

Harbor Safety Committee

of the San Francisco Bay Region

*Mandated by the California Oil Spill
Prevention and Response Act of 1990*

September 6, 2009

Mr. Dan Donohoue
Chief, Emissions Assessment Branch
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Subject: CARB Low Sulphur Fuel Switching Regulation

The Harbor Safety Committee (HSC) of the San Francisco Bay Region appreciates the willingness of you and the Air Resources Board staff to meet with the Committee to discuss serious concerns regarding a notable increase in ship propulsion failures related to switching to low sulphur fuel. At the August 12th meeting of the HSC Navigation Work Group with you and your staff, the U.S. Coast Guard, San Francisco Bar Pilots, Los Angeles/Long Beach Pilots, and maritime industry members reported engine problems with an increased risk to navigational safety in our harbors.

All agreed that the August 12th meeting with your staff was a productive first step as we examine root causes of the problems being encountered and work to develop best practices to prevent an incident. As a matter of fact, around the time of the meeting, a fully loaded Very Large Crude Carrier tanker, inbound to San Francisco, lost all engines twelve miles out in a National Marine Sanctuary with the probable cause - switching to low sulphur fuel. We clearly cannot afford an unintended consequence of a major marine casualty from ships not designed to switch fuels back and forth on a regular basis.

There was consensus to take the following steps:

1. A copy of the CARB waiver provision be provided to the HSC and the Coast Guard with further explanation and discussion of the Safety Waiver Provision. **Action: CARB staff sent a copy of the waiver which was attached to the August 12th Meeting Summary sent to all meeting attendees and the HSC. At the September 10 regular meeting of the HSC, CARB staff will give a briefing on "Essential Modification and Safety Exemptions in the CARB Ocean-going Vessel Fuel Regulation".**
2. Formalize Coast Guard tracking of propulsion failure and vessel responsiveness attributable to low sulphur fuel switching for California harbors and establish a process to transmit the reports to CARB. Concurrently request pilot organizations to similarly track problems observed. **Action: The Coast Guard and Bar Pilots will report on this at the next HSC meeting.**

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3. Track vessel patterns in the convergence area off San Francisco Bay to monitor possible changes in routes. **Action: OSPR is in contact with Coast Guard Vessel Traffic Service in this regard.**
4. Request CARB to convene a public forum to invite manufacturers and other maritime experts to a technical meeting with CARB to discuss the problems industry is documenting of fuel switching on engine deterioration. **Action; CARB to respond to this request.**

For your record, I am attaching a copy of the August 12th Meeting Summary, the Meeting Sign-in Sheet, CARB Marine Notice 2009-2, and the recent addendum to the Meeting Summary clarifying statements by Maersk Shipping.

In summary, the Harbor Safety Committee is in agreement with the goal of cleaner air emissions to protect the environment. However, we are documenting a number of safety issues since the July 1st implementation of the new regulation that increases the risk of a ship alliding with a bridge or another ship or underwater rocks here in San Francisco Bay. I came away from August 12th seriously concerned.

Sincerely,

Joan L. Lundstrom, Chair
Harbor Safety Committee of the
San Francisco Bay Region

Attachments

Cc: Harbor Safety Committee
Captain Paul Gugg, Captain of the Port, U.S. Coast Guard
Steve Edinger, Administrator, Office of Spill Prevention and Response

HARBOR SAFETY COMMITTEE of the SAN FRANCISCO BAY REGION
Navigation Work Group Meeting – 0930 August 12, 2009, Port of Oakland

Topic: Low Sulphur Fuel Switching Discussion with Air Resources Board Staff

Meeting Summary

1. Welcome and Introductions: The meeting was called to order by Capt. Bruce Horton, Chair of the Navigation Work Group of the Harbor Safety Committee (HSC) of the San Francisco Bay Region, and representative of the San Francisco Bar Pilots to the HSC. Navigation Work Group members present were: Jan Kovecses, Baykeeper; John Berge, Dry Cargo; Eric Osen, Tanker Operators; and Gerry Wheaton, NOAA. Captain Horton welcomed everyone to the special meeting of the Navigation Work Group to discuss the issue of low sulphur fuel switching effects on the operation of large vessels entering the harbor. Captain Horton emphasized that there seemed to be an increasing number of issues since the implementation of the regulations effective July 1, 2009. Horton is very concerned that a major ecological disaster could occur if a vessel were to quit running after entering the Bay, and were to run aground or allide with a bridge or another ship, spilling oil into the highly sensitive areas of San Francisco Bay.

