HFO
MGO
Crystal Ballast
After Sales



HE 122/2015 vp
Liikenne- ja viestintävalikunta

Ville Kaataja
Tuotepäällikkö, BWT
9.3.2016

AURA MARINE

Auramarine Oy

- Perustettu vuonna 1974
- Liikevaihto 30,8 M EUR (2015)
- 50 työntekijää Suomessa
- 100 työntekijää Kiinassa
- Kehittänyt BWT laitteistoja vuodesta 2008, lopettanut tuotteiden myynnin vuonna 2015



Auramarinen toimitilat Littoisissa, Turun kupeessa

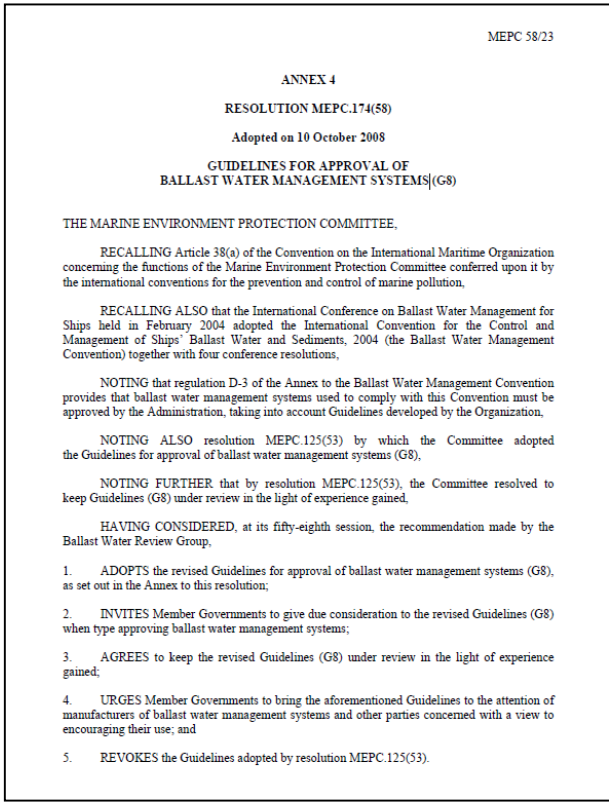
- Auramarine on osa perheomisteista Hollming-konsernia
- Konsernin liikevaihto 135,4 M EUR (2014)



Auramarinen toimitilat Shanghaissa Kiinassa

OHJEET PAINOLASTIVEDENKÄSITTELYLAITTEIDEN HYVÄKSYTTÄMISEEN (IMO G8)

- Arviointitutkimus
  - *Arvioidaan BWMS järjestelmän valmiutta G8 hyväksyntätesteihin*
- Maatestit
  - *Maatestien tarkoituksena on osoittaa BWMS laitteiston biologisen tehokkuus ja ympäristöllinen sopivuus*
- Meritestit
  - *Tarkoituksena on osoittaa että BWMS laitteisto pystyy täyttämään D-2 vaatimukset laivassa*
- Ympäristötestit
  - *Tarkoituksena on osoittaa että BWMS laitteisto sopii käytettäväksi laivaympäristössä*



MEPC 58/23

ANNEX 4

RESOLUTION MEPC.174(58)

Adopted on 10 October 2008

GUIDELINES FOR APPROVAL OF BALLAST WATER MANAGEMENT SYSTEMS (G8)

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee conferred upon it by the international conventions for the prevention and control of marine pollution,

RECALLING ALSO that the International Conference on Ballast Water Management for Ships held in February 2004 adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (the Ballast Water Management Convention) together with four conference resolutions,

NOTING that regulation D-3 of the Annex to the Ballast Water Management Convention provides that ballast water management systems used to comply with this Convention must be approved by the Administration, taking into account Guidelines developed by the Organization,

NOTING ALSO resolution MEPC.125(53) by which the Committee adopted the Guidelines for approval of ballast water management systems (G8),

