BALLAST WATER MANAGEMENT COMPLIANCE

2 DECEMBER 2015
INTERNATIONAL WORKBOAT SHOW 2015
NEW ORLEANS, LA
1972 – Clean Water Act
1990 – NANCPA
2004 – IMO Ballast Convention
2008 – Vessel General Permit
2012 – Coast Guard Final Rule

EPA Low Enforcement Priority
USCG Extension Program

EPA District 2 Finding
Indonesia – 24 November 2015
COMPLEXITY OF IMO, USCG, EPA, AND US STATES

Meet IMO

Meet Port State Control

Meet US Coast Guard

Meet US EPA

Meet States
COMPLEXITY OF IMO, USCG, EPA, AND US STATES

MARINE VESSEL OPERATOR – BALLAST WATER MANAGEMENT COMPLIANCE

Operator Alternatives for Compliance (Glosten’s September 2015 Update)

IMO Convention Entry-into-Force
Adopted in 2004, the convention remains ~1% short of required tonnage to be ratified. It remains a guess as to when entry-into-force will take place. In the meantime, the debate at IMO remains vigorous, with implementation timelines, grandfathering, port state control, and the type approval process in discussion.

There are >50 BWMS Approved to IMO G8 Guidelines

Have/Will you install IMO G8 BWMS?

Non-Compliant when (a) IMO Convention is Ratified, and (b) Implementation Timeline applies to Vessel

Port State Control (PSC) Sampling
The IMO Convention includes provisions for PSC to take ballast water discharge samples to verify compliance, in addition to making sure that a type approved system is installed and recordkeeping is compliant. That noted, there is no common agreement on how to do that sampling, or what analysis should be performed on those samples.

Port State Control (PSC) requires installations to be Approved by the Flag State Administration

Is your recordkeeping adequate?

IMO Convention Implementation Timeline
As written, the convention requires new builds to be ready to turn-on their BWMS at entry-into-force, which is one-year from ratification. For existing vessels, the five-year phasing started in 2014 for existing vessels with 1500 to 3000 MT capacity. This phasing extends to all vessels starting in 2016. However, the timeline is likely to see some smoothing out, especially if ratification doesn’t happen before end of this year.

Port State Control (PSC) Easing In Period
IMO has agreed that PSC enforcement will be limited to advisories until operators and technology gain experience. The US, however, has reserved its rights to sample and enforce.
COMPLEXITY OF IMO, USCG, EPA, AND US STATES

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Is your recordkeeping adequate?

Sampling at PSC discretion, i.e. concerns of recordkeeping.

Compliant in Non-US Ports

Discharge Pass Compliance Sampling?

Pass

FAIL

Non-Compliant

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IMO has agreed that PSC enforcement will be limited to advisories until operators and technology gain experience. The US, however, has reserved its rights to sample and enforce.

US Coast Guard Type Approvals
The US Coast Guard has not yet issued any type approvals, although at least three applications have been submitted at this time. Clouding the outlook is that the US recognized ETV protocol, different from the IMO G8, does not currently include the most probable number (MPN) method that UV based BWMS rely on to gain approval.

US Coast Guard has Granted >40 “IMO G8” BWMS Alternative Management System (AMS) Status

USCG Extension = EPA Compliance
Vessels that have a US Coast Guard extension, are not exempt from compliance with EPA’s Vessel General Permit. These are two separate requirements, the later is part of the Clean Water Act.
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Have you installed an approved AMS?

Non-compliant, unless you file for an "extension." These extensions are typically granted for two years as there are no US Type Approved Systems yet available.

Will BWMS Gain US Type Approval?

Compliant in US Ports for at least 5 years from first dry-dock following 2014 (1500 – 5000 MT) or 2016 (all others)

Non-Compliant in US Ports, unless BWMS installed prior to extension expiration.

Non-Compliant in US Ports, following 5 year period, unless other accommodations are made.

Compliant in US Ports
If also performing recordkeeping and, if required, sampling.

USCG Extension ≠ EPA Compliance
Vessels that have a US Coast Guard extension, are not exempt from compliance with EPA’s Vessel General Permit. These are two separate requirements, the later is part of the Clean Water Act.

EPA Low Enforcement Priority vs. Citizen Lawsuits
EPA issued an enforcement response policy declaring that enforcement of the 2013 VGP numeric ballast water discharge limits will be a low priority if the vessel receives and complies with a US Coast Guard
COMPLEXITY OF IMO, USCG, EPA, AND US STATES

EPA Low Enforcement Priority vs. Citizen Lawsuits
EPA issued an enforcement response policy declaring that enforcement of the 2013 VGP numeric ballast water discharge limits will be a low priority if the vessel receives and compiles with a US Coast Guard extension and complies with all other provisions of the VGP.

