Meeting Report

6th GloBal TestNet Forum

9th to 11th December 2014
Plymouth Marine Laboratory, UK

Contents

GloBal TestNet Members and Observers at 6th Annual GloBal TestNet Forum at Plymouth Marine Laboratory, UK.

Day 1 – GloBal TestNet Management

1. Introduction

A total of 20 people representing 13 test facilities out of the 16 that signed the MOU in Busan were present at the meeting. Professor Stephen de Mora, Chief Executive of Plymouth Marine Laboratory, provided the welcome address to the participants, with brief history of Plymouth. Bill Davison chaired the meeting.

2. Review Criteria for Membership and Management

A. Every member should submit their brief quality statements (QMP, QAPP) and Conflict-of-Interest policy to the Secretariat, and the Secretariat will circulate those documents to the Steering Committee. Requests for membership were received from:

   i. David Wright
   ii. Klaas Kaag of IMARES
   iii. Metej David

B. The e-mail contact list has been corrected and updated for the members and observers. Observers will be emailed by the Secretariat canvasing their intention to stay on the list. It was suggested that a Point-of-Contact (POC) be established for each test facility for emailing purposes and the rest of people will be informed by POC.

C. Correspondence among the members will be organized by the GloBal TestNet Chair who will e-mail quarterly (minimum) any new and emerging issues among the members for discussion.

3. Process for Resolving Disagreement among Members

Members recognized that they need to set up a procedure for how to reach agreement on contentious issues during the rest of sessions. It was recognized that, at times, members may not always be able to reach agreement. Members recognize the importance of reaching a consensus on the issues related to the G8 review and present a unified GloBal TestNet voice to interested parties. This will help the building of confidence in the IMO Type Approval Process for ballast water management systems (BWMS). However, the members also understand that fundamental differences may exist between some members on specific items. As a compromise and to progress this issue, members agreed that if all members cannot agree on a certain subject or issue then they would say that GloBal TestNet is still considering or evaluating the issue rather than stating that there is disagreement or that certain members are not agreeing.

4. Progress since the 5th GloBal TestNet Forum

Sharing the SOP for zooplankton was proposed at the 5th meeting but just one test facility has submitted an SOP since the last meeting. Most importantly the process following

submission of SOPs has not been established (who will review the difference for instance). Challenge water may be more important and more influential when testing BWMS than harmonizing method for identifying the differences on SOP for viability and live/dead tests.

5. Review of Terms of Reference for the Secretariat

The ToR was reviewed and revised (see the revised ToR presented in Annex 2) which will be distributed among the members with this report.

6. Election of next year's Steering Committee & Secretariat

Plymouth Marine Laboratory will serve as the Secretariat for the year 2015.

Day 2 G8 Revision

1. Recapture from Singapore Workshop

The hot point was indicative analysis and detailed analysis done by Singapore MPA where the results of two analyses are not consistent with each other. GloBal TestNet could assist in validating indicative analysis developed by member states during land-based and shipboard testing for Type Approval.

2. Revisiting G8

Mario Tamburri led the discussion and suggested that we pick or prioritize the concerns raised by the International Chamber of Shipping (ICS) during MEPC 67 and add additional items that GloBal TestNet want to review and can agree. GloBal TestNet will submit a recommendation regarding G8 revision through a selected correspondence sub-group (See Annex 3 for the final submitted G8 comments document).

GloBal TestNet discussed the following three items and drew tentative agreements among the members present. We realized even before the meeting that we would not have time to cover all of the topics during the meeting, and decided to continue the remaining topics after the meeting via the sub-group. The primary vehicle for communication would be through email summarizing the position of each test facility on each of the outstanding issues. Tier I issues have been expanded to include several items following this discussion.

1. Testing being performed using fresh, brackish, and marine waters.

2. Testing considering the effect of temperature in cold and tropical waters on the operational effectiveness and environmental acceptability.

3. Type Approval testing discounting tests runs in the full scale testing that do not meet the D-2 standard and the results of the test runs being averaged.

Day 3

Continuing the discussion, we went over Day 2's review again and moved on to the next items on the Agenda.

A major topic extensively discussed was how to take a representative sample of discharged water during land-based and shipboard tests. Mario Tamburri introduced the merits of time-integrated sampling over discrete sampling under G8 guideline, which is not only statistically more robust but also better reflects the G2 guideline for discharge water sampling. Mario will draw up a short document about this sampling and will circulate it to members.

