



RiskMap® - Risk Analysis Services LLC Exclusive Service. ©1987-2015 by Cantor & Company - RiskMap® is a Registered Trademark of Cantor & Company - All Rights Reserved.

Successful Risk Modelling Protected the Nuclear Power Industry Against A Financial Meltdown

In March, 1979 an accident occurred in Middletown, Pennsylvania, at the Three Mile Island nuclear power complex.

The crisis and its clean up lasted fourteen years. Risk Analysis Service's Alan Cantor was personally interested in the financial impact of the insured event. As an analyst in Unit X, he modelled the risk for the American Electric Power Institute and Nuclear Mutual Ltd. This association-owned captive insurance company was organized by Marsh & McClennan, Cantor's employer. It was his financial statistical modelling that facilitated the successful placement of the risk at Lloyds initially. Little did he realize how soon after the reinsurance was arranged that the catastrophic loss was resolved without resulting in a financial meltdown for the electric utility industry. The mathematics modelling worked. The insurance mechanism worked.

The \$71 million Three Mile Island loss was fully comprehended by the model and managed effectively by the insurance placement. Over time the underwriters were profitable. And the complex placement was spread across multiple names and entities – the average exposure was manageable without threatening their financial health. The acceptance and viability of the risk transfer/risk financing system was assured by model. The syndicates were confident because the risk modeler had captured every conceivable aspect of the risk.

From Marsh HQ in New York City, Cantor, as a newly minted Wharton MBA, spent 18 hour days interviewing the Chief Engineers from General Electric and Westinghouse. With full authority from their respective CEOs, Cantor had carte blanche access to deconstruct the architectural and engineering drawings of the nuclear power plants to develop four decision trees based on the reactor designs. For each component and system in their plants, the Chief Engineers' input guided Cantor's factoring of the probabilities of failure and the potential severities. Next, he utilized historical incident data provided by the Nuclear Regulatory Authority, which they told him had never before been requested or analyzed. Then he programmed a Monte Carlo-based simulation model to reflect the data from the Nuclear Regulatory Authority and the probabilistic decision-tree analyses. The simulation model projected cost and geographic potentialities. Visualize concentric circles radiating from each plant with progressively higher possible catastrophic loss figures.

Once the model was completed, multiple scenarios were run for the London managing agent. He negotiated at Lloyds with the syndicates to fill the slips for fully funding the risk. It was robust and was utilized through successive renewals over many years.

This interactive manner has continued to be the hallmark of Cantor's risk modelling, which has never failed to gain the confidence of underwriters and self-insurance entities seeking to go to market with their unique risks.