2. Purpose and Focus of the Meeting: HSC Chair Joan Lundstrom said the purpose of the meeting is to discuss safety issues related to the Air Resources Board (CARB) requirement (effective July 1, 2009) for large vessels to use low sulfur diesel within 24 nautical miles of the California coast. The focus of today's meeting with the Air Resources Board staff is to receive Coast Guard and Bar Pilots reports of propulsion failures related to fuel switching, discuss possible root causes, and make recommendations.

As a state committee under the Office of Spill Prevention and Response, the HSC is charged by the California Legislature to make recommendations to prevent vessel accidents that may lead to oil spills. The HSC regularly receives monthly reports at its meetings from the Coast Guard regarding propulsion, steering, and navigation equipment problems, etc. This year the Coast Guard documented increased propulsion failures linked to switching from heavy fuel oil to low sulfur fuel. At the recent July 9, 2009 HSC meeting, the Captain of the Port indicated this was of major concern to the Coast Guard. In addition the San Francisco Bar Pilots reported increased problems. As a result the HSC requested this meeting be held with CARB staff to work together on this issue. This is particularly important as the San Francisco harbor has eleven bridges adjacent to shipping lanes and large submerged underwater rocks between Alcatraz Island and the Golden Gate Bridge that are within the westbound shipping lane.

3. California Air Resources Board Regulations: Dan Donohoue, CARB Branch Chief, explained that the regulations are the culmination of eight years of research. One of the most important requirements to reduce SOX and diesel particulate matter in the areas affected by vessel diesel. As a result of switching to low sulphur fuel in our harbors, CARB expects to see a 75 percent drop in diesel-caused cancer rates related to ship emissions in the vicinity of the state's ports. The regulation requires the use of MGO (up to 1.5% sulfur) or MDO (up to 0.5% sulfur) at 24 nautical miles for the main engine and auxiliary engines and the auxiliary boiler. In 2012, the maximum sulfur level will decline

to 0.1%. It is likely that an US/Canada Emission Control Area would require 0.1% sulfur level when the CARB regulation is expected to expire.

CARB explained there is a Safety Exemption within the regulation that is up to the shipmaster's discretion, an Essential Modifications exemption, and a Noncompliance Fee Provision. CARB is currently processing several waiver requests; a number of waivers have already been granted.

As to start-up issues, CARB is tracking incidents to see if they are related to fuel switching. Staff is looking at the possible impact of the regulation to vessel routing, particularly in the Santa Barbara Channel. CARB is working with the Coast Guard, Office of Spill Prevention and Response (OSPR) and the HSCs to determine the root causes of reported incidents. Thus far, reported incidents have affected less than one percent of fuel switches (regulation was instituted July 1, 2009).

CARB is monitoring incidents for their frequency, severity, causes and potential remedies. Dan Donohoue said CARB would consider possible advisories and administrative changes to ensure safe transit and maintain air quality benefits. He welcomes data gathering.

4. U.S. Coast Guard Concern, Background and Report on Cases: Captain Paul Gugg, Captain of the Port, Sector San Francisco has documented an increase in vessel power loss, particularly on diesel-powered vessels. The Coast Guard recognizes that procedures alone may not solve all issues, and has seen problems with fuel pumps, filters, strainers, etc. Capt. Gugg stressed there is no such thing as an insignificant increase in propulsion casualties. The Coast Guard works very hard on reducing risk and is concerned about, and thoroughly investigates all reported propulsion casualties. The Coast Guard recognizes that procedures alone may not solve all issues, but has seen problems with fuel pumps, filters, strainers, etc. There are a variety of ways that switching to low sulphur fuel can affect power plants, and are learning about the various differences in fuel properties that are likely responsible for some of these problems.

Captain Gugg mentioned that Coast Guard District-wide statistics will take everyone past anecdotal reports and give the Work Group and attendees some proven numbers – a conservative but defensible summary. He mentioned that Sector San Francisco recently published a Marine Safety Information Bulletin on Fuel Switching. The bulletin was intended to raise awareness and promote the use of special procedures. He acknowledged that procedures can help reduce the risk, but there are physio-mechanical aspects related to pump injector and burner performance that go beyond procedures to correct. He also acknowledged that relying on procedures in place of engineering safeguards and automation systems places risk management increasingly in the realm of human factors and subject to the most common cause of all casualties – human error.