A general consensus was reached about incorporating organisms <10 μm into evaluating the performance of BWMS. However, there was strong disagreement on including it in the G8 review process at the moment.

GESAMP sent the GloBal TestNet their concerns on analysis of disinfection byproducts produced during treatment of test water, and provided recommendation for consideration. The group welcomed the suggestions and agreed to most and further to review the suggestions.

The following were also discussed:

1. Use of standard test organisms with validated testing methods.

2. Challenge levels set with respect to suspended solids in test waters - all modifications to challenge water biological, physical and chemical

1. Selection of 2015 Steering Committee

Allegra Cangelosi (GSI) was elected as the next chair of the committee together with committee members Yasuwo Fukuyo (Asia - Japan) and Stephen Gollasch (Europe - Germany).

The 7th GloBal TestNet Forum meeting (2015) will be held in the US hosted by Mario and Allegra.

2. Follow-up of the 6th meeting

The current chair will soon circulate the discussion and general agreements for G8 revision made during the meeting. Opinion from each test facility will be collected by the 3rd week of December and will be sent to Correspondence Group.

IMARES signed the MOU and formally joined the group.

Annexes

Annex 1 – 6th GloBal TestNet Forum Agenda

PML | Plymouth Marine Laboratory

Listen to the ocean

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6th Global TestNet Forum

9-11 December 2014

Plymouth Marine Laboratory
Prospect Place, Plymouth, Devon PL1 3DH, UK

AGENDA

Tuesday 9 December 2014 - (Management of TestNet) - GloBal TestNet MoU signatories and new signers

12.30 – 13:30 ***Registration & Buffet Lunch***

13:30	Health & Safety Welcome address Introductory remarks	Steve de Mora (*PML*) Etienne or other steering committee member
13:40	Review of Criteria for Membership in GloBal TestNet and formalize a process for the addition of new member/ Signing of MoU by (new) members	
14:20	Review of GloBal TestNet organizational structure and management	

15:00 ***Coffee Break***

15:30	Progress from existing GloBal TestNet Steering Committee	
16:00	Progress from initial GloBal TestNet Secretariat: Discuss, edit and approval of the Secretariat Terms of Reference (ToR)	
16:30	Establish a formal process for GloBal TestNet to review issues (selected by the members or brought to GloBal TestNet by others), to come to conclusions and provide formal statements or recommendations to IMO, administrations, and the broader stakeholder community	
17:00	Discussion of other business issues by Members	
17:30	Day end of the meeting and walk to the historic Barbican area of Plymouth	
18:00	***Tour of Plymouth Gin Distillery - This tour provides a fascinating 40-minute overview of the history of the Distillery as well as an introduction to how Plymouth Gin is made. At the end of every tour, visitors can buy souvenirs and choose between a free miniature of Plymouth Gin or enjoy a Plymouth Gin & Tonic in the Distillery's bar.***	

Wednesday 10 December 2014 - (G8 Revision) - open to members, advisors and observers

08:30	Registration, Introductions and brief update from each test facility
09:00	Presentation from Singapore workshop (Guillaume?)
10:00	***Coffee Break***
10:15	Review of G8 guideline and Discussion of the 6 points identified to be revised - issue 1 and 2 1 - Testing Being Performed Using Fresh, Brackish and Marine (Salt) Waters 2 - Testing Considering the effect of temperature in Cold and Tropical Waters on the Operational Effectiveness and Environmental Acceptability
12:30	***Group Photograph followed by Lunch***
13:30	Review of G8 guideline and Discussion of the 6 points identified to be revised - issue 3 and 4 3 - Specification of Standard Test Organisms for Use in Testing 4 - Challenge Levels Set with Respect to Suspended Solids in Test Waters
15:15	***Coffee Break***
15:30	Review of G8 guideline and Discussion of the 6 points identified to be revised - issue 5 and 6 5 - Type Approval testing Discounting Test Runs in the Full Scale Testing that DO NOT meet the D-2 Standard and the Results of the Test Runs Being Averaged 6 - Type Approval Testing Realistically Representing the Flow Rates the System is Approved For
17:00	Summarization of the discussion
17:30	End of the meeting
18:30	***Conference Dinner – an evening out at one of our local restaurants.***

Thursday 11 December 2014 - (Harmonization of Methods)

