Oceangoing Ship Onboard Incineration
Public Workshop
Sacramento
August 30, 2006

Background

- Assembly Bill 471
- ATCM for Cruise Ship Onboard Incineration (Cruise Ship ATCM)
- Senate Bill (SB) 771
- Staff is proposing amendments to Cruise Ship ATCM to incorporate SB 771 requirements
Background (cont’d)

<table>
<thead>
<tr>
<th>Ports</th>
<th>Number of Port Calls</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles/Long Beach</td>
<td>5100</td>
<td>50</td>
</tr>
<tr>
<td>Oakland</td>
<td>1900</td>
<td>20</td>
</tr>
<tr>
<td>Carquinez, Richmond, Port Hueneme (combined)</td>
<td>1700</td>
<td>17</td>
</tr>
<tr>
<td>Others</td>
<td>1200</td>
<td>13</td>
</tr>
</tbody>
</table>

SB 771

- Effective January 1, 2006, oceangoing ships prohibited from conducting onboard incineration within three miles of the California coast
- Reduces exposure to toxic air contaminants, such as dioxins and toxic metals, for residents living near ports and the California coastline
- Air Resources Board (ARB) is amending the Cruise Ship ATCM to implement this legislation
SB 771 - Applicability

- Defines oceangoing ships as follows:
  - A private, commercial, government, or military vessel of 300 gross registered tons or more calling on California ports or places.

Existing Requirements for Onboard Incineration

- Annex V of MARPOL 73/78
  - Entries in garbage record book
    - Date and time of start and stop of incineration
    - Position of ship (latitude and longitude)
    - Estimated amount of incinerated garbage
    - Signature of officer in charge of operation

- Annex VI of MARPOL 73/78
  - IMO certificate, operating limits for incinerators, prohibition of incineration of certain wastes
  - Entered into force May 19, 2005
Onboard Incinerator Survey

• Conducted onboard incinerator survey
  May 2006
  – Determine current incineration practices
  – Amount of garbage
  – Days and hours of operation
  – Air pollution control
  – Alternative waste treatment
  – Responses from approximately 400 oceangoing ships

Onboard Incinerator Survey Results

<table>
<thead>
<tr>
<th>Total Waste Burned per Year for All Locations</th>
<th>Min.</th>
<th>Max.</th>
<th>Avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cubic Meters (172 ships reporting)</td>
<td>0</td>
<td>2253</td>
<td>71</td>
</tr>
<tr>
<td>Tons (30 ships reporting)</td>
<td>0.05</td>
<td>2578</td>
<td>111</td>
</tr>
</tbody>
</table>
### Onboard Incinerator Survey Results

<table>
<thead>
<tr>
<th>Total Waste Burned per Year Within Three Miles of the California Coast¹</th>
<th>Cubic meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ship One (Bulk Carrier)</td>
<td>0.04</td>
</tr>
<tr>
<td>Ship Two (Auto Carrier)</td>
<td>0.06</td>
</tr>
<tr>
<td>Ship Three (Auto Carrier)</td>
<td>0.45</td>
</tr>
</tbody>
</table>

1. For the year 2005 – Prior to the effective date of SB 771.

### Onboard Incinerator Survey Results

<table>
<thead>
<tr>
<th>Type of Waste</th>
<th>% of ships incinerating this type of waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rags</td>
<td>89</td>
</tr>
<tr>
<td>Paper products</td>
<td>82</td>
</tr>
<tr>
<td>Floating dunnage, lining, or packing material</td>
<td>16</td>
</tr>
<tr>
<td>Plastics (including light plastics)</td>
<td>15</td>
</tr>
<tr>
<td>Food waste</td>
<td>3</td>
</tr>
<tr>
<td>Glass, metal, bottles, crockery, etc.</td>
<td>2</td>
</tr>
<tr>
<td>Other (e.g., sludge oil, waste oil, oil filters, cardboard)</td>
<td>37</td>
</tr>
</tbody>
</table>
Onboard Incinerator Survey Results

• Alternative Treatment to Onboard Incineration
  – Variability among oceangoing ships
    • Disposal to port facilities
      – Plastics, batteries, incinerator ash, sludge and waste oil, hazardous waste
    • Items separated out for recycling
      – Cans, cardboard, glass, metal
    • Most food waste disposed at sea
    • Other garbage disposed at sea

• Other information
  – Incinerators uncontrolled
  – 44 percent of ships have no incinerator
  – Average number of crew is 19
  – Military provided summary information on 20 ships
Health Impacts

- Health and Safety code section 39665 requirements us to evaluate:
  - The potential emissions and health impacts associated with toxic air contaminants
    - Potential cancer risk
    - Noncancer health impacts
  - Used data from survey to conduct a qualitative assessment

Health Impacts (cont’d)

- Toxic air contaminants typically associated with incineration (land based)
  - Dioxin/furans
    - Highly toxic, persistent and bioaccumulative
  - PAHs
  - Metals
    - Cadmium, lead, mercury, arsenic, nickel, manganese
  - HCl (hydrochloric acid)
  - Other pollutants
    - Particulate matter, hydrocarbons
Health Impacts (cont’d)

- 2005 cruise ship health risk assessment results
  - Potential cancer risk up to 2 chances per million
  - Non cancer health impacts low
- Oceangoing ships impacts likely to be less than cruise ships
  - Significantly lower amount of waste generated and incinerated onboard
  - Approximately 45% of oceangoing ships have no incinerators
  - Average crew is 19 compared to several thousand passengers onboard cruise ships
  - Limited operating schedule
  - Prohibitory company policies

Three Mile Determination

- Using the Three Nautical Mile Line as shown on the National Oceanic and Atmospheric (NOAA) Nautical Charts

- State of California comprised of 7 NOAA charts
  - Chart 18600, Trinidad Head to Cape Blanco (January 2002)
  - Chart 18620, Point Arena to Trinidad Head (June 2002)
  - Chart 18640, San Francisco to Point Arena (August 2005)
Three Mile Determination (cont’d)

- Chart 18680, Point Sur to San Francisco (June 2005)
- Chart 18700, Point Conception to Point Sur (July 2003)
- Chart 18720, Point Dume to Purisima Point (January 2005)
- Chart 18740, San Diego to Santa Rosa Island (April 2005)

• ARB notification when charts get updated

Recordkeeping

• The following records are required when traveling in Regulated California Waters:
  - Date and time of start and stop of incineration
  - Position of ship in latitude and longitude
  - Estimated amount incinerated in cubic meters
  - Name or signature of officer in charge of the operation
  - When operation is required under the United States Coast Guard (USCG), the name, unit, and phone number of USCG personnel
  - Records kept onboard for two years
  - Available upon request for inspection or upon request by Executive Officer
Recordkeeping (cont’d)

• Optional protocol for military vessels
  – Allows military to enter into a protocol which provides an equivalent level of verification of compliance
  – Necessary to preserve national security

Enforcement of ATCM

• ARB enforcement
• Onboard inspections
• Review of garbage record logs
• Optional Protocol for Military Vessels
  – Allows military to enter into a protocol which provides an equivalent level of verification of compliance
  – Necessary to preserve national security
Schedule and Contact

- Workgroup meetings will continue
- Proposed Amended ATCM and Staff Report
  - September 29, 2006
- Board Hearing
  - November 17, 2006

Further information
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