Commander Kiley Ross stated that Coast Guard District 11 is tracking incidents throughout the state to get to the root causes. He presented a rundown of cases and their causes prior to and since implementation of the regulation. Prior to July 1st a number of ships were switching voluntarily. From September, 2008 to June, 2009 of 8,630 deep draft ship arrivals, 11 casualty investigations of propulsion failures were definitely related to fuel switching (8 were in Los Angeles/Long Beach and 3 in San Francisco) averaging one a month. Since the regulations took affect this July, of 720 arrivals in the month of July, 6 casualty investigations were initiated (2 in Los Angeles/Long Beach and 4 in San

Francisco). From August 1 to August 12, the day of the meeting: of 300 arrivals there are 2 casualty investigations in San Francisco. This represents a dramatic increase in monthly incidents in the last 45 days. Cmdr. Ross reported that prior to July 1st there were a number of engine failures involving generators; post July 1st pilots reported ships not responding to speed which affects maneuverability of the ship. There is a diversity of concerns being investigated including low RPMs when maneuvering a ship at slow speed, fuel pump pressure, temperature control, etc. Also leaking fuel systems due to the lighter fuel have been reported.

Commander Kiley reported that prior to July 1st there were a number of engine failures; post July 1st pilots reported ships not responding to speed which affects maneuverability of the ship. There is a diversity of issues, including low RPMs when maneuvering a ship at slow speed producing insufficient oxygen for the fuel pump to maintain engine function. Also, low viscosity of the diesel fuel, leaking fuel systems due to the lighter fuel, low flow causing generators to kick off, etc.

5. Comments by Bar Pilots: Captain Bruce Horton reported San Francisco Bar Pilots have noticed a significant change in vessel performance, and have seen an issue every 2-3 days in the Bay, including 17 incidents since July 1st which is a significant change in vessel problems. Some involved a difficult start-up at the dock due to insufficient air pressure or lack of fuel suction that result in one to one-and-a half hour delays. Two vessels had to be towed after losing propulsion; one was approaching the Bay Bridge, the other, along the San Francisco waterfront. Some of the problems bar pilots experience are not necessarily reportable incidents under the Coast Guard definition. Captain Horton noted the need to track convergence of ships offshore to monitor if there is a change in pattern as a result of the requirement to shift to low sulphur fuel. The Bar Pilots are currently keeping track of any and all issues.

Captain John Betz, Port of Los Angeles Pilot and Vice Chair of the Los Angeles/Long Beach Harbor Safety Committee, reported experiencing similar problems as those encountered in SF Bay, including two loses of propulsion since July 1, compared to two in the first half of 2009. More ships are experiencing engineering problems. Ships have changed their routes in making the approach to Los Angeles/Long Beach harbor which is resulting in an off shore convergence area south of the Santa Barbara Channel Islands, an area without a formalized routing system, which increases the risk of collision. The HSC is discussing recommending changes in the Traffic Separation Scheme (TSS). Capt. Betz estimated there have been about 20 incidents (not reportable) in the Los Angeles, Long Beach and San Francisco pilotage grounds.

Captain Betz, and Captain Pete McIsaac (San Francisco Bar Pilots) concurred, that the pilots are now operating with an increased level of risk.

Office of Spill Prevention and Response (OSPR): Steve Sawyer, Chief Counsel for OSPR, stated that OSPR is monitoring the situation very carefully in San Francisco and in Los Angeles/Long Beach. Steve Edinger, OSPR Administrator met with CARB representatives in Sacramento the previous week.

6. Public Comments: Captain Horton invited comments from audience members. (A list of attendees, organizations represented, and email contacts is attached to this summary). Among the concerns voiced:

- Ships are not designed for the distillate fuel required by CARB.

