



Compliance Systems, Inc.

Final Environmental Audit M/T Estia

Conducted May 21-25, 2011
Underway Paldiski, Estonia to Skagen, Denmark

In the matter of:

United States of America

v.

Ionia Management, S.A.
Case No. 3:07CR134 (JBA)

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June 15, 2011

**M/T ESTIA
Final Environmental Audit
Conducted Underway between Estonia and Denmark
May 21-25, 2011**

Preliminary

The undersigned conducted a Final Environmental Audit aboard the M/T Estia, IMO No. 9327035, while the vessel was moored at Alexela Terminal Berth #7, Paldiski Lounasadam, Estonia and later underway from Paldiski to an anchorage off of Skagen, Denmark, enroute to West Africa. I joined the vessel at Paldiski, Estonia.

Upon boarding, the vessel was loading unleaded gasoline. I boarded the vessel at 1445 on 21 May 2011. The vessel was scheduled to depart the pier the following day. The opening meeting and documentation check and interviews with some staff were carried out on 21 May 2011. The physical inspections and testing of the equipment was carried out when the vessel was underway, while operating under normal conditions. The closing meeting was held prior to disembarkation with the CCM aboard. I, along with the Ionia shore side personnel disembarked the vessel at 1430 on May 25, 2011.

The MT Estia is a crude oil and product carrier of 42,048 gross tons, built by New Century Ship Building Co. Ltd., Xin Giang, China and delivered on April 12, 2007. The vessel has a total capacity of 84,497 m³ at 98% load condition. The vessel is powered by MAN-B&W 5S60MC-C with an output of M.C.R. 11,300KW at 105 RPM giving a service speed of 14.5 knots. Vessel particulars are attached. This vessel is a sister ship of the MT Ploutos.

Audit participants included:

Evangelos Tournaris, Master
Ionnis Varthalitis, Chief Engineer
Rogelio Sari, Chief Officer
Jaime Alibuyog, Second Engineer
Dan Grafil, Third Engineer
Nicanor Umali, Electrician

In addition to the above, George Karagiorgis, Corporate Compliance Manager (CCM) for the company, was present during the audit. Also, the company electrician was onboard the vessel. They both arrived onboard the vessel on May 16, 2011. Also, various crewmembers from all



departments were interviewed at different times with regard to their duties related to environmental aspects of ship operation and awareness.

The schedule of the initial audit was as follows:

May 21, 2011

1445	Arrive aboard vessel, moored at Paldiski Lounasadam, Estonia
1450-1500	Met with Captain. Set up meeting with senior officers
1500-1515	Opening Meeting with Master, Chief Officer (C/O), Chief Engineer (C/E), and Second Engineer (2/E) and CCM.
1515-1700	Review of Master Env Review (ENV 014), certificates, fleet engineering surveys (ENV 015), Internal Environmental Audit (ENV 016), SOPEP, and VRP.
1700-1730	Dinner with CCM: discussions about audit
1730-2000	Review of Ballast Water Management plan and documents.
2000	Retire for evening.

May 22, 2011

0730-0800	Breakfast.
0800-0900	Review safety committee minutes, observed Anonymous Reporting poster. Review of EMS
0900- 925	On bridge observing vessel underway from pier.
0925-1100	Reviewed ENV 024, ENV 003, ENV 004, Garbage Record Book (GRB) and Garbage Management Plan (GMP), garbage receipts, ENV 010, reviewed handover notes. Reviewed ENV 011, ENV 012, ENV 014, ENV 015, ENV 016, ENV 017, ENV 018A, ENV 018B, ENV 20, and ENV 21.
1100-1230	In engine room. Observed daily tank sounding. Inspected seals on piping in engine room, observed engine room while vessel under way. Inspected steering gear flat. Inspected OWS and associated piping.
1100	Completed maneuvers for departure from pier.
1230-1300	Lunch
1300-1800	In engine room. Observed attempt for monthly operational test of OWS using test fluid. Reviewed critical pollution prevention spare parts. Inspected STP and associated chemicals. Inspected opened Clean BHT and observed samples taken of BHT and bilge wells. Witnessed starting of incinerator burning sludge. Reviewed computer PMS for pollution prevention equipment. Reviewed ORB.
1800-1830	Dinner
1830-1930	Reviewed OWS/OCM/Incinerator/STP manuals. Reviewed Sounding Log.
1930	Retire for evening

May 23, 2011

0730-0800	Breakfast.
0800-1000	Observed incinerator being shut down and observed daily tank sounding. Observed test of OWS three way valve and alarm. OWS one hour operational test started.



