

VOYAGE DATA RECORDERS (VDR): ADVICE FOR THE SHIP'S CREW

Following a marine casualty, there is a need to understand what happened. VDR data provides investigators with invaluable evidence, but only if it is properly **saved** and **recovered**. This *Hot-Spots* highlights the importance and potential difficulties associated with downloading and reviewing VDR data post-incident; and aims to provide some suggestions for improvement.

Of the VDR recordings reviewed by North, around three quarters of these were flawed in some way. There are a variety of reasons why the provided data was missing, incomplete or damaged, but two key factors were identified relating to on board actions:

- The bridge team did not have a full understanding of the operation of the VDR fitted on their ship
- VDR data was not promptly saved after the incident and was consequently overwritten and lost

The loss of VDR data can also significantly affect the ability of a marine insurer to defend a claim or seek recoveries from other parties.

It is important that the use of VDR data, in the event of an incident or for any other purposes, is not used to allocate blame to an individual. It is about understanding the circumstances of the incident.

KNOW YOUR VDR

Make sure you know how to **save** and **recover** the VDR data on your ship. Methods may vary between different types of units.

Know what is connected to the VDR; e.g. if only one radar is linked, ensure this is appropriately identified.

Have VDR instructions readily available. Ensure they are correct, accurate and can be understood.

Know when and under what circumstances you should save VDR data.

The saving and recovering of VDR data should form part of a ship's emergency response procedures.

The saving and recovering of data should be practised on board during emergency drills to promote familiarity in use.

Always follow proper chain of custody protocol when sending saved data and storage devices.



VOYAGE DATA RECORDERS (VDR): FURTHER ADVICE FOR OWNERS AND MANAGERS

The primary purpose of a voyage data recorder (VDR) or a simplified voyage data recorder (S-VDR) is to maintain a store of information in a secure and retrievable form, concerning the position, movement, physical status, command and control of a vessel over the period leading up to and following an incident.

This information is then available for use during any subsequent investigation to identify the cause(s) of the incident.

Common Problems

- Downloaded data found to be damaged or incomplete, such as missing radar display, audio recording or information on course, speed and position.
- The period of time covered by the download is different to the time-frame in which the relevant incident occurred.
- VDR hardware malfunctions not triggering the in-built alarm.
- Deck officers may have incomplete understanding of the operation of the VDR fitted on their ships.
- VDR data not promptly saved after an incident and consequently being overwritten and lost.

System Limitations & New Technology

Annual performance checks of VDRs may fail to identify issues that can compromise effective data recording.

An older VDR fitted to a vessel may have functional limitations in comparison with more modern equipment.

When looking to upgrade, give consideration to the following:

- Increased memory capacity that allows preservation of data for significantly prolonged periods.
- Availability of additional inputs allowing more navigational aid data to be recorded and providing redundancy if a data link fails (e.g. radar).
- Remote playback, a capability that allows data to be downloaded directly from the VDR and viewed by shore management.
- Live connection allowing the crew to access the VDR data and use it as an on board training tool.
- Introduce a standardised type of equipment across the fleet which will promote familiarity on board and ashore.

Pro-Active Use of VDR Data

The installation of VDR software in the ship manager's office is recommended. This allows downloaded data to be regularly reviewed by managers and superintendents who can identify not only the areas in need of improvement but also examples of best practice.

Regular review also provides the following benefits:

- Means to appraise and enhance bridge procedures and operational safety.
- Data can be used for identifying training needs and reinforcing existing good practice.
- Recording and reviewing 'near miss' incidents can help in internal investigations and identify 'lessons learnt' and assess company policies and procedures.
- Confirms that a complete set of input data is being correctly recorded.

Routine playback of the VDR data on board can aid the crew in their training and development (e.g. after pilotage the crew can assess their own performance).