- Difficult to find low sulfur diesel with sufficient viscosity for an engine to operate.
- Fuel pumps leak, due to lower viscosity and seal deterioration.
- Maersk began switching over to low sulphur fuel beginning in 2006. Of 1,300 fuel switches found major leaks at fuel pumps and the need to change seals. Maersk worked with manufactures and ship crews, spending \$18 million to make adjustments.
- Some operators who have voluntarily applied the rule for several years see engine deterioration. Switching is a complicated process, therefore some coastwise traffic remains on distillate; believe both procedures contribute to engine deterioration. Engines are not designed to switch fuels back and forth on a regular basis. Concern for the long-range affects on engines.
- Worldwide monitoring shows rise in propulsion failure with low sulfur fuel use. The Intertanko representative wondered if fuel quality was a contributing factor.
- Even though quality of the fuel is critical, it is difficult to monitor. There is a need to better monitor this data in California.
- Suppliers should be responsible for proper fuel quality. California suppliers are now required to produce a new fuel that is not well defined.
- Education needed for vessel operators and crews on the complex switching procedures.
- Boilers present a serious safety concern and require a two-step modification costing \$80,000-\$90,000 per ship.
- Higher operating costs overall, including the need to retrofit fuel chillers to maintain fuel viscosity, each costing \$200,000, as well as the fuel cost differential.
- More frequent replacement of engine and fuel system equipment. Cylinder corrosion. Larger pumps needed to deliver sufficient fuel to engine for larger volumes of lower BTU fuel.
- Transit times affected, routing changes instituted to meet dock schedules.
- While CARB based its regulations on discussions with manufacturers, several questioned the premises of the regulation based on how this actually works over a period of time. It was noted the wide variety of ships entering California waters e.g. 943 different ships entered San Francisco Bay in 2007, some once in ten years.
- Pilots wondered, “How do you pilot an unreliable ship in an environmentally sensitive area even if you do everything possible to prevent an accident which might result in an oil spill?”

- Several emphasized the issue was managing risk to prevent an accident; the goal is to have zero incidents. A 1% incident factor reported by CARB is unacceptable.

7. Summary and Next Steps:

Gerry Wheaton, NOAA Coastal Services, stated that NOAA was concerned about the potential impacts of ships losing power offshore San Francisco in three National Marine Sanctuaries. National Marine Fisheries is also concerned with protecting whale migrations. He requested that all five of the state's HSCs be involved to work together to address the fuel switching issue. OSPR suggested a state HSC summit might be the appropriate venue to continue the process.

Captain John Betz, Los Angeles Pilots, recommended the San Francisco Harbor Safety Committee take the lead due to the nature of potential impacts of an incident in the Bay. Pilot groups will work with the HSCs to determine how best to manage the risk associated with fuel issues.

Capt. Gugg summarized the Coast Guard and the Harbor Safety Committee have raised awareness on the subject. The Coast Guard continues to look for root causes of incidents, with an understanding that this is a relatively new problem that is not fully understood and certainly not resolved; and that best practices need to be developed. He stressed his belief that major operators want to comply with the regulation, and requested clarification from CARB on the different exemptions available.

Chair Lundstrom emphasized that the problem is before us *now*. There appears to be consensus to address the following as quickly as possible:

- 1) Formalize Coast Guard tracking of propulsion failure and vessel responsiveness attributable to low sulphur fuel switching for California harbors and establish a process to transmit the reports to CARB in order to determine patterns and root cause. Concurrently request the pilot organizations to similarly track problems observed from talking with vessel masters.
- 2) Track vessel patterns in the convergence area off San Francisco Bay to monitor possible changes in routes.
- 3) Request CARB to convene a public forum to invite manufacturers and other maritime experts to a technical meeting with CARB to discuss the problems industry is documenting of fuel switching on engine deterioration.
- 4) Request a copy of the CARB waiver provision be provided to the Coast Guard and the Harbor Safety Committees and further discussion and explanation of the regulation waiver.

CARB Sacramento Branch Chief Dan Donohue agreed that CARB would like comprehensive incident monitoring information from the USCG, including details of the fuels used and equipment make and model, working with the Coast Guard to put this together. CARB sponsored an ongoing forum for discussion of technical aspects of fuel switching while it developed the rule and would be open to reinstating a forum to consider long-term impacts to vessels from fuel switching, including possible corrosive effects.

Mr. Donohue stated maybe things could possibly be done administratively and with the regulations if warranted, but that the regulation would not be suspended. CARB also will provide a copy of the waiver provision and an overview of the equipment modification exemption to the rule. Bonnie Soriano of CARB suggested that operators might be unaware of the safety exemption. HSC Chair Lundstrom suggested a Navigation Work Group meeting could be held to discuss the exemption waiver with CARB and to explore outreach opportunities.

Ms. Lundstrom thanked CARB staff for their willingness to work together on this critical issue to protect the environment. She said we did not want another Cosco Busan, which hit the Bay Bridge resulting in an oil spill costing \$70 million in damages and clean up. The San Francisco Harbor Safety Committee will work together with the other committees on this safety issue.

