

KISH P & I LOSS PREVENTION CIRCULAR KPI-LP-70-2013 **(Points to Ponder concerning Voyage Data Recorders-VDR)**

► Introduction:

There are reported cases of lost, corrupted or unintelligible data from voyage data recorders (VDR), which in turn make it difficult for ship managers & operators to defend themselves following an incident or alleged incident at sea.

Failure to be able to produce VDR information may lead to counterparty allegations that might have been prevented and/or proceeded against in a less costly manner had it not been for the lack of VDR evidence. It is thus important to highlight the points concerning the VDR capabilities and limitations, so that the essential data are not lost and crucial evidence connected to an incident can be practically retrieved.

► Problems with & various uses for saving & retrieving the data:

**Unsaved or irretrievable data:*

In a reported case involving a container vessel getting aground, it was stated that the "save" button had been pressed but when the technician attended on board; it was found that the saving was not accomplished & there seemed to be a lack of familiarization with the equipment.

There is also an important issue that even if the VDR information has been successfully preserved, the retrieving and downloading of the data often offers a challenge. Most VDRs require a manufacturer's technician to attend in order to download the data. The fact that there are numerous manufacturers and various model types requiring different software versions to be able to view the data make it difficult to retrieve the information and data.

**Malfunctions & erroneous data:*

The existing VDR systems also have a built-in alarm function that is automatically triggered in the event of a malfunction of the system; however, there are some reported cases that the VDR alert function was not triggered by the hardware malfunction.

We must also somehow ensure that the data saved are not damaged or corrupted. If VDR data is only ever recovered after an incident, it will be too late to find out that the data feeds were not connected properly or that the data appears to have been recorded but is actually corrupted on playback, or that the data is saved but then lost on transfer.

There may be a need for automated routine analysis of VDR data to ensure that the system is operational. This can be done remotely or manually, but the key factor here is not to develop a reactive approach to VDR data.

The VDR loop function may offer an option to retain data from a longer period of time than the 12 hour

window required by the IMO performance standards. By adjusting this default the Master has an increased opportunity to preserve the data. Masters should be reminded that the records will be overwritten within the implemented time frame if the data is not promptly saved.

**Additional uses:*

For aviation industry, it took 20-30 years to fully appreciate the benefits of having flight data recorder data routinely analysed.

The marine industry can benefit from this experience by appreciating early on that, in addition to safety related benefits, using VDR data proactively can provide significant training and operational benefits.

For example, use of data to replay port entry on a shipboard computer can be used in training and passage planning. Engine movements and wheel-over positions can be noted and transferred to a chart, and the bridge team can run personal computer based exercises so that they can visualise arrivals and departures.

Some companies have already identified major differences in berthing and un-berthing techniques. For example, the use of many 'small' engine and rudder commands may put a load on the systems and in fact be too short to have any effect. Re-training can be used to improve ship-handling technique and reduce wear and tear.

**Data & Voice Input Improving:*

Additional feeds and inputs to VDR can further improve the evidence, training and analysis nature of the data. Modifications over and above the statutory requirements include additional bridge wing microphones and repositioning of microphones to avoid interference or improve reception.

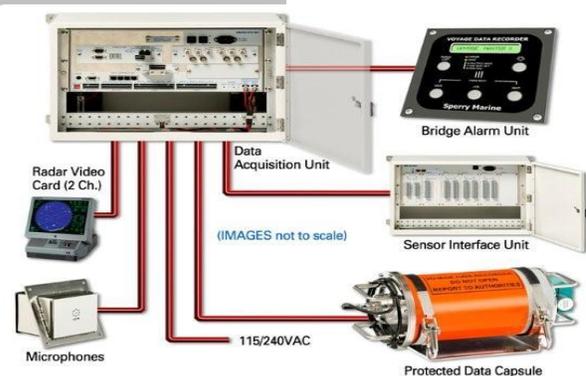
Providing more than one radar input to the VDR can ensure data will be available following an incident even if the primary data input radar had been switched off.

Although the installation & use of VDRs may have extra costs for changes & modifications; if we foresee some improvement possibilities, we may save a lot later.

We must remind ourselves that the requirements set by the regulations are based on a minimum level & the accident investigations analysis & feed backs within a company fleet may necessitate further adjustments & in-house extra bits & pieces.

► **Equipment knowhow:**

- ✓ It is a good practice to clearly state in the company's procedures which types of incidents and near-misses that should be preserved for securing of evidence and sharing of lessons learnt. Such information should be in the emergency response section of the Safety Management System (SMS).
- ✓ The VDR equipment setting procedures & when and how to use the VDR (both saving and retrieving data) should be posted adjacent to the device which would better include the roles and responsibilities by the bridge team as well.
- ✓ The data will often be saved in a format that is not readily accessible to a third party without the necessary software. Owners should check whether the information on their equipment can be readily downloaded or whether a manufacturer's technician will be needed.
- ✓ If a technician is required, the contact information should be readily available so that to attend a casualty as soon as possible after an incident to extract the necessary evidence. We must bear in mind that the attention should be paid to avoid VDR overwriting data. The retrieval can always be done at a later stage.



► **Recommendations:**

- ✓ Regular services by approved companies are required to ensure that the VDR is in full working order, tests should be conducted regularly by an approved service supplier to verify the accuracy, duration and recoverability of the recorded data.
- ✓ The contact details of technicians and manufacturer should be easy available.
- ✓ VDR Software should also be available at relevant location onboard/ashore.
- ✓ Onboard drills should be undertaken regularly, ideally in combination with above mentioned regular service of the VDR unit, to verify that the bridge team is familiar with the procedures and the VDR equipment.
- ✓ Saving of data should be a part of the emergency response procedures and emergency drills.

► **Data Saving time-schedules:**

If we do not remember to save VDR data until more than 12 hours after an incident, or an allegation that an incident has occurred, the data will normally be overwritten.

Many exiting VDR equipment can be fitted with extended memory at very reasonable cost. External memory devices – such as voyage data capture systems (VDCS) or portable back-up boxes (PBB) can extend the memory capacity from the mandatory 12 hours to 90 days or even one year's worth of data. Once it becomes known that ships can recover data from up to 12 months ago, it might be that speculative claims for alleged collisions or damage to property notified after the well known 12 hour limit of standard equipment become less common or defensible.

Additionally some voyage data capture systems can be configured so that data can be remotely downloaded in the event of an incident. This means that investigations can start while the ship is still at sea, saving the delay and costs of requiring an engineer to download the data at the next port of call. There are some equipments can also be set up to transmit the data for recording ashore.

The Oil Companies International Marine Forum (OCIMF) has published a paper entitled Recommendations on the Proactive Use of Voyage Data Recorder Information, which is available from its website: www.ocimf.com/Library/Information-Papers