NOTING FURTHER that by resolution MEPC.125(53), the Committee resolved to keep Guidelines (G8) under review in the light of experience gained,

HAVING CONSIDERED, at its fifty-eighth session, the recommendation made by the Ballast Water Review Group,

1. ADOPTS the revised Guidelines for approval of ballast water management systems (G8), as set out in the Annex to this resolution;

2. INVITES Member Governments to give due consideration to the revised Guidelines (G8) when type approving ballast water management systems;

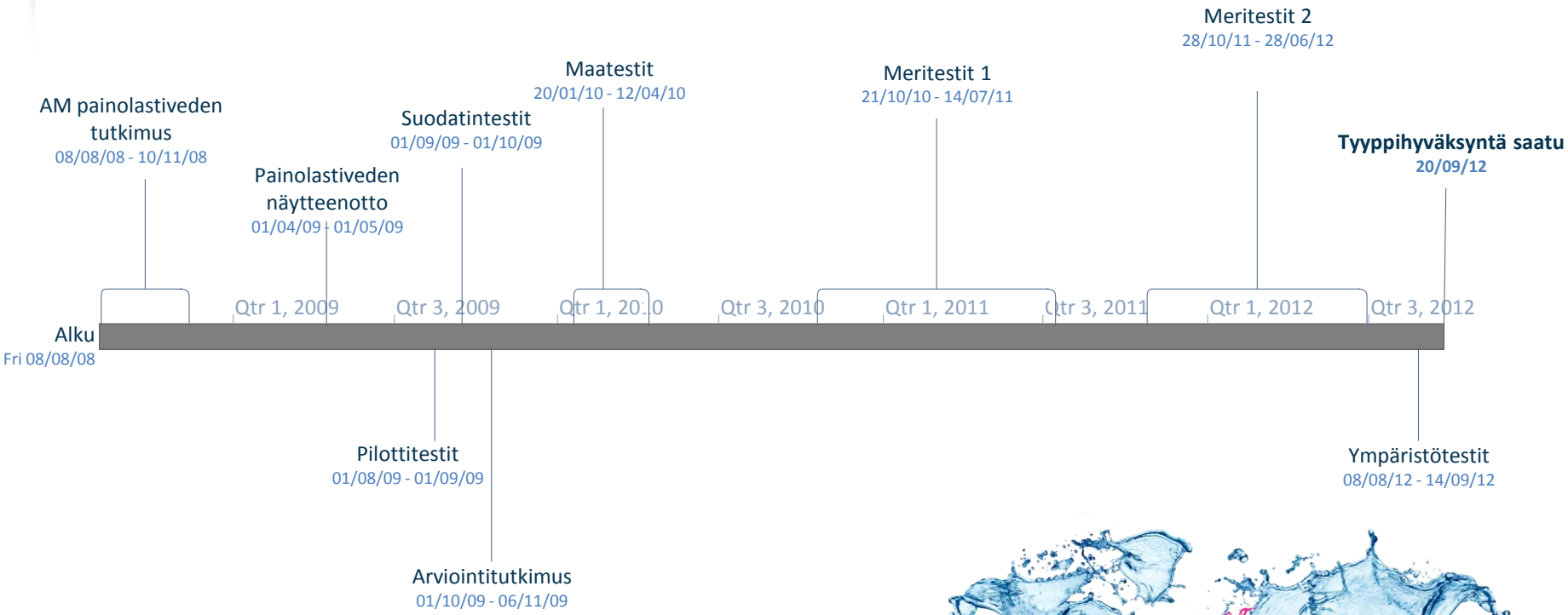
3. AGREES to keep the revised Guidelines (G8) under review in the light of experience gained;

4. URGES Member Governments to bring the aforementioned Guidelines to the attention of manufacturers of ballast water management systems and other parties concerned with a view to encouraging their use; and

