Overview

♦ Background

♦ Draft Implementation Guidance
  – general information
  – application process
  – estimating emissions
  – post-approval

♦ Future Activities
Background

♦ Cargo Handling Equipment and Ship Auxiliary Engine Regulations approved December 2005
♦ ACP and ACE provisions provide flexibility in complying with the regulations and encourage use of emerging technologies to reduce emissions

General Information

♦ Who can apply?
  – owners/operators in direct control of equipment/vessels
♦ What are the alternatives available?
  – engine modifications, exhaust treatment controls, alternative fuels, shore-side power, etc.
♦ How long is an approved ACP or ACE valid?
  – calendar year (or continuous 12-month period for ACE)
Application Process

♦ How do I apply?
  – submit applications in writing to the Executive Officer (EO) for evaluation

♦ What should my application include?
  – contact info; equipment/vessels; emissions data; procedures for compliance; ACE only: ports data

♦ What about public availability/confidentiality?
  – Applications will be made available to public for review; state law will be followed in determining confidentiality

ACP/ACE Application Process

ARRB receives application

15 days max

Application is deemed complete (or ARRB requests more information)?

30 day First Public Comment Period begins

30 days

30 day First Public Comment Period ends

30 days max

Proposed Approval or Disapproval

15 day Second Public Comment Period begins

15 days

15 day Second Public Comment Period ends

15 days max

Final Action
Application Approved or Denied

* If the application is incomplete, the ARRB will notify the applicant, identifying the application’s deficiencies. The EO will have an additional 15-day period to review each set of documents or information submitted in response to an incomplete application.
Estimating Emissions: Cargo Handling Equipment

How do I determine emissions that would occur under direct compliance with the regulation?

- assume one of the compliance options specified in the regulation (non-yard truck cargo handling equipment)
- use acceptable methodology (i.e., emissions testing of the engine(s), methodology included in the Staff Report for the regulation, etc.)
- estimate emissions of diesel PM and NOx for the ACP compliance period

How do I estimate emissions with the use of an alternative emission control strategy (AECS)?

- use actual engines or test data from manufacturers with AECS in place
- recommend testing in accordance with ARB, U.S. EPA, or ISO approved methods
- estimations must assume use of AECS over the applicable calendar year and include diesel PM and NOx for ACP compliance period
- documentation, recordkeeping, reporting will depend on specifics of the application
Diesel PM Emissions Summary for ACP Scenario:

*Higher level unverified controls used on equipment running more hours in lieu of verified controls on all*

<table>
<thead>
<tr>
<th>Equipment</th>
<th>MY</th>
<th>Rated HP</th>
<th>Load Factor</th>
<th>Annual Hours</th>
<th>PM EF (g/hp-hr)</th>
<th>PM Emissions w/Direct Compliance (lbs)</th>
<th>PM Emissions w/ACP (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Top Picks</td>
<td>2003</td>
<td>250</td>
<td>0.59</td>
<td>1,500</td>
<td>0.12</td>
<td>272</td>
<td>204</td>
</tr>
<tr>
<td>3 Side Picks</td>
<td>1999</td>
<td>250</td>
<td>0.59</td>
<td>1,900</td>
<td>0.38</td>
<td>704</td>
<td>528</td>
</tr>
</tbody>
</table>

Totals: 976 732 624

Note: The calculations above have been simplified for the purposes of illustrating this example scenario and do not reflect deterioration factors or fuel correction factors.

Estimating Emissions: Ship Auxiliary Engines

- How do I determine emissions that would occur under direct compliance with the regulation?
  - generally assume use of marine gas oil or diesel oil at or below 0.5% sulfur as of 1/1/07; use of marine gas oil at or below 0.1% sulfur as of 1/1/10
  - only emissions occurring within regulated California waters (approx 24 nm offshore) will be counted
  - use acceptable methodology (i.e., emissions testing of the engines using specified fuels, test data from manufacturers, methodology included in the Staff Report for the regulation, etc.)
  - estimate emissions of diesel PM, NOx, and SOx for the ACE compliance period
How do I estimate emissions with the use of an alternative emission control strategy (ECS)?