However, this EPA policy does not protect against citizen law suits. If fact, the EPA limits are the result of a citizen lawsuit as per a Clean Water Act provision. That provision allows citizens to levy law suits against vessel operators that are out of compliance with EPA requirements.

It’s Not Just California
US States can impose additional requirements, up to 3 nautical miles from shore, through authority granted under the Clean Water Act. Special requirements are listed in the VGP, including California, Connecticut, Michigan, New York, Washington and others.

US States can have additional requirements to those by US Coast Guard and EPA. The operator, depending on discharge location, may need to comply with the following:
- Additional Recordkeeping
- Higher Efficacy Standards
- Restrictive Disinfection Byproducts
- Earlier Implementation

EPA’s Vessel General Permit (VGP) includes:
- numerical DISCHARGE limits
- mandatory SAMPLING

Will discharge meet numerical limits?

Compliant in US Ports
PASS

Non-Compliant in US Ports as per EPA implementation schedule. There is no “extension.”
FAIL

Compliant in US Regional State Requirements if also compliant with USCG and EPA

Will You Be Compliant?
YES
TO ALL
NO
TO ANY

Non-Compliant with US Regional State Requirements Even if compliant with USCG and EPA

EPA Timelines and Standards are Minimums
California is currently considering delaying its implementation of treatment standards that exceed EPA’s. This delay, however, doesn’t relieve the ship operator from still complying with the EPA standard and timeline.
OVER 55 YEARS OF INNOVATIVE MARINE SOLUTIONS

- **Vessel & Platform Design**
  - Concept, Contract, and Detailed Design, New Buildings, Modifications

- **Electrical**
  - Electrical Design, Electrical Load Analysis, Hazardous Area Plans, Circuit Breaker Coordination

- **Analysis and Simulation**
  - Finite Element Analysis, Computational Fluid Dynamics, Piping System Modeling, Ship Motions, Climate Modeling, Maneuvering Simulations, Transportation Planning, Mooring Design.
OVER 55 YEARS (WORK BOAT BOOTH #525)

- **Noise Control Engineering**
  - Team of 15 specialty engineers focusing on noise and vibration solutions

- **Project Support**
  - Feasibility Studies, Equipment Trade Studies, Specifications, Shipyard Selection

- **Detail Design**
  - Laser Scanning, Solid Modeling, Structural Lofting, Pipe Spools, Pre-outfitting, Fabrication Planning

- **On-site Support**
  - Construction Support, Tests and Trials Commissioning, Training
US WORK BOAT APPLICABILITY

- Ocean Going
  Integrated Equipment

- ATBs and Tankers
  Deck Ballast Modules

- Barges, Old Ships, Emergencies
  In-Tank Treatment (Ballast Responder)

- Great Lakes
  Special Projects

- Low Ballast Alternative
OCEAN GOING VESSELS

- Challenging Integrations
- Use of Laser Scanners and Solid Models
- Program Management
- Marine Engineering Know-how
DECK MODULE APPROACH

- Cold Weather Lay-up
- Laser Scanner Employment
- Repowering
- Factory Testing and Approvals
- Rapid Installation
DECK MODULE APPROACH

- **Simple, Standard, Robust**
  - Self-contained unit
  - Readily transportable
  - Custom designed & fabricated to ABS & USCG rules

- **Self-Sufficient System**
  - Contains all systems & outfitting of machinery space
  - Integrates easily with existing systems

- **Proven and Capable**
  - ABS & USCG approved for installation on US-flagged tank vessel
  - Units come completely assembled & tested
  - Modules include MSI & Glosten support
### DECK MODULE APPROACH

- **3D Laser Scanning Capabilities** allow us to:
  - Scan a vessel with 2-mm accuracy at a range of up to 330m
  - Create instantly viewable scan
  - Create point cloud for virtual walkthroughs and 3D model validation

✓ By scanning, we can identify space for integrated treatment solutions.
Contingency Measure – In Tank Treatment

Chemical Dosing of NaOCl

Hold Time less than 24 hours, Neutralize and Discharge
IN-TANK TREATMENT - BALLAST RESPONDER, MOBILE
GREAT LAKES CARRIERS – SPECIAL PROJECTS

- Lakers not currently required to install BWMS
- Trials ongoing since 2008, determining feasibility
JULY SHIPBOARD TESTING (CONT.)
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<td>Mobile Treatment Proven Practical. Salt and Fresh Demonstrations</td>
<td>Heading to Approvals, Demonstrations to Continue.</td>
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<td>Look to Alternative Solutions</td>
<td>Use of ‘public water supply’ is permitted, fresh water makers under review.</td>
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## BALLAST WATER – TREATMENT OPTIONS

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### Workboat Task List

- Ballast Management Plan
- Reporting and Recordkeeping
- Compliance Sampling
- Vessel Modifications and Operational Changes