5. REVOKES the Guidelines adopted by resolution MEPC.125(53).

Orangism category	Discharge Standards(Regulation)
Organisms 10㎛~50㎛	< 10 Ind/㎖
Organisms >50㎛	< 10 Ind/㎥
Toxigenic vibrio Cholerae(O1,O139)	< 1cfu/100㎖
Escherichia Coli	< 250 cfu/100㎖
Intestinal Enterococci	< 100 cfu/100㎖

Auramarinen tyyppihyväksyntäprosessi





Painolastiveden näytteenotto(4-5/2009)

- Auramarine halusi selvittää kuinka G8:n fysikaaliset & kemialliset vaatimukset testivedelle korreloivat Euroopan satamien vesiin
- Useista Euroopan satamista kerättiin n. 20 näytettä kevään 2009 aikana
  - Tulokset olivat yhdenmukaisia G8 maatestivaatimuksiin nähden



Maatestit (1-4/2010)

Test result salinity range 3-32 PSU

Organism Type	Influent Water	IMO req.	Discharge control	IMO req.	Discharge treated	IMO req.
> 50 µm [m^{-3}]	Average 181 475 Min. 150 479	≥ 100 000	Average 28 248 Min. 17 139	> 100	Average 2.2 Max 4.0	< 10
Phyla > 50µm [Quantity]	Average 5.8 Min. 5	≥ 3 different	24h recount: Average 24 284 Min 14 539	-	24h recount: Average 0.5 Max 1.0	-
Species > 50µm [Quantity]	Average 12.2 Min. 11	≥ 5 different		-		-
10-50µm [a] [ml^{-1}]	Average 2400 Min. 1400	≥ 1000	Average 1620 Min. 900	> 100	Average 0.2 Max. 0.4	< 10
Phyla 10 -50µm [Quantity]	Average 3.4 Min. 3	≥ 3 different		-		-
Species 10-50µm [Quantity]	Average 19.2 Min. 17	≥ 5 different		-		-
Heterotrophic bacteria [ml^{-1}]	Average 1.3×10^4 Min. 1.0×10^4	≥ 10 000		-		-
Coliform bacteria [/100ml]	< 1	-		-	< 1[b]	< 250
Vibrio spp. [/100ml]	Average 1.6×10^4	-		-		-
Vibrio cholerae [/100ml]	< 1	-		-	< 1[c]	< 1
Enterococcus group [/100ml]	Average 0.8	-		-	< 1[d]	< 100
Salinity [PSU]	Average 21.4 Min. 21.2 Max. 21.7	3 - 32		-		-
POC [mg C/l]	Average 5.3 Min 4.8	> 5		-		-
DOC [mg C/l]	Average 5.2 Min. 5.0	> 5		-		-
TSS [mg/l]	Average 52 Min. 50	> 50		-		-

[a] Only the result of the dilution culture method is presented
[b] The figures refer to the number identified as *Escherichia coli*/100 ml within the group of coliform bacteria.
[c] The figures refer to the number identified as *Vibrio cholerae*/100 ml after five days storage.
[d] The figures refer to the number identified as intestinal *Enterococci*/100 ml within the group of Enterococcus.

Test result salinity range > 32 PSU

Organism Type	Influent Water	IMO req.	Discharge control	IMO req.	Discharge treated	IMO req.
> 50 µm [m^{-3}]	Average 168 035 Min. 144 013	≥ 100 000	Average 25 184 Min 19 365	> 100	Average 2.2 Max 8.0	< 10
Phyla > 50µm [Quantity]	Average 5.2 Min. 5	≥ 3 different	24h recount: Average 19 137 Min 14 454	-	24h recount: Average 0.7 Max 3.0	-
Species > 50µm [Quantity]	Average 13 Min. 11	≥ 5 different		-		-
10-50µm [a] [ml^{-1}]	Average 2667 Min. 1600	≥ 1000	Average 2133 Min. 1600	> 100	Average 0.3 Max. 1.3	< 10
Phyla 10 -50µm [Quantity]	Average 4 Min. 4	≥ 3 different		-		-
Species 10-50µm [Quantity]	Average 18.8 Min. 16	≥ 5 different		-		-
Heterotropic bacteria [ml^{-1}]	Average 1.5×10^4 Min. 1.1×10^4	≥ 10 000		-		-
Coliform bacteria [/100ml]	< 1	-		-	< 1[b]	< 250
Vibrio spp. [/100ml]	Average 2.6×10^3	-		-		-
Vibrio cholerae [/100ml]	< 1	-		-	< 1[c]	< 1
Enterococcus group [/100ml]	< 1	-		-	< 1[d]	< 100
Salinity [PSU]	Average 32.3 Min. 32.1	> 32		-		-
POC [mg C/l]	Average 3.0 Min 2.7	> 1		-		-
DOC [mg C/l]	Average 2.2 Min. 1.9	> 1		-		-
TSS [mg/l]	Average 16 Min. 13	> 1		-		-

