or certification of a motor vehicle emission control device or system shall be kept confidential until such time as the approval, accreditation, or certification is granted, at which time the application (except for trade secret data) shall become a public record, except that estimates of sales volume of new model vehicles contained in an application shall be kept confidential for the model year, and then shall become public records. If an application is denied, it shall continue to be confidential but shall be

subject to the provisions of this section.

(C) If disclosure of data obtained after August 9, 1984 from a state or local agency subject to the provisions of the Public Records Act is sought, the state board shall request that the agency which provided the data determine whether it is confidential. The state board shall request that it be notified of the agency's determination within ten days. The state board shall not release the data if the agency determines that it is confidential and so notifies the state board; provided, however, that the data may be released with the consent of the person who submitted it to the agency from which it was obtained by the state board.

(b) Upon receipt of a request from a member of the public that the state board disclose data claimed to be confidential or if the state board itself seeks to disclose such data, the state board shall inform the individual designated pursuant to Section 91011 by telephone and by mail that disclosure of the data is sought. The person claiming confidentiality shall file with the state board documentation in support of the claim of confidentiality. The documentation must be received within five (5) days from the date of the telephone contact or of receipt of the mailed notice, whichever first occurs. In the case of information submitted pursuant to Health and Safety Code section 39660(e), the documentation must be received within 30 days of the date notice was mailed pursuant to that section. The deadlines for filing the documentation may be extended by the state board upon a showing of good cause made within the deadline specified for receipt of the documentation.

(c) The documentation submitted in support of the claim of confidentiality shall include the following information:

(1) the statutory provision(s) under which the claim of confidentiality is asserted;
(2) a specific description of the data claimed to be entitled to confidential treatment;

(3) the period of time for which confidential treatment is requested;

(4) the extent to which the data has been disclosed to others and whether its confidentiality has been maintained or its release restricted;

(5) confidentiality determinations, if any, made by other public agencies as to all or part of the data and a copy of any such determinations, if available; and

(6) whether it is asserted that the data is used to fabricate, produce, or compound an article of trade or to provide a service and that the disclosure of the data would result in harmful effects on the person's competitive position, and, if so, the nature and extent of such anticipated harmful effects.

(d) Documentation, as specified in subsection (c), in support of a claim of confidentiality may be submitted to the state board prior to the time disclosure is sought.

(e) The state board shall, within ten (10) days of the date it sought to disclose the data or received the request for disclosure, or within 20 days of that date if the state board determines that there are unusual circumstances as defined in Government Code Section 6256.1, review the request, if any, and supporting documentation, if received within the time limits specified in subsection (b) above, including any extension granted, and determine whether the data is entitled to confidential treatment pursuant to Government Code Section 6254, 6255 or 6254.7 or other applicable provisions of law and shall either:

(1) decline to disclose the data and, if a request was received, provide to the person making the request and to the person claiming the data is confidential a justification for the determination pursuant to Government Code Section 6255; or

(2) provide written notice to the person claiming the data is confidential and, if a request was received, to the person requesting the data that it has determined that the data is subject to disclosure, that it proposes to disclose the data, and that the data shall be released 21 days after receipt of the notice by the person claiming confidentiality, unless the state board is restrained from so doing by a court of competent jurisdiction. The state board shall release the data in accordance with the terms of the notice unless so restrained.

(f) Should judicial review be sought of a determination issued in accordance with subsection (e), either the person requesting data or the person claiming confidentiality, as appropriate, may be made a party to the litigation to justify the determination.

NOTE: Authority cited: Section 39601, Health and Safety Code.
Reference: Sections 6253, 6254, 6254.7, 6255, 6256, 6256.1, 6258 and 6259, Government Code.