Capt Horton adjourned the meeting at 1200 hours.

Contacts:

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Attachments: Sign in List of August 12, 2009 Meeting Attendees

CARB Marine Notice 2009-2 Summary of Low Sulphur Fuel Regulation

Navigation Work Group Sign In Recap 12 August 2009

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Navigation Work Group Sign In Recap 12 August 2009

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California Air Resources Board Marine Notice 2009-2



May 7, 2009

Advisory to Owners or Operators of Ocean-Going Vessels Visiting California Ports

Regulation on Fuel Sulfur and Other Operational Requirements for Ocean-Going Vessels within California Waters and 24 Nautical Miles of the California Baseline

The purpose of this advisory is to notify owners and operators of ocean-going vessels of a new regulation recently adopted by the **State of California Air Resources Board (ARB)**. Currently the regulation is undergoing final administrative review at the Office of Administrative Law and is expected to be approved to become legally effective late in June, with vessel compliance with the new requirements beginning on July 1, 2009.

The regulation will require ship operators visiting any port located in the State of California to reduce their air pollution through the use of cleaner marine distillate fuels. ***This advisory is only a summary of the requirements, and does not contain all the information that may be needed to comply with the regulation. If you might be affected by the regulation, it is essential you carefully review the regulation before taking steps to comply with it.*** To receive a copy of the regulation, please contact the ARB staff listed at the end of this advisory, or visit the ARB's website at the following location: <http://www.arb.ca.gov/regact/2008/fuelogv08/fuelogv08.htm>

Who is covered by the regulation?

The regulation applies to any person who owns, operates, charters, rents, or leases ocean-going vessels (both U.S. and foreign-flagged) in any of the "Regulated California Waters," which generally includes all areas within 24 nautical miles of the California coastline, as shown in Figure 1. (All persons subject to this regulation are subsequently referred to in this advisory as "operators.") The ocean-going vessels covered under the regulation include most cargo vessels, such as container ships, tankers, bulk carriers, and car carriers, as well as passenger cruise ships. Military vessels and government vessels used for noncommercial purposes are exempt.

Does this regulation provide a safety exemption?

Yes, the requirements of this regulation do not apply if the master determines that compliance would endanger the safety of the vessel, its crew, its cargo or its passengers because of severe weather conditions, equipment failure, fuel contamination, or other extraordinary reasons beyond the master's reasonable control. This exemption applies only as long as and to the extent necessary to secure the safety of the vessel, its crew, its cargo, or its passengers and provided that;

- (1) the master takes all reasonable precautions after the incident to avoid or minimize repeated claims of exemption;
- (2) the master notifies the Executive Officer of a safety exemption claim within 24 hours after the end of each episode; and

(3) the master submits to the Executive Officer, within 4 working days after the notification, all documentation necessary to establish the conditions.

What are the requirements?

The fuel requirements in the proposed regulation are summarized in Table 1 below.

Table 1: Fuel Requirements for Ocean-Going Vessel Main (Propulsion) Diesel Engines, Auxiliary Diesel Engines (Including Diesel-Electric), and Auxiliary Boilers

Fuel Requirement	Effective Date	Fuel
Phase I	July 1, 2009*	Marine gas oil (DMA) at or below 1.5% sulfur; or Marine diesel oil (DMB) at or below 0.5% sulfur
Phase II	January 1, 2012	Marine gas oil (DMA) or marine diesel oil (DMB) at or below 0.1% sulfur

* See discussion below regarding the effective date of the fuel requirements for auxiliary engines.

These fuel requirements would apply to ocean-going vessel main (propulsion) diesel engines, auxiliary diesel engines (including diesel-electric), and auxiliary boilers when operating within the 24 nautical mile regulatory zone off the California Coastline (see Figure 1). Note that diesel-electric engines are included as auxiliary engines under this regulation. The “Phase I” fuel requirement specifies the use of marine gas oil up to 1.5 percent sulfur, or marine diesel oil up to 0.5 percent sulfur. The Phase I fuel requirement will become effective on July 1, 2009 for main engines and auxiliary boilers under the proposed compliance schedule. For auxiliary engines (including diesel-electric), this fuel requirement will become effective when the regulation becomes legally effective. However, because the regulation is expected to become legally effective in late June, very close to July 1, 2009, the State of California Air Resources Board will provide a grace period for the auxiliary engine (including diesel-electric engines) fuel use requirement until July 1, 2009 to align the implementation date for all engines and auxiliary boilers. This grace period means that even though the regulations, once approved by the Office of Administrative Law, could require use of cleaner fuels in vessel auxiliary engines beginning in late June, ARB will not enforce that requirement until July 1, 2009. As such, the date on which a vessel operator must begin to use the specified marine distillate fuels in any main engine, auxiliary engine (including diesel-electric engines), and auxiliary boiler while operating within Regulated California Waters is July 1, 2009. The “Phase II” fuel requirement specifies the use of marine gas oil or marine diesel oil up to 0.1 percent sulfur fuel. The Phase II requirement would become effective on January 1, 2012, for all sources covered by this regulation.

