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**M/T ESTIA
ON-GOING ENVIRONNEMENTAL AUDIT
SUEZ CANAL TRANSIT, EGYPT
DECEMBER, 03-04, 2010**

Preliminary

The undersigned conducted an On-going Environmental Audit aboard the M/T Estia, IMO No. 9327035, while the vessel was anchored at Suez and later underway from Suez to Port Said, enroute to Europe. The Auditor joined the vessel on arrival at anchor off Suez waiting canal transit.

The vessel arrived from Fujairah, U.A.E. loaded with full cargo of JET-A1 for discharge in a port in Europe. On arrival auditor and two superintendents from the company boarded the vessel at 1455 on December 03, 2010. Vessel was scheduled to transit through the canal on the following morning. The opening meeting and documentation check and interviews with some staff were carried out on December 03. The physical inspections and testing of the equipment was carried out during the canal transit when all machineries were operating under normal conditions. The closing meeting was held prior disembarkation with Chief Engineer and Superintendents as the Master was busy with navigation on bridge. The auditor and superintendents disembarked the vessel at 1915 on December 04, 2010.

The Audit participants included:

Master	PELEKOS DIMITRIOS
Chief Engineer	STOUMPOS THEODOROS
Chief Officer	SARI REGELIO V.
2 nd Engineer	ALIBUYOG JAMIE G.
3 rd Engineer	MAJADUCON ROY S.
4 th Engineer	BUSTO EDMUND F.
Chief Cook	RUANTO FELIX M.
Electrician	JIMENZ JOSE MARI S.
Safety Quality Supdt.	DIMOU, ARISTEIDIS
Technical Superintendent	DEMEROUKIS DIONYSIOS



In addition to the above, some crewmembers from all departments were interviewed at different times with regard to their duties related to environmental aspects of ship operation and awareness. (Crew list attached).

The MT Estia is a crude oil and product carrier of gross tonnage of 42,048 mts, built by New Century Ship Building Co. Ltd., Xin Giang, China and delivered on April 12, 2007. The vessel has a total capacity of 84,497.816 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 MT Ploutos.

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, Marine Sanitation Device (MSD); and interviews with vessel personnel.

To implement the EMS, Ionia Management has 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. The manual is continuously revised based on previous audit reports and a substantial number of revisions were made in June 2010. 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-AQ-HRV-RvA, issued on April 08, 2008 with expiry on April 08, 2011; however, there were no specific instructions aboard, containing requirements or procedures related to this certification beyond the vessel's SMS and EMM.

It was observed that the environmental procedures and requirements were well implemented. The officers and crew were very cooperative and positive throughout the audit. Senior officers, including the Master, C/E, 2/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 audit and during discussions with the staff.

The following observations were made during the audit. 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 others without recommendation. 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. The vessel maintains a Sounding Log as required by Section IV and Attachment B to the Scope of Work. Excerpts of the Log Form ENV 008 for November, 2010 are attached. The revised form in use of the Sounding Log includes the initials of the deck officer witnessing the taking of the soundings as required by the Scope of Work. One previous form was not fully completed. It is recommended that on receipt of these forms in the office, they should be reviewed for incomplete entries and the total capacities of the tanks should be entered under the title of the tank on the form ENV 008.
2. The ODME is tested monthly by the C/O and recorded in an ODME Test log (excerpt attached). During the audit, the ODME was not tested as it was not functional. The IOPP certificate was endorsed accordingly by the Class BV on behalf of the Flag State. The vessel has a condition to get it repaired at vessel's arrival at first European port but not later than 30/12/2010. Last inspection certificate issued by the Class dated 28 April, 2006 is attached. Last service and test report dated 4/11/2-010 is attached. As per defect or damage report No. 08/2010 dated 24 November 2010 submitted by Chief Engineer requisition has been made to the management for repairs and spares (. Requisition No. 68/2010). It is recommended that the company supply the spares as soon as possible to make the ODME functional.
3. A flexible hose inventory is kept, with hoses stored in the forecastle. There are, however, no details on tags or labels to identify each hose except just the numbers allocated painted on them. Recommend the hoses be identified with number, diameter and purpose of use on the label to ensure they are properly controlled and accounted for and the inventory list posted at the location.
4. There was objective evidence found on board of pre-joining training for some of the staff of Environmental Awareness as a part of condition of Scope of Work. On full review it was observed 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.
5. Daily checks of the Envirollogger are being carried out and recorded on Form ENV 024. See attached samples. The monthly comparison values were not entered on the form ENV 024. Since the data 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).
6. In general the standards of record keeping by the Chief Engineer for Oil Record Book (ORB) entries, daily sounding book entries and the filling of form ENV 023 were below average. A number of errors were observed and were pointed out to the attending superintendent and the Chief Engineer. No irregular operations were performed. It is recommended that the Chief Engineer undergo comprehensive training in the importance of accurate and complete record keeping and consequences of erroneous



records in the ORB, Form ENV 023 and the Daily Sounding Book. This is first ship covered under Scope of Work for this Chief Engineer. Following are specific examples of the error found:

