U.S. Ballast Water Regulations

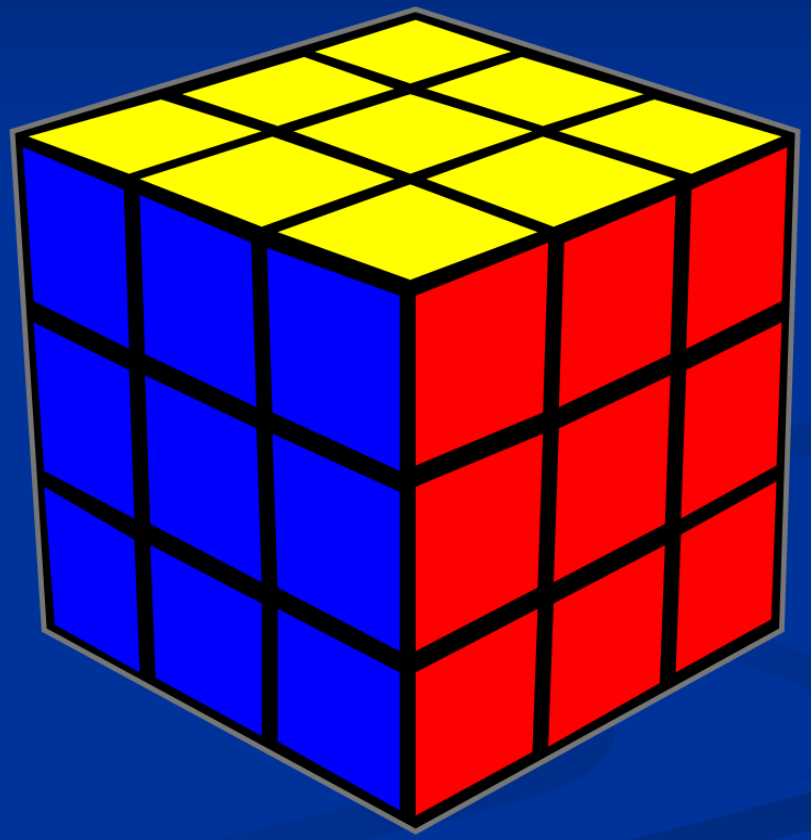
U.S. Coast Guard Headquarters
Office of Operating and Environmental Standards

U.S. Ballast Water Program

- Regulation - 33 Code Federal Regulations 151
  - effective June 2012
- Options for Compliance:
  - a.) Alternate Management Systems (AMS)
  - b.) Extensions to Compliance Dates
  - c.) US type approved BWMS
- USCG compared to IMO Type Approval
- Compliance and Enforcement
- Next Steps

Complex Problem

- Biology
- Engineering
- Vessel operations



Actually Really Complex

- Invasion biology
- Salinity & Turbidity
- Naval engineering
- Fleet operations and management
- Compliance strategies
- Maintenance and Repairs
- Port operations and facilities
- Installation requirements
- Operational requirements
- Volume/frequency of discharge
- Regulations leading technology
- Cost

USCG Program Offices

- Operating & Environmental Standards (OES)
  - Regulation & policy program manager
- Design & Engineering Standards (ENG)
  - 3rd Party Independent Lab manager
- Marine Safety Center (MSC)
  - Type approval manager
- Commercial Vessel Compliance (CVC)
  - Compliance manager

Options for Compliance

1. No BW Discharge

2. Coast Guard Approved Ballast Water Management System

3. Discharge to Facility Onshore or to Another Vessel for Purpose of Treatment

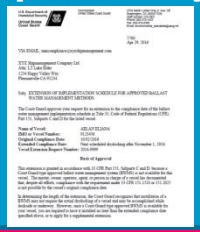
4. Use only water from a U.S. Public Water System

Two Temporary Compliance Alternatives

1. Alternate Management System (AMS) – Temporary Designation for up to 5 years

IMO INTERNATIONAL MARITIME ORGANIZATION

2. Receive an Extension to Vessel's Compliance Date - extension period will vary depending upon TA system availability



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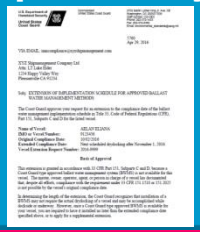

Temporary Compliance: Alternate Management Systems

- A BWMS is accepted for use as an AMS based on its type approval by a foreign administration.
- AMS may be used for 5 years after expiration of the vessel's **extended** compliance date
- Vessels with AMS can comply and must operate the AMS once their original/extended compliance date has passed.