Are there recordkeeping requirements?

Yes, vessel operators must keep the following records (in English) for at least three years:

- 1) the date, local time, and location (longitude and latitude) when they enter and leave Regulated California Waters (RCW);

- 2) the date, local time, and location at the initiation and completion of any fuel switching used to comply with the regulation (e.g. upon entering/leaving RCW;
- 3) the date, local time, and location of any fuel switching conducted within RCW;
- 4) the type of fuels used (e.g. heavy fuel oil, marine gas oil, etc.) in each auxiliary engine, main engine, and auxiliary boiler within RCW; and
- 5) purchase records of the types of fuel lifted, amounts, and actual percent sulfur by weight, as reported by the fuel supplier or a fuel testing firm.

In addition, ship operators shall maintain onboard the vessel:

- 1) a fuel system diagram that shows all storage, service, and mixing tanks, fuel handling, pumping, and processing equipment, valves, and associated piping. The diagram or other documentation shall list the fuel tank capacities and locations, and the nominal fuel consumption of the machinery at rated power;
- 2) a description of the fuel switch over procedure with detailed instructions and clear identification of responsibilities; and
- 3) the make, model, rated power or output, and serial number of all main engines, auxiliary engines, and auxiliary boilers.

In many cases, the above records are already collected or maintained for other regulatory requirements or standard practices, and they may be submitted (if requested) in a format consistent with these other requirements.

When do these records need to be provided to the State of California?

These records do NOT need to be periodically reported to the ARB. These records, along with any other information necessary to determine compliance, only need to be provided upon request, typically when ARB inspectors board vessels for the purpose of determining compliance with the regulation.

How can I comply under the “Essential Modifications” exemption?

Vessel operators can only utilize this exemption if they can demonstrate that they cannot meet the fuel-use requirements in the regulation without “essential modifications,” as defined in the rule. Vessel operators must apply for this exemption at least 45 days prior to their first California visit (or at the earliest practicable date prior to their port visit if the ship operator will be visiting California less than 45 days after the effective date of the regulation). In their applications, ship operators will need to supply an “Essential Modifications Report” signed by the Chief Engineer of the vessel that identifies the specific modifications needed to comply with the fuel-use requirements, and identifying the maximum extent to which the cleaner fuels specified in the regulation can be used (e.g., some engines or boilers may still be able to operate on the cleaner fuel without modifications, or engines and boilers may be able to operate on the cleaner fuel for a portion of the voyage in RCW without modifications). The application must be approved before the vessel operator can rely on the Essential Modifications exemption. After approval of the application, the vessel operator must inform the ARB prior to each

entry into RCW that the operator will be complying under this provision. Vessel operators are strongly advised to refer to the regulation and contact ARB staff prior to applying for the Essential Modifications exemption. This will ensure that they understand the requirements of this provision before preparing an application.

The State of California Air Resources Board will provide a temporary grace period for vessel operators seeking to comply with the regulation under the Essential Modifications exemption from July 1, 2009 to August 15, 2009. During this time, a vessel operator will be exempted from the requirements of subsection (e)(1) between July 1, 2009 and August 15, 2009, whether their application for an exemption is ultimately approved or denied, if they do the following:

- 1) notify the ARB in writing (email is acceptable) prior to entering RCW that the operator intends to apply for an Essential Modifications exemption, and
- 2) actually submit an application with an Essential Modifications Report at the earliest practicable date, but no later than August 1, 2009.

The operator of a vessel that is in RCW when the regulation takes effect on July 1, 2009 will be granted the same grace period if the operator provides ARB written notice no later than July 6, 2009 of the operator's intent to rely on the Essential Modification exemption, and then submits an application with an Essential Modifications Report at the earliest practicable date, but no later than August 1, 2009.

