Nuclear Detector Reliability

The Problem

International Monitoring System (IMS) radionuclide monitoring instruments must be operational 360+ days of the year.

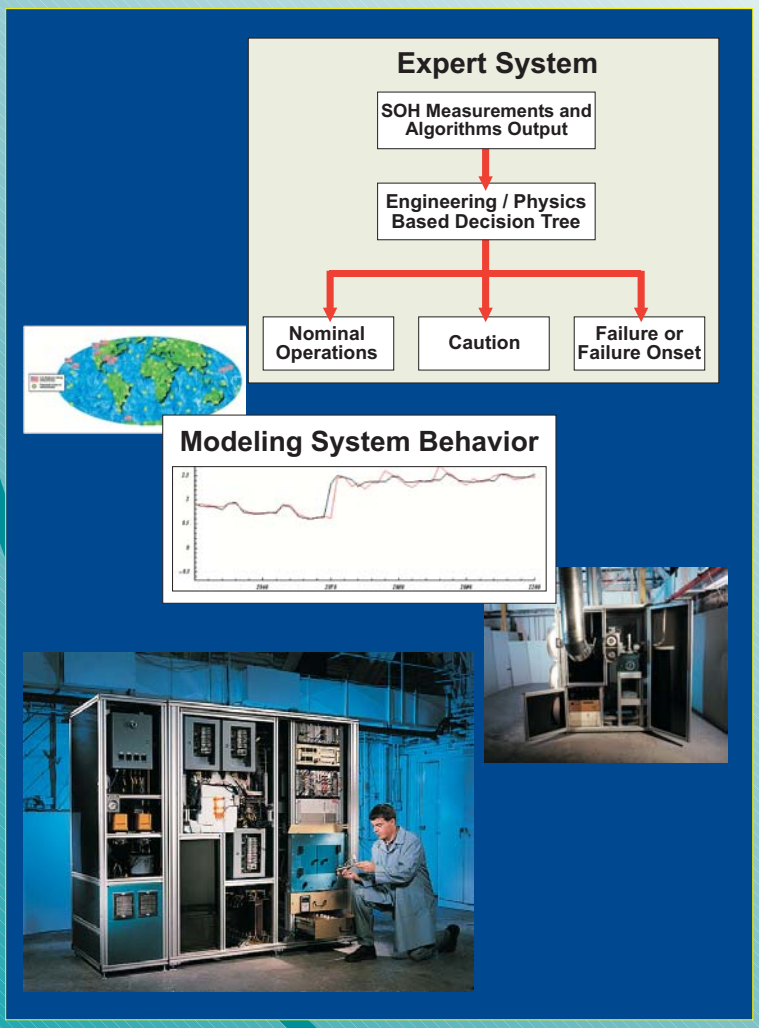
An early alert system is needed for potential instrument failure.

The Approach

- Identified failure predictive phenomena through statistical modeling and expert opinion
- Modeled two measurement systems: Automated Radioxenon Sampler/Analyzer (ARSA) and Radionuclide Aerosol Sampler/Analyzer (RASA)

The Accomplishments

- Developed algorithms for modeling system behavior and predicting changes
- Creating an expert system which alerts personnel to potential failures before they occur



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