Temporary Compliance: Alternate Management Systems

- More than 60 systems are now accepted as AMS for use in U.S. waters.

- https://homeport.uscg.mil/mycg/portal/ep/home.do

  (Select: Environmental Mission;

  Ballast Water Management Program;

  Alternate Management Systems (AMS))

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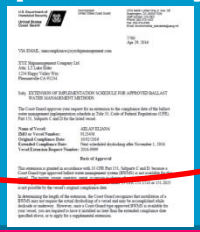

Temporary Compliance: Extensions

- Marine Safety Information Bulletin 03-17 (March 6, 2017) – Updated Guidance.
- Request Form is online: https://homeport.uscg.mil/mycg/portal/ep/home.do

  (Select: Environmental Mission; Ballast Water Management Program; **Regulations and Policy Documents**)

Temporary Compliance Extensions

- No longer align with scheduled dry docking dates.
- Extensions will grant:
  - 6 months to conduct an analysis of BWMS.
  - 30 months to accommodate installation plans.

- Vessels with a strategy to install an AMS typically granted 30 month extension (2.5 years), then add 5 year temporary acceptance = 7.5 years total

Temporary Compliance Extensions

- Extensions granted after March 6, 2017, will be considered the final extension to the vessel's compliance date.
- Extension letters will be honored and may be transferred to new owners.
- Failure to plan ahead may result in ship delays or lapse in eligibility to trade in U.S. waters.

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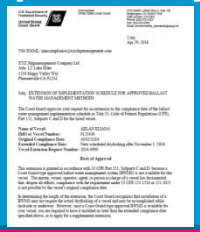


Type Approved BWTS

- Type Approval Certificates issued for:
  - Optimarin
  - Alfa Laval
  - OceanSaver
  - Sunrui
  - Ecochlor
- Applications currently under review:
  - Erma First
- Additional manufacturers have submitted Letters of Intent stating they intend to apply

Ballast Flow Rates

USCG Type Approved BWMS

Company	Type	Flow Rate (m^3/hr)
OceanSaver	Electro-chlorination	200 –7,200 (selling 1000 model)
Alfa Laval	Ultraviolet	85–3,000
Optimarin	Ultraviolet	167–3000
Sunrui	Electro-chlorination	170–8,500
EcoChlor	Chemical injection	500–16,200
ErmaFirst (applied)	Electro-chlorination	100–3,000

Typical Pumping Rates

Vessel Type	Flow Rate (m^3/hr)
Tanker	5,000 – 20,000
Float-on, float-off	10,000 – 15,000
Ore	10,000
Liquefied-gas	5,000 – 10,000
Dry bulk	5,000 – 10,000
Heavy lift	5,000
Barge-carrying cargo	1,000 – 2,000
Roll-on, roll-off	1,000 – 2,000
General cargo	1,000 – 2,000

Type Approval Review Process

Six-step application review process:

1. Application screening
2. Engineering review
3. Land-based test review
4. Shipboard test review
5. Component test review
6. Scaling review

How Type Approval Works

Per 46 CFR 162, an Independent Laboratory (IL) will evaluate:

a.) Test Data & Information from type approval testing by a foreign administration. Additional testing and evaluation by an IL may be required.

b.) Test Data & Information produced and submitted by an IL.