[a] Only the result of the dilution culture method is presented
[b] The figures refer to the number identified as *Escherichia coli*/100 ml within the group of coliform bacteria.
[c] The figures refer to the number identified as *Vibrio cholerae*/100 ml after five days storage.
[d] The figures refer to the number identified as intestinal *Enterococci*/100 ml within the group of Enterococcus.

Meritestit (10/2011-6/2012)

Table 6.3 Total sample volumes and average concentrations of viable organisms in the size class ≥50 µm. Specific data and individual sample volumes are provided in Appendix B.

Test cycle	Inlet water		Control discharge water		Treated discharge water	
	Total sample volume (m^3)	Organ-isms/m^3	Total sample volume (m^3)	Organ-isms/m^3	Total sample volume (m^3)	Organ-isms/m^3
CB250-Test#1	3.718	10,256	3.547	5,553	10.092	0.20
CB250-Test#2	3.763	3,518	3.873	1,897	10.311	0
CB250-Test#3	3.711	14,115	3.617	11,466	9.573	0
CB250-Test#4	3.523	7,811	3.593	6,368	9.627	0.21
CB250-Test#5	3.327	29,037	3.696	21,517	10.023	0
CB250-Test#6	3.515	21,651	3.323	12,676	9.873	1.9
IMO G8	>3	>90	>3	>10	>9	<10

Meritestit (10/2011-6/2012)

Test cycle	Water type	Microscopy (organ-isms/mL)	MPN (organ-isms/mL)	Primary production	
				DPM	Decrease (%)
CB250-Test#1	Inlet water	134	>160	487	100
	Control discharge water	98	>160	288	
	Treated discharge water	-	<0.18	0.21	
CB250-Test#2	Inlet water	209	>160	666	99.3
	Control discharge water	161	>160	530	
	Treated discharge water	-	<0.18	4.5	
CB250-Test#3	Inlet water	212	>160	1,012	99.6
	Control discharge water	291	>160	981	
	Treated discharge water	-	<0.18	4.4	
CB250-Test#4	Inlet water	108	140	266	98.7
	Control discharge water	46	>160	376	
	Treated discharge water	-	0.48	3.4	
CB250-Test#5	Inlet water	117	>160	808	100
	Control discharge water	91	>160	607	
	Treated discharge water	-	<0.18	0	
CB250-Test#6	Inlet water	403	>160	637	99.7
	Control discharge water	356	102	532	
	Treated discharge water	-	0.21	2.0	
IMO G8	Inlet water	>90	-	-	-
	Control discharge water	-	>10	-	-
	Treated discharge water	-	<10	-	-

MPN Most probable number
DPM Disintegrations per minute

Yhteenveto

- Tyyppihyväksyntä sertifikaatin hankinta on pitkä ja kallis projekti
- CrystalBallast ® BWMS testattiiin perusteellisesti neljän vuoden aikana ja se täytti kaikki G8 vaatimukset



- Auramarine tukee hallituksen esitystä painolastivesien käsittelyä koskevan kansainvälisen yleissopimuksen hyväksymisestä