When can I pay a noncompliance fee in lieu of direct compliance?

Vessel operators can comply with the regulation by paying a noncompliance fee under the following circumstances:

- 1) unplanned redirection to a California port;
- 2) inability to purchase complying fuel;
- 3) inadvertent purchase of defective fuel; or
- 4) inability to schedule vessel modifications in time for compliance.

The Noncompliance Fee Schedule is shown in Table 2 below.

Table 2: Noncompliance Fee Schedule, Per Vessel

California Port Visits	Per-Port Visit Fee
1 st Port Visited	\$45,500
2 nd Port Visited	\$91,000
3 rd Port Visited	\$136,500
4 th Port Visited	\$182,000
5 th or more Port Visited	\$227,500

In addition to the cases above, the noncompliance fee provision may be utilized by infrequent visitors that would be required to make vessel modifications to comply with the regulation, but do not wish to utilize the "Essential Modifications" exemption discussed above. Under this scenario, "infrequent" means a vessel operator that makes no more than two port visits per vessel in any calendar year and no more than four visits

total during the life of the vessel after the effective date of the regulation. In this special case, the fee schedule shown in Table 2 would not apply after four port visits. Vessel operators are strongly advised to refer to the regulation prior to relying on the noncompliance fee option. This will ensure that they meet the specific requirements for each case mentioned above. For example, there are notification requirements, and in some cases, records that need to be provided to demonstrate the need to utilize the provision.

How would the regulation be affected if an Emission Control Area (ECA) is established under the International Maritime Organization (IMO) that includes California?

The United States and Canada recently submitted a joint application to the IMO for an ECA that covers much of North America (including the California coastline). However, even if the application is approved and an ECA is ultimately established covering California, the California regulation would still remain in effect, at least initially. This is because the initial fuel standards under an ECA would achieve far less emission reductions than the California regulation. Nevertheless, the California regulation contains a provision that would sunset the requirements of the rule if the U.S. Environmental Protection Agency achieves equivalent emission reductions. If an ECA is established that includes California’s coastline, by 2015 the ECA would require the use of 0.1 percent sulfur fuel. This fuel would likely achieve equivalent emission reductions to the California regulation, allowing ARB to discontinue the requirements of the regulation at that time.

What should I do now?

We expect to begin enforcing the regulation on July 1, 2009. To prepare for compliance with the regulation, we recommend that affected parties ensure that:

- 1) Vessel crews are thoroughly familiar with the operational procedures used to switch fuels in main engines, auxiliary engines, and auxiliary boilers;
- 2) Sufficient quantities of the specified “Phase I” cleaner fuels are onboard the vessel prior to making a California port visit; and
- 3) Vessel crews understand the relevant record-keeping requirements discussed above.

How can I get more information?

Name	Title	Phone	Email
Bonnie Soriano	Staff Air Pollution Specialist	(916) 327-6888	bsoriano@arb.ca.gov
Paul Milkey	Staff Air Pollution Specialist	(916) 327-2957	pmilkey@arb.ca.gov
Peggy Taricco	Supervisor, Technical Analysis Section	(916) 323-4882	ptaricco@arb.ca.gov
Vessel Helpline	All ARB staff	(877) 808-7447	

**Additional information can be found at <http://www.arb.ca.gov/marine>
 A copy of the regulation is available at:
<http://www.arb.ca.gov/regact/2008/fuelogv08/fuelogv08.htm>**

Figure 1: Regulated California Waters (24 nm Zone)



The following is a clarification of Maersk Lines statements on fuel switching at the August 12, 2009 Harbor Safety Committee Work Group meeting on low sulphur fuel switching

Wayne Tober
Manager West Coast Marine Operations
Maersk Line

Quote

1. Maersk commenced switching over to low sulfur fuel effective 30th March 2006
2. No significant issues were encountered in over 1200 fuel switches to 30 June 2009
3. A few leaks on main engine fuel pumps were noted that required changing of O ring seals. Additionally, a couple of sticking auxiliary engine fuel pump plungers were encountered.
4. One vessel had intermittent main engine starting issues which is under investigation
5. All fuel switching is carried out as per engine manufacturer's instructions.
6. The cost of the Maersk pilot fuel switch initiative has been in the region of USD 18 million, this being the fuel cost differential, not in repairs or adjustments.

Unquote