

Presenter/Member State or Org.	R. Savage		United Kingdom
Session/date/time:	1	Tue, 12 April	11:20–11:40
Title of the paper:			
Influence on UK Nuclear Regulation from the Fukushima Daiichi Accident			

This paper provides an overview of the UKs response to the Fukushima Daiichi Accident and highlights the influence that this has had on UK nuclear regulation since March 2011.

Immediately Post the Fukushima Daiichi Accident:

ONR's Incident Suite was staffed from the first day of the accident and remained active on a 24 hours basis for over two weeks. The purpose was to provide advice to the UK government specifically prompt assurance of why this accident couldn't take place in the UK and practical advice in relation to the 17,000 UK nationals in Japan at that time.

In the early phase of the accident ONR took part in international cooperation with the US, Canadian and French regulators in order to determine the actual technical status of the Fukushima Daiichi power plant units.

The UK Secretary of State requested that the ONR Chief Inspector identify any lessons to be learnt by the UK nuclear industry and in doing so cooperate and coordinate with international colleagues. The Interim report was produced (May 2011) this focused on civil NPP's, provided background to radiation, technology and regulations. This report compared the Japan situation with the UK and identified 11 conclusions and 26 recommendations.

At the time of the interim report the evidence was pointing to a design deficiency in terms of flood protection at Fukushima. For ONR this induced close scrutiny of the way in which UK NPPs designed protection, acknowledging of course that the UK and surrounding geology means the events that the UK would have to deal with will be much less challenging than those at Fukushima. ONR were confident that no "equivalent" deficiency was evident and this led to the key conclusion that there was no reason to curtail NPP operation in the UK.

ONR was a committed and active partner in every international initiative aimed at summarising and utilising the lessons learned from the Fukushima Daiichi accident. This included the Fact Finding Mission organised by IAEA (and led by Dr. Mike Weightman, ONR Chief Inspector), various meetings and conferences organised by IAEA and by the European regulatory groups ENSREG and WENRA.

Additionally, on behalf of the UK, ONR participated in the activities related to the European Stress Test (targeted re-evaluation of the safety of nuclear power plants) requested by the European Council and specified by ENSREG.

Lessons learned, recommendations and conclusions offered by the Fact Finding mission, by the Japanese Government and by the US NRC Task Force in their reports were also thoroughly reviewed by ONR and underpinned its analysis and task setting.

Lessons Learnt & Progress Made:

The final report (Japanese earthquake and tsunami: Implications for the UK nuclear industry) for the Secretary of State was produced September 2011. The report was expanded to include all UK nuclear installations – Sellafield probably the most significant of these. The final report identified an additional 6 conclusions and 12 additional recommendations to UK industry. The completion of this report was the continuation of a significant period of work by ONR (on-going today) to ensure that the recommendations and EC Stress Test findings (which ONR also expanded to include all UK nuclear installations) were adequately acted upon by those who they applied.

ONR have particularly influenced resilience to severe accidents which have led to review and improvements across the UK nuclear industry e.g. spent fuel pools safety, emergency response, specifically EDF have increased the capability of their NPP fleet through a combination of purchasing new back-up equipment, enhancing on-site resilience and improving existing emergency arrangements and severe accident management procedures.

For ONR there were a number of conclusions and related recommendations from the final report related to UK regulation, of particular note:

- Design basis - ONR identified that a formal review of the Safety Assessment Principles should be undertaken to determine whether any additional guidance is necessary in the light of the Fukushima accident, particularly for “cliff-edge” effects. This review is now complete (Nov. 14) and the SAPs revised accordingly.
- Legacy ponds - The accident at Fukushima reinforces ONR’s views on the potential vulnerability of older facilities and has encouraged review of ONR’s regulatory approach in this area to enable accelerated risk and hazard reduction.
- Periodic Safety Reviews (PSR) – This underpinned the value of mandatory PSRs in the UK and they provide a good means to ensure continuous improvement.
- L2 Probabilistic Safety Assessment (PSA) - ONR identified this as important for 3 reasons: 1) to ensure that the scope of PSA covers external hazards like earthquake, 2) to ensure that the long term nature of potential fault sequences is properly considered and 3) to enhance severe accident management, to inform procedures, training, pre-positioning of emergency equipment and supplies.

ONR is mindful of maintaining its regulatory competence and resources and that a coordinated safety and security culture is pursued. This is also reflected in ONR’s commitment to IAEA IRRS Missions. The IAEA IRRS Missions post Fukushima have included a specific Fukushima Module and ONR completed this in the 2013 Mission to the United Kingdom. The IAEA also conducted an Expert Mission in 2014, at the request of ONR and the UK government, to review progress against all existing findings from previous missions.

Importance of ONR’s on-going commitment to international cooperation and continuous improvement, e.g. The Vienna Declaration.