Fire – Dredger drive step-up high voltage transformer

WHAT HAPPENED

A UK marine aggregate dredger was 2-hours into its regular dredging operation when a fire alarm sounded on the bridge activated by a detector in zone 8 which covered a number of compartments. Activation was due to smoke being generated by smouldering electrical cable cores within the pump drive step-up voltage transformer located in the pump-motor room within fire detection Zone 8.

The smouldering cables were successfully extinguished by the ships crew using portable CO_2 extinguishers, with no injuries to personnel and no damage to the transformer or any other equipment.





Key findings

The cable routing and attachment to the framing gave rise to chaffing of the cable core insulation at the bend radius (probably caused by vessel vibration), allowing the conductors to be exposed, generating heat leading to further deterioration of the cable core insulation. All other cabling and terminal connections were found to be in good order.

There was a delay in finding the cause of the alarm as welding operations were also present in the vicinity of zone 8. Dredging operations were stopped immediately on locating the source of smoke, allowing de-energizing of the drive, limiting risk to personnel and of further damage to equipment.

LEARNING POINTS / ACTIONS TAKEN

How could this incident have been avoided?

- Improved routing of the cable cores and protection of likely chaffing points.

KEY REVIEW POINTS

- Always fully investigate for the source of a fire alarm – avoid speculation of potential causes;
- CCTV camera coverage could aid in the early location of the smoke;
- Particular attention should be given to cable routing and fixing during renewal or installation of new equipment requiring electrical power supplies.

LOCATION:	**AGGREGATE DREDGER**	**ALERT STATUS:**	**High Potential**
ACTIVITY:	**MARINE OPERATIONS**	**DATE ISSUED:**	**27/07/2022 15:17:00**
SUB ACTIVITY:	**DREDGING**	**INCIDENT No:**	**03622**