

K-141 KURSK

THE RAISING AND RECOVERY OF THE RUSSIAN FEDERATION NAVY NUCLEAR POWERED SUBMARINE *KURSK*

ILLUSTRATED PRESENTATION FROM

JOHN H LARGE

LARGE & ASSOCIATES – CONSULTING ENGINEERS

On Saturday, 12 August 2000 and exactly at 7.29.50 GMT a small and relatively insignificant seismic disturbance was recorded by a Norwegian seismological station. It was followed one hundred and thirty five seconds later by a much more significant event, equivalent to about 3 to 3.5 Richter scale. This second explosion was the death knell of the Russian Federation Northern Fleet nuclear powered submarine *Kursk*. In August 2000, the Russian Federation nuclear powered submarine *Kursk* sank in the Barents Sea with the loss of all 118 crew.



In May following, the Dutch consortium Mammoet-Smit was contracted to recover the *Kursk* on condition that it had to be completed within that year. Working at a sometimes breathtaking pace, in just over six months the wreck was prepared, lifted, transported and delivered to a floating dock at Rosljakovo, about 200km south of the foundering site. Throughout salvage, a specialist nuclear team continuously assessed the radiological and weaponry hazards. For this, a radical and fast moving approach to developing a unique safety case had to be undertaken and, in doing so, normally sensitive areas of military secrecy had to be overcome; the differing approaches to safety assessment of East and West had to be harmonised; and, most of all, the radiological health and safety of the two or so hundred salvage personnel involved had to be assured.

John Large of the Consulting Engineers Large & Associates, headed up the specialist nuclear team comprised UK-based experts in nuclear submarine, munitions, nuclear safety and risk assessment, nuclear and conventional weaponry, and radiological management fields.

The team's first task was to assess the nuclear and radiological hazards, using the original design information and data for the boat, its reactors and weaponry. This was done by determining the damage to and potential instability of the nuclear reactors and weapons from records giving clues as to why and how the submarine sank in Autumn of 2000, from the forensic evidence available from the seabed, and drawn from inspection of the sister submarine the *Urel*. The second task for the team was to assess the salvager's recovery plans, determining how these activities would impact upon the nuclear and radiological systems of the damaged submarine. The third task was 'hands-on' with practicable involvement of the team members on board the salvage flotilla to provide in situ interpretation of the radiological monitoring systems and, importantly, immediate advice should a nuclear situation develop.

John Large will present a lecture on how the nuclear safety case was developed, implemented and maintained throughout the difficult but ultimately successful recovery operations of the *Kursk* in October 2001 - the presentation will be fully illustrated giving a record of the tasks confronted throughout this world-first salvage of a nuclear-powered submarine.

CRAY VALLEY RADIO SOCIETY

8.00 PM - THURSDAY, 4 JUNE 2009

PROGRESS HALL – ADMIRAL SEYMOUR ROAD, ELTHAM

Contact the Society Programme Organiser Dave Lawley G4BUI for further details dave@g4buo.com