The North American Emissions Control Area

Matt Haber
US EPA
Air Enforcement Division
Office of Enforcement and Compliance Assurance
Benefits—PM-2.5

PM-2.5 standard
Current: 15ug/m$^3$; proposed 12-13ug/m$^3$ (annual)
35ug/m$^3$ (24 hour)
What vessels are we talking about?

- BIG vessels
  - Container ships
  - Tankers
  - ROROs
  - Bulk Carriers
  - Cruise Ships
The North American ECA

- Impact of Ship Emissions
- What is the ECA?
- How will it be enforced?
Ship Emissions are a growing % of the inventory

2009 Mobile Source SOx Inventory

- C3 Marine: 80%
- Highway: 5%
- Diesel NR: 4%
- Other NR: 2%
- Diesel Marine <30 l/cyl: 6%
- Locomotive: 2%
- Aircraft: 1%
- OGV Marine: 17%
- Aircraft: 4%
- Diesel Marine <30 l/cyl: 7%
- OGV Marine: 17%
- Diesel Marine <30 l/cyl: 8%
- Other NR: 5%
- Diesel NR: 28%
- Locomotive: 10%
- Highway: 25%
- Diesel Marine <30 l/cyl: 7%
- OGV Marine: 48%
- Other NR: 5%
- Diesel NR: 15%
- Locomotive: 7%
- Highway: 20%
- Diesel Marine <30 l/cyl: 8%
- OGV Marine: 30%
- Diesel Marine <30 l/cyl: 9%
- Other NR: 5%
- Diesel NR: 15%
- Locomotive: 15%
- Highway: 20%
- Diesel Marine <30 l/cyl: 15%
- OGV Marine: 48%
- Diesel Marine <30 l/cyl: 10%
- Other NR: 5%
- Diesel NR: 8%
- Locomotive: 3%
- Highway: 29%
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ECA, Annex VI, APPS....what’s all that?

- Ocean Going Vessels...the last polluter
- MARPOL? IMO? MEPC?
  - Annex VI?
    - ECA
- APPS
Sulfur standard, 2008 Annex VI Amendments*

- “Global standard”** (Regulation 14.1)
  - 4.5% < 2012
  - 3.5% (2012-19)
  - 0.5% 1 Jan. 2020

- Emission Control Area (ECA) standard (Reg. 14.4)
  - 1.5% < Jul. 2010
  - 1.0% after January, 2010
  - 0.1% after January, 2015

*All dates are subject to 12 month grace period. Reg. 14.7.

** The 2020 Global Standard is subject to feasibility review in 2018; may be delayed to 2025.
North American ECA – History

- Proposal for North American ECA introduced by the U.S. and Canada.
- July 2009: France joined as a co-proposer on behalf of its island territories of Saint-Pierre and Miquelon.
- March 26, 2010: MARPOL Annex VI amended to include designation of the North American ECA.
- Amendment entered into force on August 1, 2011.
- ECA sulfur requirements effective August 1, 2012.
North American ECA Boundaries
**North American ECA – Benefits**

- Compliance with ECA standards is expected to result in annual reductions starting 2020 of:
  - 320,000 tons of NOx
  - 90,000 tons of PM-2.5
  - 920,000 tons of SOx
  - 23%, 74% and 86% reduction of predicted levels absent the ECA

- ECA benefits include preventing as many as 14,000 premature deaths and relieving respiratory symptoms for nearly 5 million annually.
Benefits—PM-2.5

PM-2.5 standard
Current: 15ug/m3; proposed 12-13ug/m3 (annual)
35ug/m3 (24 hour)
Enforcement

- How is ECA enforcement different?
  - On board
  - Shoreside
ECA enforcement is different

- ECA is codified in APPS
  - Act to Prevent Pollution from Ships
    - Regulations in 40 CFR 1043 (next slide)
- Clean Air Act not directly relevant
- Enforcement split between Coast Guard and EPA
- Those subject to enforcement may have limited or no US corporate presence
EPA 40 CFR Part 1043 Regulations

- Codify MARPOL Annex VI requirements
- apply Annex VI requirements to U.S. internal waters, or “ECA-associated areas”
- exemption for Great Lakes steamships (1043.95(a))
- “hardship waiver” available for other Great Lakes ships (1043.95(b))
- apply Annex VI requirements to non-Party vessels
- describe procedures, requirements for Engine International Air Pollution Prevention Certificates
How will we enforce?

- Coast Guard/EPA MOU
- Coast Guard Lead
  - Ship Inspections
    - Part of routine CG environmental enforcement, eg oil-water separators
    - EPA may join some
Enforcement (2)

- EPA lead
  - Shore side sampling
    - Fuels provided by suppliers meet ECA req’ts
    - Records maintained
- Ships protest submittal
  - When ship tests fuel that turns out to be non-compliant, where supplier claimed compliant
  - Recommended by class societies
On Board

- Ship/engines have required certificates
- Operation of ship complies with Annex VI/ECA requirements
- Proper fuel is used
- Technical File, Record Book of Engine Parameters and other records are properly maintained
Remedies

- USCG specific remedies
  - Warnings
  - Ability to hold ship
  - Revoke IAPP

- APPS driven penalties (33 USC § 1908)
  - Civil Penalties
  - Injunctive Relief
  - Criminal Liability
What’s Criminal?

- Lying/Falsifying information
  - On vessel records
  - Bunker delivery notes
  - Causing GPS/fuel delivery systems to mis-report location of fuel switching
  - Improper/doctored records for companies (i.e. RCCL) with equivalent emissions documents
Fuel Availability

- Annex VI allows for a case where compliant fuel is not available
  - E.g. a vessel sails from Brazil, where 1% bunker is not available, to Philadelphia
  - Guidance released 6/26/12
  - Does not require distillate before 2015
  - Requires report to CG/EPA
  - Case specific
    - Frequent caller vs once every year or less
    - Port of origin
    - How did they attempt to obtain compliant fuel?
    - Requires that they get compliant fuel in first US port of call.
Questions?

• OTAQ Fuels hotline
  • 202-343-9755
  • marine-eca@epa.gov
Thank you
Appendix

- IAPP
- EPA-CG MOU
- Fuel Non-availability guidance
International Air Pollution Prevention Certificate

• Required for inspected vessels greater than 400 gross tons engaged in international routes
  • CG issues, amends, revokes
• Pre-cert inspection includes:
  – SOx
    • Bunker Delivery Notes
    • Bunker Samples
  – Ozone Depleting Substances (ODS)
    • New installations of ODS prohibited after May 19, 2005 (with the exception of HCFCs, which are permitted until January 1, 2020).
  – Shipboard Incineration
• Volatile Organic Compounds
  – If a vessel is equipped with a vapor recovery system, the system must be in compliance with 46 CFR Part 39
MOU Between USCG and EPA to Enforce Annex VI

- USCG and EPA entered into a Memorandum of Understanding to enforce the provisions of Annex VI.

MOU—Significant Provisions

- USCG and EPA agree to mutually cooperate in implementing Annex VI
- USCG and EPA agree to jointly develop protocols for carrying out enforcement activities on board ships, in ports and at facilities
- Roles are based primarily on each agency's areas of expertise
- USCG has primary authority to conduct ship inspections, examinations and investigations. EPA may request to or USCG may request that EPA attend or assist in on board activities.
- EPA has primary authority to verify compliance with fuel oil availability and quality requirements (shoreside fuel requirements)
- Both USCG and EPA have authority to take enforcement actions. Actions may be referred from one agency to the other