- a. During the review of the ORB, it was noticed that there was a receipt for disposal ashore of 2.0 cubic meters of bilge water. Upon checking the ORB entries and Daily Sounding Log entries, there was no entry of transfer of 2.0 cm³ of bilge water. When the C/E was asked for explanation he indicated that the bilge water was directly transferred from the E/R bilges to shore. This process cannot provide accurate quantities as there are no sounding tables for the bilge wells. The quantity was obtained from the recipient ashore. The proper procedure should have been to transfer the bilges to either the Dirty or Clean Bilge Tank and then send it ashore. This way the soundings of these tanks would have given an accurate quantity disposed ashore. This was pointed out to the attending deck and technical superintendents.
 - b. On the daily sounding sheet two soundings were not entered and there were signatures missing. I explained to the C/E the importance of accurate and complete entries and consequences of contrary. The need for additional training for this Chief Engineer was suggested to the attending superintendent.
 - c. Form ENV 024 - Checklist for Envirollogger was not completed for Envirollogger values of the tanks listed in the IOPPC. It appeared that the C/E did not seem to be aware of the importance and purpose of comparisons between the Envirollogger values and daily manual soundings taken at the same time, as the daily soundings were forwarded to the management on a monthly basis.
7. SWOMS data for tank soundings were compared against manual tank soundings. The following table shows the results. The manual data was taken from form ENV 024. No data of automatic soundings was entered on Form ENV 024, by the Chief Engineer. This form is not currently required to be forwarded to management. The manual sounding sheets, Forms ENV 008, are sent to management on a monthly basis.

Date & Time: GMT 12:00 December 01, 2010							
Tank	Cap. (m³)	Manual (cm)	Manual (m³)	SWOMS (cm)	SWOMS (m³)	Diff. (m³)	% Diff. (m³)
Clean Bilge	32.21	0.40	3.20	0.40	2.96	0.24	7.5
Dirty Bilge	32.49						
Bilge Oil	11.89	0.20	0.20	0.23	0.21	0.01	0.5
Incinerator	2.14	1.40	2.00	0.01	0.10	0.90	45.0
FO Sludge	11.89	0.27	0.50	0.31	0.52	0.02	4.0
LO Purif. Sludge	4.56						
FO Purif. Sludge	7.98						



Date & Time: GMT 12:00 December 02, 2010 at sea							
Tank	Cap. (m ³)	Manual (cm)	Manual (m ³)	SWOMS (cm)	SWOMS (m ³)	Diff. (m ³)	% Diff. (m ³)
Clean Bilge	32.21	0.40	2.20	0.40	2.97	0.77	35.0
Dirty Bilge	32.49						
Bilge Oil	11.89	0.20	0.20	0.23	0.22	0.02	10.0
Incinerator	2.14	1.40	2.00	0.01	0.10	1.90	95.0
FO Sludge	11.89	0.27	0.50	0.30	0.50	nil	0.0
LO Purif. Sludge	4.56						
FO Purif. Sludge	7.98						

* Bilge total capacities are not known

SWOMS Envirolgger was installed on board November 02, 2010

Incinerator Service tank is not included in IOPP certificate.

Observations without Recommendations

1. Engine room operations were observed when engine room pumps and machinery were in operation during the period of time the vessel was at anchorage and underway. The engine room was observed to be in very clean condition. No leakages were noted from the main engine. No oil or oily residue was noted in the bilges or bilge wells. The bilge well below the main engine fly wheel was dry and free of any oily residues. The bilge wells contained only small quantities of clean water. The Clean Bilge Tank was last cleaned on August 04, 2010. No leakages were noted from operating cooling water and general service pumps. The accumulation of fresh water in the bilge wells appeared to be due to condensation on pipes from the main engine air cooler. The purifier room was very clean, with no evidence of leakages from the purifiers. Auxiliary diesel engines on line, and fuel oil and lube oil pumps and valves were also noted to be leak free. Attached are photos showing the condition of the ME and auxiliary engines.
2. Similar to the engine room, both the cargo pump room and steering gear room were noted to be very clean, with no apparent leakages from pumps or pipes.
3. Incineration of sludge and evaporation from the WOST are carried out on a regular basis. According to the ORB, the last three sludge operations were as follows:

No.	Date 2010	Quantity m ³	Time in hrs.	Rate liters per hr.
1	03/08/10	11.0	Discharged	Singapore
2	28/11/10	09.0	No record	
3	25/11/10	1.20	2.3	42.0

The vessel generates about 200 liters of sludge per day according to C/E. Daily fuel consumption is rated at 37.00 mts per day for a nominal speed of 14.5 kts. Attached



Chief Engineer's Weekly Report, Form ENV 009 covering the period from 07/11/10 – 028/11/2010. Total Sludge capacity of all tanks, according to the Supplement to the IOPP Certificate, is 54.44 m³. Sludge tank capacities and incinerator capacity appear sufficient to manage the storage and disposal of sludge.

4. A test of the incinerator was not carried as the vessel was transiting through the canal. The usage records were reviewed and found in order. There were no specific issues related to the operation of the incinerator.
5. The vessel is fitted with a sewage treatment plant (STP) made by Hamworthy type ST3A Super Trident with a rated capacity for BOD 3.0 kg per day. The capacity of sewage holding tank is 6.3 m³. All black water is treated with the recommended chemical dosage for discharge overboard. According to the C/E, the STP is in continuous operation, both in port and at sea, with the direct overboard valve kept chained and locked in closed position, except during short periods of maintenance, while at sea, and only treated sewage is discharged. According to the C/E the system is adequate for the complement of the vessel, though the model type does not indicate capacity in terms of number of persons on board. The present complement during the audit was 28 persons. Maximum complement is 30 as per the Safety Equipment certificate.
6. The rated capacity of the OWS is 5 m³ per hour, which appears to be more than adequate for the currently generated machinery space effluents. According to the ORB, the last three operations of the OWS were as follows:

No.	Date 2010	Quantity in m ³	Time in hrs	Rate m ³ /hr
1	23 Nov.	30.0	9h 30m	3.1
2	02/Nov	4.7	3.0h	1.5
3	25/Oct.	3.45	2.0h	1.7

The rates obtained in the past were well below the rated capacity of 5.0m³ per hour. C/E was requested to investigate the capacity of the pump and any other probable causes for low rate.

7. An operational test of the OWS was carried on December 04, 2010. Prior to OWS test all the bilge alarms were tested. A section of the pipe adjacent to overboard discharge valve was opened for inspection. The valve end and pipe ends were found clean and free of oil. A certificate signed by the Auditor and the Chief Engineer was posted on the pipe for future reference. Copies of the certificates were attached to ORB and E/R log book. The re-circulation test was carried out for a period of 15 minutes. During the test the OCM was tested for over 15ppm alarm and the function of three-way valve. All were found functioning satisfactorily. Subsequently the test of OWS was carried out with over board Discharge valve (skin valve) closed for a period of one hour. As the vessel was transiting through narrow waters of Suez Canal in port testing pipe was modified to store the discharge in destination tank, Dirty bilge tank. The source tank used was



Clean Bilge Tank. Soundings were monitored by the Auditor. Samples were taken every 15 minutes of incoming and outgoing effluents (photos attached). The outgoing samples were found to be clean and free of oil. The OCM readings were monitored during the test and the reading showed from 0 - 4 ppm throughout the test.

Time 04/Dec/10	Sounding	Quantity in m ³
1120	1.20	14.42
1135	1.14	13.4
1150	1.05	11.97
1205	0.98	10.87
1220	0.89	09.51

Rate given was 4.91 m³ per hour in comparison to 5.0m³ per hour in the specification.

8. As per the Scope of Work requirements, samples of the following were taken during the test for content analysis by management nominated laboratory in Greece.
 - a. Bilge Well Aft
 - b. Clean Bilge Tank
 - c. OWS Discharge

All samples taken were appropriately packed and dispatched to the laboratory in Greece for analysis from Port Said. The sample were sealed with following numbers 3435766, 3435767 and 3435768. A copy of the landing certificate is attached.