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1000-1040 Went into Cargo pump room with C/O to observe condition of space and to see ODME sampling line. C/O conducted satisfactory test of ODME.
1040-1100 Observed shut down of OWS for hour operational test.
1100-1130 Conducted deck with C/O including inspection of deck garbage storage, flexible hose storage and SOPEP locker.
1130-1215 Review of EMS and notes
1215 -1230 Lunch
1230-1300 Review of notes
1300-1400 Review of training and drill records.
1400-1530 Review of EMS and began audit write up.
1530-1600 Observed SOPEP drill on starboard side cargo manifold
1600-1615 Went into Cargo pump room to observe installed ODME seals
1615-1815 Continued audit review and write up.
1815-1845 Dinner.
1845-1915 Discussed list of deficiencies with CCM
1915-2000 Reviewed VGP/NPDES weekly and quarterly inspections. Reviewed last internal environmental audit.
2000 Retire for evening

May 24, 2011

0730-0800 Breakfast.
0800-1000 In engine room. Observed sounding of the sludge tanks and compared this to SWOMS.
1000-1200 Continued audit write up.
1200-1230 Lunch
1300-1430 Review of notes and EMM.
1430-1830 Review of Cargo Record book and receipts. Review of PMS for BHT cleaning, Master Environmental Review meeting notes.
1830-1900 Dinner
1900-2000 Observed sounding of tanks. Entered data into report.
2000 Retired for the evening.

May 25, 2011

0730-0800 Breakfast.
0800-1000 In engine room. Observed sounding of the sludge tanks and compared this to SWOMS.
1000-1200 Continued audit write up.
1200-1230 Lunch
1300-1430 Review of notes and EMM.
1430 Departed vessel.

The audit was conducted in accordance with Attachment A, Section B of the Special Master Appointment and Scope of Work pursuant to the criminal case, United States of America v. Ionia Management S. A., Criminal No.3: CR134 (JBA). The audit process consisted of a review of Safety Management System (SMS) and Environmental Management System (EMS) documents; records and procedures related to environmental matters; MARPOL required logs and records; inspection and testing of vessel waste handling equipment, including the oily water



separator (OWS), incinerator, sewage treatment plant (STP); and interviews with vessel personnel.

To implement the EMS, Ionia Management has recently developed an Environmental Management Manual (EMM), which has been placed aboard. The EMM contains environmental policies and procedures in alignment with the Scope of Work, as well as additional environmental procedures, developed by Ionia Management. In addition, environmental procedures are also contained in the vessel's SMS Manual. Ionia Management is also certified for ISO 14001/2004, DNV certificate No. 24257-2008-AE-HRV-RvA, issued on April 08, 2008 with expiry on April 08, 2011.

Overall, I found the environmental procedures and requirements to be well implemented. I found the officers and crew to be very cooperative and positive throughout the audit. Senior officers, including the Master, C/E. and C/O were knowledgeable of the Scope of Work requirements and the EMM and appeared fully committed to the purpose and philosophy of the EMM. This was clearly demonstrated throughout my audit and during discussions with these officers. A previous ongoing audit on this vessel was conducted on December 3-4, 2010.

Following are my observations and comments. They are supported by the attached EMS Audit Checklist and the enclosures to this report. The observations are separated into two categories - those with recommendations and those without. Many of the recommendations relate to improvement of the existing EMS and do not necessarily reflect deficiencies or non-conformities with the requirements of the Scope of Work. The second category of Observations is primarily included in the audit report to provide an understanding of the functionality of the EMS aboard.

Observations with Recommendations

1. Section 5.16 of the EMM states that the OCM sampling line must be painted orange. Some of this piping was not painted orange. See photos.
2. Section 5.17 of the EMM has a very thorough explanation of how the OWS is to be tested on a monthly basis. There have been entries in the ORB stating these tests have been conducted on a monthly basis. While onboard the vessel it was identified that the engineers cannot do the test as described in the EMM. It is recommended the EMM be modified to describe how this test can be successfully accomplished on this vessel. This vessel does not have the proper piping arrangement to allow for in port testing. See photos.
3. The ongoing audit found that "all the staff on board did not go through the pre-joining training in Environmental Awareness. It is recommended that the management develop specific training programs for the manning centers in Philippines with copies of training material on board and copies of certificates for the crew trained prior joining the vessel." During this audit the pre joining Environmental Awareness training stated it covered ISO 14001. It did not state that training was conducted specific to Ionia's EMM. It is recommended that such training specifically state it addresses Ionia's EMM. See attached.