09:00	Identify differences in how current G8 is implemented by members of GloBal TestNet	
11:00	***Coffee Break***	
11:15	Combined sampling procedure G8 & G9 (GESAMP-BWWG)	
12:30	***Lunch***	
13:30	Validation of test facility cleanliness (Allegra) Alternatives to micromate for POC augmentation in US T-A testing	
14:30	Presentation from other test facilities regarding harmonization	
15:15	***Coffee break***	
15:30	More presentations from other test facilities regarding harmonization…	
16:00	Election of the new steering committee and secretariat 2015 meeting	
17:00	Closing Remarks & conclusion of the meeting	GloBal TestNet Chair

Annex 2 – Terms of Reference for GloBal TestNet Secretariat

TERMS OF REFERENCE

for the Secretariat of the

THE GLOBAL BALLAST WATER TEST ORGANIZATIONS NETWORK

or

"GloBal TestNet"

Version 3.0 revised by 6th Annual GloBal TestNet Meeting in Plymouth

Contents

1. Introduction

The 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments (The Ballast Water Management – BWM – Convention) started a new chapter on marine biological invasions. It mandates, upon entry into force, that every qualified vessel should have Type Approved Ballast Water Management Systems (BWMS) on board, a significant international step towards reducing the transfer of invasive organisms via ships' ballast water and sediments. The Type Approval processes engage nationally or internationally recognized and qualified testing laboratories in rigorous testing of BWMS prior to certification being issued in each country. Realizing the compelling need for harmonization among the test facilities in testing BWMS, the first meeting of test facilities around the continents was held at IMO Headquarters in London, in which Global TestNet Meeting was incepted. In 2010 the meeting was further formalized by the GEF-UNDP-IMO GloBallast Partnerships Programme and implemented as an activity under is Global Industry Alliance (GIA).

In 2013, at the 5th Global TestNet Meeting in Busan, Republic of Korea, a Memorandum of Understanding (also known as the Busan MoU) was signed by all participants representing sixteen testing organizations. The Busan MoU explicitly states the GloBal TestNet mission:

"*To promote comparable and accurate test results on the performance of ballast water management systems for certification, through an open exchange of information, transparency in methodologies and advancing the science of testing*".

In order to strengthen the capacity of the GloBal TestNet, the Republic of Korea offered to host the secretariat of the GloBal TestNet following the 5th GloBal TestNet Forum meeting, which was warmly welcomed by all members to the MoU.

2. Aims of the GloBal TestNet

The aims of the activities of the GloBal TestNet are provided in the MoU, which in general includes:

a. To discuss and/or share methods, analyses, procedures and protocols used to support certification testing, and provide insight and lessons learned, to help improve the overall quality and efficiency of BWMS testing by:

b. Working together toward consensus on standardization, to the extent possible, of test and analytical methods and approaches, to increase the comparability and accuracy of results among tests; and

c. Encourage a diverse input from scientific experts, including those outside the ballast water testing community.

3. Organization of GloBal TestNet

The GloBal TestNet is open to any organization involved in land-based and/or shipboard testing for the certification of BWMS under the BWM Convention and relevant Guidelines or other test protocols.

Referring to the MoU, GloBal TestNet consists of member organizations, observers and advisers. Further, the Steering Committee consisting of a president and two vice-presidents will lead and coordinate the activities of the GloBal TestNet. The Secretariat shall perform secretarial and administrative services and such other functions in support of the GloBal TestNet that are entrusted to it by the GloBal TestNet.

4. Secretariat

The scope of the Secretariat's work, in addition to the organizational setup is described in this Terms of Reference.

The Secretariat will be rotated sequentially among the three continents. The Secretariat's terms of office will be one year and can be extended with approval by a majority of the members.

The Secretariat is to perform the following functions:

a. To support the transfer of information within the organization and outside the organization upon the request of the steering committee.

b. To support administrative and organizational functions, including:

   I. maintaining a proper registration of members, observers and advisers with their respective contact details;
   II. administrative services concerning general correspondence;
   III. archiving of records;
   IV. transmitting reports to and from third parties;
   V. assisting the Chair in drafting meeting documents including final reports.

c. To support communication and outreach, including:
   I. developing and maintaining a website for and on behalf of the GloBal TestNet;
   II. facilitating and improving the quality and availability of information on the website;

III. recording, maintaining and posting, as appropriate, the records of the GloBal TestNet;
IV. developing strategic communication and outreach plans and other documents under the direct supervision of the Chair, in support of the GloBal TestNet.

d. All communication will be done in English, since English is the working language of the GloBal TestNet.