9. Logs of incinerator and OWS operations are maintained. All alarms are recorded on the ECR console print out.
10. The vessel has a Deckma OCM, model OMD 2005, which conforms to requirements of MEPC 107(49). The OCM was last calibrated on April 04, 2010 as per certificate on board. The Scope of Work requires recalibration at least annually, with copies of the certificates maintained on board.
11. With the installation of the SWOMS, the flushing and sample lines to the OCM have been re-routed through the OWS LockBox, disabling the OMD 2005 manual flushing valve. The OWS LockBox's main function is to provide secured permissive functions that will only allow the 3-way overboard/recirculation valve to be moved to the overboard position once all the permissive functions are met. It will not allow for the mixing of the fresh and sample waters and must sense that enough sample water is flowing to the OCM for at least the last 20 seconds before it will allow control of the 3-way overboard/recirculation valve by the OCM.
12. The present engineering staff comprising C/E, 2/E, 3/E, 4/E, two oilers, one engine cadet and an electrician, appeared be adequate to handle the operational, maintenance



and repair workloads for the systems, equipment and components on board. All the staff appeared to be professional and knowledgeable with relevant experience for the job allocated. They are fully aware of the effort needed to minimize the waste streams development. The vessel is certified for UMS operation and manned as per company guidelines. In port and during cargo operations the Engine room is continuously manned as and when required.

13. Weekly shipboard training, which includes safety, security and environment protection, is carried out as per training schedule. Attached is a copy of the schedules for 2010. The dates when training is conducted are noted. In addition, environmental training is also carried out during monthly Safety Committee Meetings. Currently CBT training by VIDEOTEL has been introduced on board. The CBTs are of general nature and not necessarily specific to the environmental awareness related to the violations of US environmental rules.
14. The vessel had all the manuals of equipment related to waste stream and type tested certificates. Schematic diagrams and pipeline diagrams were on board. Attached are copies of the OWS and bilge piping diagrams.
15. A new Garbage Management Plan is implemented detailing storage, segregation of Hazardous waste management.
16. Ionia Management has an effective internal environmental auditing procedure in place. Attached is a copy of the Internal Environmental Audit Report, Form ENV 016, for the audit conducted on November 12-14, 2010. The audit report is very detailed and comprehensive. Twelve non-conformities were issued and were in the process of being corrected and closed at the time of this audit. (Copies attached)

Conclusion:

Overall condition of the vessel and waste management equipment were very good. This vessel has recently come under the Scope of Work, as management intends to trade the vessel on US route in the future. The Scope of Work and EMM requirements are well implemented on board. Having audited two vessels namely M/T Theo T, Fidias and Ploutos previously, it is noteworthy to record that all the recommendations from previous audits have been implemented and the Environmental Management Manual and other relevant documentation have been revised to reflect the same. All the personnel on board cooperated fully during the audit and were sincerely interested and positive in complying with the environmental procedures. The presence of Superintendent Captain Dimou, Aristeidis of Safety and Quality department during the audit was of great assistance to complete the audit during very limited time available.

Respectfully submitted by:
Subhash Joshi
Compliance Systems Inc.



Enclosures:

1. CSI Environmental Checklist
2. Ship's general particulars
3. Vessel Movement Timetable
4. Personal Timetable
5. Details of Waste Stream Management Equipment Onboard
6. Inspection, Audit, Document Dates
7. EMS Audit Test Data
8. Crew list
9. Internal Environmental Audit Report ENV 016 of 14/11/2010
10. ENV 011 Non-conformity reports for the EMS audit
11. ENV 015 Fleet Engineering Survey dated 30 July 2010
12. Bilge and OWS piping diagrams
13. ORB extract from 28/11/2010 to 03/12/2010
14. Daily sounding Log Form ENV 008
15. Calibration certificate for OCM DECKMA OMD – 2005
16. Certificate by auditor for condition of OVBD valve and pipe adjacent to the valve.
17. Chief Engineer's weekly report Form ENV 009 for period from 07/11/10 to 28/11/10
18. Inventory of Deck and Engine flexible Hoses Form ENV 010
19. Last ten cargoes carried by the vessel
20. Extract of IOPP certificate indicating dispensation for non-operational ODME
21. Defect or Damage Report No. 08/2010 re malfunction of ODME
22. Anonymous reporting procedure
23. Minutes of the monthly onboard safety committee meeting for July and November 2010
24. Landing certificate of Bilge and OWS effluent samples for shore analysis
25. Form ENV 023 Envirologger checklist and extracts of the logger information
26. Form 018A and B EMS familiarisation for Deck and Engine staff
27. Forms ENV020 and 021 Declaration Environment commitment and compliance
28. Training session records for Ballast Water management for October 2010
29. Pre-joining training certificate for Shipboard Environmental Management issued by Manning Agency
30. Drill program and record for 2010
31. Photos