- use actual engines, test data from manufacturers with AECS in place, or other approved methodology
- recommend testing in accordance with ARB, U.S. EPA, or ISO approved methods
- documentation, recordkeeping, reporting will depend on specifics of the application

What if I comply using shore-side power?

- turning off all auxiliary engines within an hour of arrival until an hour before departure: ACE application does not require emission calculations, and approved ACE is valid when traveling to and from port where shore-side power is used
- cannot meet the requirements above: ACE application requires emission calculations
Diesel PM Emissions Summary for ACE Scenario:
Fleet Emissions Averaging Using Emission Controls and Shore-Side Power

Compliance without ACE

Port of Los Angeles
Ship A uses MGO & emission controls; Ships B & C use MGO dockside

Port of Oakland
Ships A, B, & C use MGO dockside

Travel in Regulated California Waters:
Ship A uses MGO & emission controls; Ships B & C uncontrolled

Compliance with ACE

Port of Los Angeles
Ship A uses shore-side power; Ships B & C uncontrolled

Port of Oakland
Ship A uses shore-side power for ACE; Ships B & C uncontrolled

Travel in Regulated California Waters:
Ship A uses MGO & emission controls; Ships B & C uncontrolled

Diesel PM Emissions Summary for ACE Scenario:
Fleet Emissions Averaging Using Emission Controls and Shore-Side Power

| Operating Mode | Ship “A” Annual Emissions with Marine Gas Oil @ 25 CA visits/50 port calls | | | |
|----------------|-------------------------------------------------|-------------|-------------|
| Time per visit or port call (hrs) | Annual Time In Mode (hrs) | Power (kW) | PM EF (g/kW-hr) | PM Emissions (lbs) |
| -----------------|-----------------|-------------|-------------|
| Transiting       | 30 hrs/trip     | 750          | 1,000       | 0.38          | 0.20          | 628          | 330          |
| Maneuvering      | 2 hrs/port call | 100          | 3,000       | 0.38          | 0.20          | 251          | 132          |
| Hotelling (aux eng) | 50 hrs/port call | 2,500       | 1,200       | 0.38          | 0.20          | 2,511        | 661          |
| Hotelling (shore-side power for ACE) | NA | 1,250 | 1,200 (grid) (ACE) | NA | 0.013 | NA | 43 |
| Total            | 3,390           | 1,166        |             |               |               |               |               |

<table>
<thead>
<tr>
<th>Operating Mode</th>
<th>Ship “B+C” Annual Emissions with Heavy Fuel Oil @ 4 visits/total CA portcalls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time per visit or port call (hrs)</td>
<td>Annual Time In Mode (hrs)</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Transiting</td>
<td>30 hrs/trip</td>
</tr>
<tr>
<td>Maneuvering</td>
<td>2 hrs/port call</td>
</tr>
<tr>
<td>Hotelling</td>
<td>50 hrs/port call</td>
</tr>
<tr>
<td>Total</td>
<td>542</td>
</tr>
</tbody>
</table>

Grand Total 3,932 3,306
Post-Approval

- Is an approved ACP or ACE transferable?
  - no; changes to vehicles/vessels or owners/operators would require new application

- Can the ARB revoke or modify an approved plan?
  - yes, with 30 days notice
    - multiple violations
    - plan no longer meets the criteria/requirements
    - applicant can no longer comply

- Can I get credits if the plan reduces more than required?
  - no; regulations do not allow for generation, banking, or trading of emission reduction credits under the ACP/ACE provisions

Future Activities

- Finalize ACP/ACE implementation guidance by end of the year

- Regulations expected to become effective January 1, 2007

- Optional reporting forms and ACP/ACE application forms will be made available as soon as possible