SIZEWELL A – COOLING POND RECIRCULATION PIPE FAILURE INCIDENT OF 7 JANUARY 2007

ASSESSMENT OF THE NII DECISION MAKING PROCESS

CLIENT: SHUTDOWN SIZEWELL CAMPAIGN - REF N^{O} R3179-A1

SUMMARY

This is a review of the Nuclear Installations Inspectorate's decision not to prosecute Magnox Electric Ltd over its involvement in the Sizewell A radioactive discharge incident of 7 January 2007. The radioactive release arose as a direct consequence of a breach in the pipework of the spent fuel pond water recirculation system resulting in uncontrolled spillage of 40,000 gallons (180m^3) of (radio)active water over a period of about 45 minutes. About one-quarter of this spillage discharged completely untreated to the marine environment via the Sizewell A site storm drainage system.

Requesting further information on the incident from the Nuclear Installations Inspectorate, the *Shut Down Sizewell Campaign* received a response that comprised much jargon if not, some might opine, gobbledygook in respect of the Inspectorate's explanation why it had not proceeded with a prosecution against Magnox Electric. The *Campaign* then instructed Large & Associates to independently assess the processes adopted by the Inspectorate in arriving at its decision not to prosecute Magnox Electric Ltd.

For its decision-making the NII adheres to the HSE *Enforcement Management Model* (EMM) framework in which, essentially, the actual risk of adverse consequences is compared to the benchmark of acceptable risk and tolerable consequences specified by the Nuclear Site Licence and its adjunct regulatory framework. This so-called Risk Gap is then resolved, with account being taken of Dutyholder's (Magnox Electric) performance and with the decision overall being qualified by Strategic factors, to determine the appropriate regulatory action necessary to bring the nuclear activity into compliance with the Law which, itself, may involve prosecution. At the front end of the EMM process, the Inspectorate investigates the incident with its preliminary report serving to define the actual risk involved and the performance of the Dutyholder specifically leading up to and during the incident and, more generally, in its overall operation of the nuclear plant (Sizewell A). On the evidence made available to Large & Associates, we consider that the serious mistakes made by the Sizewell A operations and systems engineering staff, as identified in the Inspectorate's Preliminary Report, by far outweigh the positive scoring assigned to Magnox Electric in the EMM Dutyholder performance assessment. In this respect it is difficult to fathom how the Inspectorate was able to convert a Risk Gap ranked at *substantial* to *extreme* that, by its own definition, required serving an Improvement Notice specifying mandatory changes to the plant and its management, and most likely proceeding with prosecution, to the much less punitive action of issuing a Directive whereupon Magnox Electric conducted its own review in the absence of prosecution.

Our findings are that the issues involved were quite unambiguous: Magnox Electric had failed to put in place proper inspection and appropriate maintenance regimes for the pond water recirculation and containment systems; its staff were poorly trained and ill-prepared; vital detection and alarm systems were either not fully commissioned and/or not working; lessons had not been learnt, particularly from a previous and almost identical failure of the recirculation pipework; and, generally, such was the significance of the mistakes made by Magnox Electric staff that their suitability to carry out their roles effectively must be at issue. In fact, if it had not been for the quite fortuitous presence of a contractor in an adjacent laundry area who reported flooding in that locality, then the leakage could have completely drained down the pond, uncovered the spent fuel and, in all probability, resulted in a fuel fire with an off-site airborne release of highly radioactive fission product – this scenario could have developed within 10 hours of the initial pipe failure, that is inside the 12 hours rota of the walk-through inspections of the fuel pond area in operation at the time of the incident.

On related issues: We find that Magnox Electric did not fully appraise the Sizewell Stakeholder Group of all of the facts and circumstances of the incident in that it implied that the spillage of 10,000 or so gallons of active water to the marine environment was an authorised discharge; it failed to give account of the many shortcomings in maintenance, inspection, commissioning and staff performance identified by the Inspectorate; and it made no reference whatsoever that within 10 hours the situation could have developed into a very significant off-site airborne release of fission product laden fuel oxides, with extreme if not dire health consequences to the public.

Finally, on information availability and transparency we have been disappointed by the response of the Inspectorate to our quite proper request for information on its decision-making over this incident which, we consider, has denied us access to what we assume to be a considerable amount of further information relating to this matter.

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1ST ISSUE	REVISION NO	APPROVED	CURRENT ISSUE DATE
23 MARCH 2009	R3179-A3-2		**14 DECEMBER 2010**