SYNOPSIS

At around 1630 on 28 August 2005, the UK-registered trawler, *Harvest Hope* came fast while trawling in the vicinity of seabed pipelines, approximately 40 miles north-east of Peterhead. The aft net drum space immediately began to flood through the port transom door, which had been inadvertently left open from the previous voyage.

A port list quickly developed, which worsened as more water poured in through the transom door. The crew immediately tried to close the open door using the hydraulic ram, but this became damaged by a green sea, and the door could not be closed.

An electric submersible pump, located at the forward end of the net drum space, on the port side began to drain the water. However, the pump stopped immediately after a flash was observed from the area of the pump and its junction box. There were six non-return freeing ports, commonly known as tonnage valves, in the net drum space. These had been welded up by the owners several years before the sinking, due to practical concerns about back-flooding. There was no other means of clearing the rising flood water in the net drum space.

The crew witnessed water pouring into the galley through open windows in the watertight bulkhead at the forward end of the net drum space. Water was also latterly seen flowing into the forward cabins. A window in one of these cabins, leading forward into the fish processing space, was also known to be open, and would have allowed progressive flooding into this space.

As the port list increased, main hydraulic power was lost, resulting in the brakes on the vessel's automatic trawl winch system activating. With no safe and easy means of releasing these brakes, the vessel was effectively anchored to the seabed on the port side. Although the trawl warps were cut with an electric grinder, the vessel's condition failed to improve.

Despite some difficulties, the crew managed to deploy the starboard liferaft, and as the list critically increased, the crew abandoned into the liferaft, around 15 minutes after first coming fast. Shortly afterwards, the vessel capsized, and sank by the stern. Not all of the crew had been able to put on their lifejackets. A nearby fishing vessel, *Fruitful Bough* had responded to the earlier "Mayday" issued by *Harvest Hope*, and safely recovered the crew at about 1700, returning to Peterhead later that day.`

Following the sinking, the MRCC immediately informed Mobil, one of the three operators of the four subsea pipelines in the vicinity of the sinking of the incident. The MRCC did not inform BP of the incident, and were also not aware of the presence of the two Shell pipelines in the area, as the Admiralty chart being used did not depict the latter pipelines.

BP and Shell subsequently arranged underwater ROV surveys to inspect their pipeline integrity. These surveys also briefly inspected the wreck, which was found lying intact in about 99m of water. The port liferaft canister was discovered a short distance from the wreck on the seabed, intact and not inflated. The painter had been partially deployed, but was apparently not attached to the wreck. Subsequent analysis of the video footage and side scan sonar data of the area was conducted by consultants tasked by Shell. This concluded that the bridle and

tickler chains on the vessel's trawl gear had snagged large mounds of boulder clay, probably created when a plough had either stalled or jumped during the trenching back-fill process to cover a pipeline. The remaining trawl gear was considered to represent a further snagging hazard, and the consultants made proposals to Shell regarding solutions for removing the trawl gear, and the promulgation to the offshore industry of the hazards potentially caused by back-fill ploughs.

The vessel's as-built displacement was greater than originally designed, due to the addition of large amounts of solid ballast for stability purposes. This resulted in minimal aft freeboard which did not comply with the relevant regulations. A dispensation had therefore been granted by the MCA, based on obsolete and uncontrolled guidance.

During the investigation, a number of issues were identified regarding the vessel's stability approval and regulation. Consequently, the MAIB wrote to the MCA to highlight the issues identified during its investigation. In response, the MCA set up an internal inquiry to investigate and, where appropriate, address the issues raised.

Recommendations have been made to RAPP Hydema, manufacturers of the automatic trawl winch system fitted on *Harvest Hope.* These relate to the development of a quick release mechanism for the "fail safe brake" mechanism, in an emergency, and the review of information, training and guidance provided to fishermen, on the system.