4. SWOMS data for tank soundings was compared against manual tank soundings which I observed while I was on board the vessel. Please note that the F.O. Purifier Sludge tank had a difference between the SWOMS and manual soundings of between 10-11%. It is recommended this be investigated. The following table shows the results:

Tank	Cap. (m ³)	Manual (cm)	Manual (m ³)	SWOMS (cm)	SWOMS (m ³)	% Diff. (m ³)
Clean Bilge	32.21	95	10.22	91	9.81	1.27
Dirty Bilge	32.49	103	12.17	97	11.41	2.34
Bilge Oil	11.89	5	0.035	8	0.05	0.13
Incinerator	2.14	144	1.91	143	1.94	1.40
FO Sludge	11.89	37	0.68	25	0.36	2.69
LO Purif. Sludge	4.56	6	0.38	9	0.55	3.73
FO Purif. Sludge	7.98	18	1.76	9	0.97	9.90

Tank	Cap. (m ³)	Manual (cm)	Manual (m ³)	SWOMS (cm)	SWOMS (m ³)	% Diff. (m ³)
Clean Bilge	32.21	106	12.13	113	12.92	2.45
Dirty Bilge	32.49	104	12.33	96	11.23	3.39
Bilge Oil	11.89	6	0.04	8	0.05	0.08
Incinerator	2.14	101	1.38	114	1.49	5.12
FO Sludge	11.89	36	0.65	24	0.34	3.11
LO Purif. Sludge	4.56	5	0.33	9	0.55	4.82
FO Purif. Sludge	7.98	19	1.85	9	0.96	11.15

Tank	Cap. (m ³)	Manual (cm)	Manual (m ³)	SWOMS (cm)	SWOMS (m ³)	% Diff. (m ³)
Clean Bilge	32.21	76	7.64	78	7.71	0.22
Dirty Bilge	32.49	105	12.49	98	11.60	2.74
Bilge Oil	11.89	7	0.045	9	0.05	0.04
Incinerator	2.14	107	1.40	115	1.52	5.59
FO Sludge	11.89	124	4.53	114	4.09	3.70
LO Purif. Sludge	4.56	5	0.33	9	0.55	4.82
FO Purif. Sludge	7.98	20	1.93	10	1.05	11.03



Tank	Cap. (m ³)	Manual (cm)	Manual (m ³)	SWOM S (cm)	SWOMS (m ³)	% Diff. (m ³)
Clean Bilge	32.21	75	7.50	78	7.63	0.40
Dirty Bilge	32.49	106	12.65	99	11.67	3.02%
Bilge Oil	11.89	7	0.045	8	0.05	0.04
Incinerator	2.14	107	1.40	116	1.52	5.59
FO Sludge	11.89	126	4.65	114	4.10	4.63
LO Purif. Sludge	4.56	6	0.38	9	0.55	3.73
FO Purif. Sludge	7.98	20	1.93	11	1.10	10.40

Tank	Cap. (m ³)	Manual (cm)	Manual (m ³)	SWOM S (cm)	SWOMS (m ³)	% Diff. (m ³)
Clean Bilge	32.21	74	7.37	78	7.69	0.99
Dirty Bilge	32.49	106	12.65	99	11.64	3.11
Bilge Oil	11.89	6	0.04	8	0.05	0.08
Incinerator	2.14	112	1.47	119	1.58	5.12
FO Sludge	11.89	123	4.47	114	4.11	3.11
LO Purif. Sludge	4.56	6	0.43	9	0.55	2.63
FO Purif. Sludge	7.98	19	1.84	9	0.98	10.78