5. Legal Personality of the Secretariat

Except as expressly provided, nothing in this ToR is intended to, or shall be deemed to, establish any partnership, collaboration, or joint venture between the Members or other parties, constitute either Member the agent of another, nor authorize a Member to make or enter into any commitments for or on behalf of any other Member.

6. Budget

The GloBal TestNet does not have funds nor budget to cover any costs. Each Member is responsible for its own costs associated with activities under the MoU.

7. Amendments to these Terms of Reference

These Terms of Reference may be amended by the members of GloBal TestNet in consultation.

Annex 3 – GloBal TestNet G8Comments Dec 24 2014

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A number of organizations involved in the land-based and shipboard testing of Ballast Water Management Systems (BWMS) have established a global network to promote co-operation, comparability and accuracy of test results. The Global Ballast Water Test Organizations Network (GloBalTestNet) at its 6th annual meeting in Plymouth in December 2014 determined to put together this document to address the outstanding questions relating to revision of G8. The recommendations in this document represent the consensus opinion of the GlobalTestNet membership. Individual GloBalTestNet members may have other and/or more extensive individual comments and opinions which they may share with IMO parties.

Item: 1 Testing Being Performed Using Fresh, Brackish and Marine (Salt) Waters

GloBal TestNet recommends that BWMS should only be approved for the salinity range under which it has been tested (fresh, brackish and/or marine water). The rationale behind this statement is that systems may not perform similarly under all salinities. Salinity related affects include:

- Biological community composition (different species live in different salinities and may respond differently to different treatments);
- Operational effectiveness (specific salinities may be required by BWMSs to operated appropriately and to efficiently treat ballast water, e.g. electro-chlorination needing a minimum salinity);

- Environmental acceptability (salinity may affect the degradation and formation of disinfection by-products (DBP) during and after treatment).

Item: 2 Testing Considering the Effect of Temperature in Cold and Tropical Waters on the Operational Effectiveness and Environmental Acceptability

GloBalTestNet encourages BWMS manufacturers to test in multiple temperature regimes. GloBalTestNet further recommends that BWMS utilizing Active Substances should be only approved under G9 for the temperature range under which it has been tested (under G8) and/or otherwise suitably evaluated under G9 (e.g., literature review, lab or bench-scale experiments, simulations and modelling) for operational effectiveness and environmental acceptability. The rationale behind this statement is that systems may not perform similarly under all temperatures. Temperature may affect:

- Operational effectiveness (minimum and/or maximum temperatures may be required by some BWMS to efficiently treat ballast water); and/or
- Environmental acceptability (temperature affects the degradation and formation of e.g. disinfection by-products [DBP] during and after treatment).

Item: 3 Information on Test Organisms.

GloBal TestNet recommends that taxonomic information (lowest taxonomic group practicable), proportion of both ambient vs. added organisms (if any) in the challenge water, and the proportion of any live Standard Test Organisms in discharge be reported for each replicate test trial or cycle.

Item: 4 Challenge Levels Set with Respect to Suspended Solids in Test Waters

GloBal TestNet intends to evaluate G8 recommendations for all challenge water biological, physical and chemical test conditions, including total suspended solids, to determine if requirements should be modified to better reflect “real world” conditions and to provide recommendations on appropriate, scientifically sound and validated approaches for altering or augmenting challenge water.

Item: 5 Discounting Test Runs in Type Approval Testing that DO NOT meet the D-2 Standard and the Results of the Test Runs Being Averaged

Results of replicate test trials or cycles should not be averaged, that each test trial valid and successful should meet the D-2 standards, and that five consecutive, valid and successful trials for each salinity in land-based testing be required for Type Approval Certification (similar to the three consecutive successful trials required in shipboard testing).
In agreement with Circular BWM.2/Circ.43 GloBal TestNet recommends that the complete history of testing (both valid and invalid test cycles) needs to be reported including:

- All valid trials;
- Compromised trials due to problems with test facility or ship procedures or components;
- Invalid trials due to not meeting challenge conditions or control water minimum requirements on discharge;
- Unsuccessful trials due to failure because of BWMS mechanical performance; and
- Unsuccessful trials in which the D-2 Ballast Water Performance Standard was not met on discharge.

Documentation, methods and procedures such as QAPP should be designed to avoid uncertainties in each of these categories in which a specific replicate test trial or cycle falls. Any deviations from the test plan shall be noted in the test report.

