APPENDIX 1

LOADING AND STABILITY COMPUTERS

1.   Construction and Positioning

1.1   The loading and stability computer should be an electronic device constructed in a manner which will give satisfactory service in the environment in which it is intended to be operated and any remote ancillary units must be similarly constructed.

1.2   The electrical components should be suitable for use in hazardous situations where applicable and be such that the computer is capable of storing information in the case of any electrical power failure.

1.3   When the computer is fitted on the ship it should be constructed in a manner which will accommodate satisfactorily fluctuations in the ships electrical supply.

1.4   The computer should be located in a suitable position and have the capability of visual displays of the information generated at position(s) readily accessible to the master and the officer in charge of loading except that equivalent arrangements may be accepted. A shore-based computer system may be accepted as an alternative to a computer fitted on the ship if such a system is fully equivalent in all respects and that the arrangements made for the transmission of the input information to the computer and of the completed calculations to the ship are sufficient.

2.   Performance

2.1   The programme used in the computer should incorporate permanent information as to the relevant characteristics of the ship and all the information required to assess stability during loading.

2.2   The computer program should be designed in such a way that it will enable the ship's personnel or, where appropriate, the person or persons appointed by the company which provides a shore-based computer service, to enter the weight and position of the components of the ship's deadweight expeditiously and with the necessary accuracy.

2.3   The computer program should provide for the display of the appropriate limiting value of the ship's vertical centre of gravity, or transverse metacentric height, as may be appropriate to the ship, for each stage in the entry of components of the deadweight. The limiting value so displayed must be that value adjusted for the draught or displacement of the ship and its trim.

2.4   The computer should be programmed to provide a clear visual warning if any of the limiting criteria for the safe loading of the ship are exceeded.

2.5   The computer programme should provide for the monitoring of the stability of the ship during loading and unloading when required and must be capable of giving visual warning of inadequate stability or the risk of flooding through open shell doors during those operations.

2.6   The computer should provide a facility to predict the effects of loading any item of cargo on the ship's condition prior to its actual loading onto the ship and the effects of proposed transfer of liquids within the ship, or taking on or discharging such liquids.

2.7   Arrangements should be made for components of the calculations of the ship's loading condition to be shown on demand at the visual display positions provided in accordance with paragraph 1(4) of this Appendix.

2.8   The computer should be arranged to provide a printed identifiable record of the calculations performed for each departure condition and any other loading condition which is more critical when required by the master.

2.9   The computer program should incorporate within the calculation system a simple check procedure which can be readily employed to show that the device or system incorporating the device is operating satisfactorily.

2.10   The loading and stability computer system and the manner in which it is constructed, fitted and located, must be to the satisfaction of the Certifying Authority.

3.   Manual

A manual is to be provided describing the features of the program. Operating instructions are to include an easy to use step by step guide on how to perform the necessary tasks together with appropriate examples. A check procedure should be included to ensure that the program is functioning correctly. This should include an example calculation with pre-determined results for comparison. The content of the manual is to be to the satisfaction of the Certifying Authority.