5. The previous ongoing audit suggested that for form ENV 023 since information is available daily, *"consideration should be given to amending the form to require daily comparisons and if discrepancies found are large, Ionia Management should be informed. (The daily sounding book forms are sent to management on a monthly basis)."* This recommendation does not appear to have been enacted by this vessel. Furthermore, this form is being filled out daily; however, all of the tanks being recorded by the enviro-logger are not being entered into the form. There are a total of seven tanks and three bilge wells being recorded in the SWOMS. Only four tanks and three bilge wells are being recorded on this form. It is recommended the C/E include all seven tanks being recorded in the SWOMS be placed on the form. See attached.
6. The Master's Handover Notes (ENV 23 A) did not have an inventory of the spare seals on board the vessel. Item A4 of the form requires such an inventory. It is recommended this be done.
7. Section 5.21 of the EMM states that "Seals with unique identification numbers shall be placed on the flanges on the vessel's ODME sample lines and flow connections." Only one seal was placed on one flange. All of the other flanges did not have seals. This was resolved before I left the vessel. See photos.



8. The EMM states that the OWS source tank be cleaned every six months and logged in the Oil Record Book. The latest entry in the ORB related to cleaning of the BHT was on October 19, 2010. There is no entry in the ORB for March, April or May 2010 related to the cleaning of the ORB.
9. The Fleet Engineering Surveys (form ENV 015) were reviewed. Most of them said the exact same thing with very little change. It is highly recommended the engineers be reminded and encouraged to submit thoughtful and original ideas, which provide helpful and constructive information to the company management.
10. Section 5.4 of the EMM states that "A brightly colored sign with three inch letters shall be permanently fixed nearby. The sign shall read: "Bilge System Piping Crossover – Emergency Use Only" There is such a sign but the letters are not three inches in height. They are about 1 to 1.5 inches in height. It is recommended a sign be installed near the valves with the proper size letters. See photos.
11. One flexible hoses larger than 40 mm in diameter without labels were found above the chemical store in the steering gear room. The hose was added to the flexible hose inventory. A flexible hose inventory is kept, with hoses stored in the mid-ship house and forecandle. There are labels to identify each hose. The flexible hose inventory was last done on May 18, 2011. It was signed by the C/O and Master, but was not signed by the C/E. Section 5.15 of the EMM requires both the C/O and C/E to maintain the inventory. It is recommended all flexible hoses over 40 mm in diameter on board the vessel be entered into this inventory and signed by both the C/O and C/E, as required by the EMM. See attached and photos.
12. On the inlet line to the OWS and on the discharge side of the OWS there were several pipe unions which did not have seals on them. Also, there was a blank flange after the OWS, but before the three way valve. This did not have a seal on it. Before I departed the vessel all of above had seals installed on them, as required by Section 5.6 of the EMM. See photos.
13. I observed various engine room pumps and machinery in operation during the period of time the vessel was underway. The engine room was noted to have several leaks on pumps and on the main engine. Some oil or oily residue was noted in the bilges or bilge wells. The bilge wells contained a decent quantity of water. Although it appeared the engineers were trying to keep the engine room clean, it was obvious there were many leaks throughout the engine room. I observed a leak on the #2 Main SW Pump packing gland. I also saw a fuel leak on the fuel oil transfer pump. For such a new vessel the condition of the engine room suggested it was an older vessel. See photos.
14. While inspecting the sewage treatment plant (STP) it was determined the vessel only had enough chlorine tablets (Cloro 90) for less than a month, which would not get the vessel to the next port in West Africa. According to the CCM the vessel was to receive more such tablets at Skagen, Denmark. It is recommended the vessel have the necessary quantity of chemicals for the STP at all times.



15. According to documentation on board the vessel the SWOMS had a broken data card and was unable to do automatic transmissions from Jan 2011 to 25 Mar 2011 when it was repaired. See attached.
16. On 19 May 2011 the manufacturer of the SWOMS came on board the vessel and updated software and fixed some issues onboard. In his report he states "Attended to troubleshoot the problem with the overboard valve function, which was said to position the valve in the open/overboard position when above 15-ppm." When I asked the CCM about this he told me the technician did not understand and put the wrong information in the report. The CCM sent an email to resolve this and the technician resent a new message which still had similar meaning/statements in the message. Print outs of the SWOMS before 19 May 2011 were reviewed and the printouts shows the OCM going above 15ppm and the OWS valves closing as required. Recommend this issue be further investigated and the proper operation of the three-way valve be verified. See attached.
17. The capacity of the OWS is 5 m3/hour, which appears more than adequate for the currently generated machinery space effluents. According to the ORB, the last three operations of the OWS were as follows:

05/18/11	1.26 m3 processed	1146- 1156	7.59 m3/hr
05/13/11	1.5 m3 processed	0809- 0924	1.2 m3/hr
04/22/11	13.35 m3 processed	0745- 1532	1.72 m3/hr

When asked why the OWS operated above its 5.0 m3/hr rating the C/E and CCM stated it was related to the draft of the vessel. This did not seem to make sense to me. The vessel is equipped with a means to transfer E/R bilge water and sludge to cargo slop tanks. Section 3.2.4 of the Supplement to the IOPP Certificate allows this. See attached ORB excerpts. Recommend the disparity in thru-put and the low thru-put be further investigated to ensure the OWS is properly functioning.