Independent Lab Program

USCG is working with ILs to ensure quality results, including regular teleconferences to discuss technical issues, certification reviews, and laboratory oversight. The IL program focuses on:

- Consistency in testing
- Best practices
- Lessons learned

Accepted Independent Labs

- NSF International (Ann Arbor, MI)
- Det Norske Veritas-Germanischer Lloyd (DNV-GL; Norway)
- Korean Register of Shipping (ROK)
- Control Union Certifications (Netherlands)
- Lloyd's Register EMEA (UK)

Coast Guard is in contact with other test organizations interested in acceptance as IL for BWMS testing.

Type Approval Process
USCG v IMO

- USCG Regulations are not the same as the IMO Implementation.
- Discharge standards are similar but not exactly the same - Viable (IMO) v. Living (USCG) organisms
- Differences between IMO and U.S. type approval testing

Type Approval Similarities

1. Readiness evaluation
2. Land-based testing
3. Shipboard testing
4. Environmental/
   Component testing
5. Treatment system scaling

Technical Differences

1. Discharge Standard
2. Shipboard Testing
3. Hold Time
4. Component / Environmental Testing

Summary of Technical Differences

	IMO G8	USCG
Discharge Standard	< 10 Viable Organisms	< 10 Living Organisms
Shipboard Testing	3 Test Cycles	5 Test Cycles
Hold Time	> 5 Days	> 24 Hours
Component / Environmental Testing	2 Hour Endurance Test	4 Hour Endurance Test

Compliance and Enforcement

- Regular vessel inspections include ballast water management (BWM)
  - BWM exams on foreign vessels: 9,300/year
- Follow existing compliance approach
  - Documentation, Equipment Condition and Operation, & Crew knowledge
- Deficiencies issued since 2012 Final Rule: ~600
- Enforcement actions: ~20 (warnings to $5,500 fines)

Next Steps

- USCG R&D - Sampling and analysis method and tools in development
- New NVIC in development for field units, industry
- Address challenges to type approval
  - Modification of system components (filters)
  - Scaling (size, flow rates)

Resources

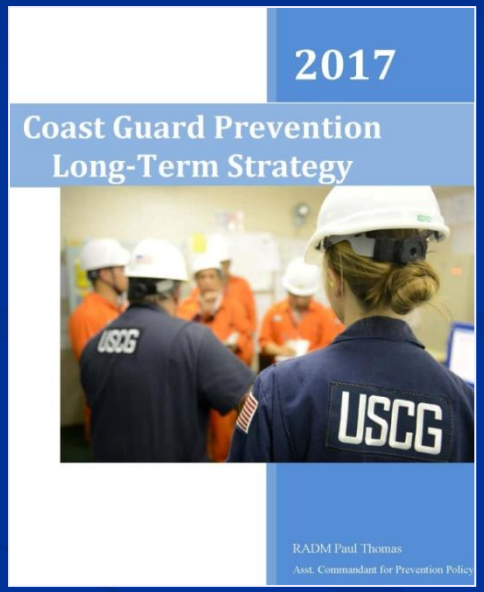
- **Coast Guard Internet Portal**
  - http://homeport.uscg.mil/ballastwater

- **Code of Federal Regulations**
  - 33 CFR Part 151 – Ballast Water Management
  - 46 CFR Subpart 162.060 – Type Approval

https://www.ecfr.gov/

USCG Prevention Long-Term Strategy

"Now, in addition to protecting against the risk of accidental release of pollutants, vessel designers and operators must also address the impact of waste streams including ballast water and air emissions. These changes have resulted in the incorporation of innovative design thresholds, new operational practices and additional engineering equipment. The drive for optimization and efficiency has generated environmental benefits, but has also created additional challenges for marine safety from new failure modes and increased complexity."



- **Rear Admiral Paul Thomas,**
  Asst. Commandant for Prevention Policy

Questions?

Points of Contact:

Vessel Compliance: cgcvc@uscg.mil

Type Approval: msc@uscg.mil

AMS/Extensions:

environmental_standards@uscg.mil