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Prediction of Accident in the Gulf of Mexico

The protests by BP that the failure of a drilling rig was unexpected, highlights a real failure of the whole oil industry including its regulators. In 1975, Professor Norman Rasmussen in a report to the then Atomic Energy Commission (WASH1400) showed how to analyze rare accidents of a nuclear power plant by an "event tree" procedure. You imagine what might initiate an accident and follow the course thereof. What device do you have to correct for the initial failure? Will it work when called upon and what is the probability of failure? Then one asks what are the procedures for containing the consequences of an accident when all else fails? Are we sure that these are independent steps or could fire, flood, earthquake or sabotage correlate them all? Then one can derive a number or the probability of the serious event and adjust the design to keep the probability very low.

Before the Three Mile Island Accident no organization, not the reactor designer, Babcock and Wilcox, nor the operating utility, nor the Nuclear Regulator, Nuclear Regulatory Commission, and no environmental activist used the procedure. A simple analysis done subsequently showed the simple failures in design and operation that allowed the accident to happen. Both Norman Rasmussen and I independently realized this, and discussed it, the afternoon of the accident! The nuclear power industry in the USA was convinced and among other actions set up the Institute for Nuclear Power Operations to coordinate the approaches. It took till about 1991 for Russian nuclear power designers to be convinced. Slowly other industries have understood and use the method; Firstly the LNG facilities and then chemical plants.

NASA was slow but learned it about 2000. The collapse of the World Trade Center (which should not have fallen) should have taught the building industry to use this powerful analytical technique, but they still seem reluctant to do so. The oil drilling industry should have learned from the blow out and fire of an oil well 100 miles off Brazil 20 years ago which took 60 days to extinguish- a record low. Now the world, led by BP, will pay the price. Let us hope that we all will at last learn.

Richard Wilson
Mallinckrodt professor emeritus of physics and past chair of Physics Department at Harvard University

WASH 1400: Reactor Safety Study: An assessment of accident risks in U.S. Nuclear Power Plants. WASH 1400 (NUREG-75/014). Washington DC, Nuclear Regulatory Commission (October) 1975.

Note: *During the preparation of this report the Atomic Energy Commission was abolished and Nuclear Regulatory Commission was one of the succeeding agencies*.