



## SAFETY AND ENVIRONMENT

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### PIPER ALPHA

At about 10 pm on 6 July 1988 an explosion occurred in the gas compression module on the Piper Alpha platform, 176 km north east of Aberdeen. This initial explosion put the main control room and main power supplies out of action and caused extensive damage to hydrocarbon processing equipment. It was followed immediately by a large fire in the oil separation module, which gave rise to a massive plume of black smoke that engulfed the north end of the platform. This fire was fed by oil from the platform and a leak in the main oil line to the shore, to which the pipelines from two other platforms were connected.

At about 10.10 pm there was a second major explosion which caused a massive intensification of the fire. This was due to the rupture of the riser on the gas pipeline from one of the adjacent platforms. Ruptures of other risers further intensified the fire.

The emergency systems failed. The platform structure collapsed as a result of the explosions. The east quarters module lost its structural support and tipped to the west, crushing the west quarters module, and then tipped northwards into the sea. Between 10:30pm and 12:15 am the centre of the platform collapsed. The risers from the gas pipelines and the main oil pipeline were torn apart. The north side of the platform slowly collapsed until the additional accommodation module slipped into the water.

There were two hundred and twenty-six men on the platform at the time. Sixty-two were on nightshift duty while the remainder were in the accommodation. The system for control in the event of an emergency was rendered almost entirely inoperative, smoke and flames outside the accommodation made evacuation by helicopter or lifeboat impossible.

Diving personnel on duty escaped to the sea along with other personnel on duty at the northern end and the lower levels of the platform. Other survivors who were on duty made their way to the accommodation, and a large number of men congregated near the galley on the top level of the accommodation. Conditions there were tolerable at first, but deteriorated greatly owing to the entry of smoke. A number of personnel, including twenty eight survivors, reached the sea by use of ropes and hoses or by jumping off the platform at various levels. At no stage was there a systematic attempt to lead men to escape from the accommodation. Sixty-one persons survived. One hundred and thirty-five died.

The extent of death and injury resulting from the Piper Alpha disaster was of great concern to the offshore petroleum industry worldwide, and widespread reviews for safety equipment and emergency response were undertaken. In the UK a public enquiry, undertaken by Lord Cullen, was commissioned in July 1988 to establish the circumstances of the accident. His report led to extensive restructuring of the UK offshore safety legislation, with the primary onus of responsibility for offshore safety being shifted towards the operating companies and away from the regulatory authorities. Lord Cullen also recommended the

introduction of the Safety Case concept for the North Sea to align offshore safety management with existing onshore legislation

In Australia the Consultative Committee on Safety in the Offshore Petroleum Industry (COSOP) was established to examine the Piper Alpha experience with regard to safety issues relative to offshore petroleum operations in the Australian offshore area. COSOP examined the findings from the Cullen enquiry and endorsed the recommendations and also the introduction of the Safety Case concept in Australia.

Further details on the Piper Alpha incident may be found at <http://www.ukooa.co.uk>

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