Item A and C Validated Methods and Validated Facilities
GloBalTestNet recommends that both methods and facilities used in G8 testing (land-based and shipboard) be validated as appropriate and peer-reviewed when possible. We will work toward clearly defined approaches for validation based on the format described in Drake et al. 2014.

Item D and F Independent and QA/QC
Test facilities should be independently operated without any interference or influence of the BMWS manufacturer during the tests and should have a quality assurance system following an internationally recognized approach (e.g., the International Organization for Standardization).

Item G Test Report Include: 1. Installation, commissioning, repair and maintenance. 2. Documentation of environmental tests. 3. Full reporting of both valid and invalid tests. 4.

Public reporting of Documents.

GloBalTestNet agrees with standardized reporting, including:

- that taxonomic information (lowest taxonomic group practicable), and proportion of organisms in the various taxonomic groups identified, in the challenge water should be reported for each test cycle;
- that test reports should be limited to presenting the results and should not provide recommendations or conclusions on the BWMS performance;
- that, in agreement with Circular BWM.2/Circ.43, the complete history of testing needs to be reported including:
    - All valid trials;
    - Compromised trials due to facility or ship procedure or component failure;
    - Invalid trials due to not meeting challenge conditions or control minimum organism concentrations on discharge, etc.;
    - Aborted trials due to BWMS mechanical failure; and
    - Unsuccessful trials in which BWMS performance did not meet the D-2 standard.

Item I Should upgrades & redesigns be allowed during testing?

GloBal TestNet believes that no upgrades or redesigns should be allowed during formal G8 testing, and if modifications are required, complete retesting of the BWMS should be conducted. In particular, major components should not be changed during testing and it is the responsibility of the Administration to respond to requests for changes to components of BWMSs with existing Type Approval Certifications.

Item R Holding Time

GloBal TestNet has reviewed the document submitted by Norway and Singapore (MEPC 63/2/16) related to the holding time effect of testing at different temperatures (reference to storage time in G8 guidelines) and recommends that land-based testing should only be performed with storage of no more than 5 days to assure that control discharge contains adequate live organisms for the tests to demonstrate treatment effectiveness.

GloBalTestNet also recommends that the precise storage time applied during shipboard and land-based testing should be reported.

***Added Item** Sample Collection for Type Approval Testing (G8) and Compliance Monitoring (G2)

GloBalTestNet recommends that sampling under the G8 Guidelines incorporates the recommendations put forward in the G2 Guidelines and related Circular (BWM.2/Circ.42) for "representative sampling", including (a) isokinetic, continuous, time-integrated sampling and (b) use of the total volume of interest sampled in each replicate land-based or shipboard test trial as the unit of replication. This approach would avoid pseudo-replication, maximize statistical confidence, and harmonize sampling methods between how BWMSs are tested for Type Approval Certification (G8) and how vessels are monitored for compliance with D-2 Standards (G2).

GloBal TestNet also recognizes that "representative sampling" is typically much more difficult to achieve during shipboard testing of BWMSs on actively cargo carrying vessels than during controlled land-based testing. While shipboard testing is meant to complement land-based testing (e.g., shipboard results are consistent with and support those found during land-based testing) and to evaluate "real-world" operational performance of BWMSs, every effort should also be taken to collect representative samples.

References

BWM.2/Circ.42, Guidance on ballast water sampling and analysis for trial use in accordance with the BWM Convention and Guidelines (G2). Marine Environment Protection Committee, 24 May 2013. International Maritime Organization, London

BWM.2/Circ.43, Amendments to the Guidance for Administrations on the type approval process for ballast water management systems in accordance with Guidelines (G8). Marine Environment Protection Committee, 29 May 2013. International Maritime Organization, London

Drake LA, Tamburri MN, First MR, Smith GJ, Johengen TH, 2014. How many organisms are in ballast water discharge? A framework for validating and selecting compliance monitoring tools. Marine Pollution Bulletin 86, 122–128

G2, Guidelines for ballast water sampling. Marine Environment Protection Committee, Resolution MEPC.173(58), 10 October 2008. International Maritime Organization, London

G8, Guidelines for approval of ballast water management systems. Marine Environment Protection Committee, Resolution MEPC.174(58), 10 October 2008. International Maritime Organization, London

G9, Procedure for approval of ballast water management systems that make use of active substances. Marine Environment Protection Committee, Resolution MEPC.169(57), 4 April 2008. International Maritime Organization, London