Observations Without Recommendations

1. A previous audit on a vessel in the Ionia fleet was found to have steam lines which are on the high and low sea chest. These flanges could be removed to install a "magic pipe." During this past audit it was recommended these steam lines have seals installed to ensure they are not used improperly. Similar lines were found on this vessel with the seals already installed. See photos.
2. As per EMS Section 5.16 it is required that "An entry is made in the Engine Room Log Book stating that the Officer has been properly trained in the operation of the Oily Water Separator." A similar entry is required concerning the incinerator. Such entries were seen made for the 2/E in the E/R log book.
3. The vessel maintains a Sounding Log as required by Section IV and Attachment B to the Scope of Work and Section 13.3 of the EMM. Excerpts of the Log for part of March, April, and part of May 2011 are attached. The remarks section of the sounding log has been returned to the form. I observed the morning soundings on four of the days I was



- onboard the vessel. The 3/O went with the oiler and appeared to know what he was doing. Furthermore, the oiler is taking three soundings of each tank to ensure a proper sounding has been conducted as required by the EMM. See attached.
4. A Master's Environmental Review must be conducted with a meeting of the officers on board. It is clear that such a meeting was conducted on 07 May 2011 to discuss the Master's Environmental Review conducted on 25 Apr 11. This was incorporated into the Onboard Safety Meeting Minutes. See attached.
 5. As per the Scope of Work and Section 13.3 of the EMM it is preferable to have sample bottles provided by the laboratory on board for taking samples of the BHT, OWS and bilge wells while an external auditor is on board. These sample bottles were on board during this audit. Samples were taken in the presence of the IEC auditor and placed in the proper containers.
 6. The ODME is tested monthly by the C/O and recorded in the Cargo Record Book as required by the EMM. During the audit, the ODME was tested by the C/O in my presence. Instructions contained in the manufacturer's manual were used to perform the tests, with values for ship speed, PPM, and flow rate manually entered. Since a blank flange is installed in the ODME discharge line, an actual discharge test could not be performed. It should be noted that the vessel does not discharge its slop tanks at sea. All slops from tank cleaning are sent ashore. The ORB Part II verified this. Accordingly, the ODME was tested based on the manual value input. The high PPM and 30 liters/nm exceeded were tested. The C/O was very competent in the ODME operation and knowledgeable of the discharge requirements.
 7. A test of the OWS was conducted while the vessel was underway. The test was begun at 0946 LT (0746 GMT) on 23 May 2011. The sounding of the Clean BHT (CBHT) was 105 cm which equates to 11.97 m³. The envirologger recorded the sounding as 112 cm and 12.78 m³. The OWS ran from 0946 to 1046. The ending sounding of the CBHT was 72 cm which equates to 7.10 m³. The difference between the CBHT soundings was 4.87 m³. Therefore the hourly rate was 4.87 m³/hr. The envirologger's reading was 77 cm and 7.51 m³. This would be an hourly rate of 5.27 m³/hr. See attached.
 8. An Environmental Performance Report, Form ENV 004, is submitted to the Ionia office on a monthly basis. Included on the form are garbage and hazardous waste disposal quantities. See attached sample report.
 9. Vessel personnel are carrying out weekly and quarterly inspections to comply with the requirements of the EPA's recently adopted National Pollutant Discharge Elimination System (NPDES) Vessel General Permit. There is evidence aboard indicating the Notice of Intent (NOI) was filed with the EPA and there is a copy of the EPA letter acknowledging coverage under the VGP.
 10. The vessel has a Deckma OCM, model OMD 2005, which conforms to requirements of MEPC 107(49). The OCM was last calibrated on 30 March 2011 (copy of certificate attached). The Scope of Work requires recalibration at least annually, with copies of the certificates maintained on board. See attached.