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REBUTTAL TESTIMONY OF CRAIG J. NICHOLS AND JOSE L. CASILLAS ON NEC CONTENTION 3 – LARGE TRANSIENT TESTING – EXHIBIT 2

ODYN Studies Reports

GE-NE-B13-00296-02P 'Recirculation Flow Control Valve Maximum Pump Up-Shift Position for LaSalle County Nuclear Station Units 1 and 2' (Proprietary), March 1998:
This report includes an evaluation to increase the flow control valve position setpoint that allows the BWR to change the recirculation pump from low to high speed. The increased valve position setpoint will result in a larger power spike from the increased valve flow and therefore a high degree of confidence is required that the power spike will not result in a reactor high power scram. The ODYN model is used to predict the magnitude of the power spike during the recirculation pump speed up-shift maneuver. In order to determine the accuracy of the ODYN model to predict the power spike, a benchmark against past maneuvers at the current valve setpoint are made. The figures below illustrate the agreement of the ODYN model prediction of the power spike for two past cases (LaSalle Unit 1 and 2). The top figure compares the power spike of the first pump speed up-shift and the lower figure compares the power spike of the second pump speed up-shift. The agreement of the ODYN model predictions to the actual data demonstrates the capability of the model for this problem.

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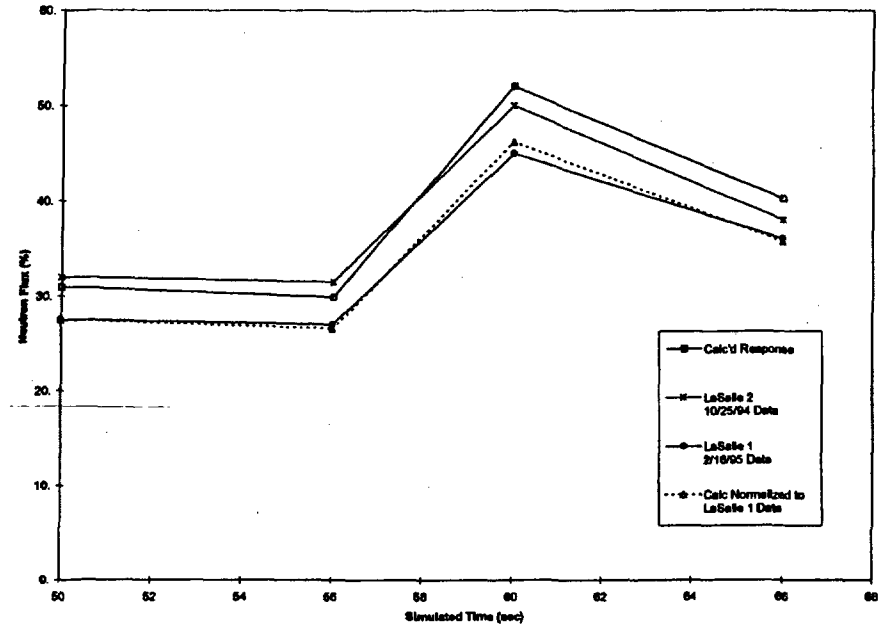
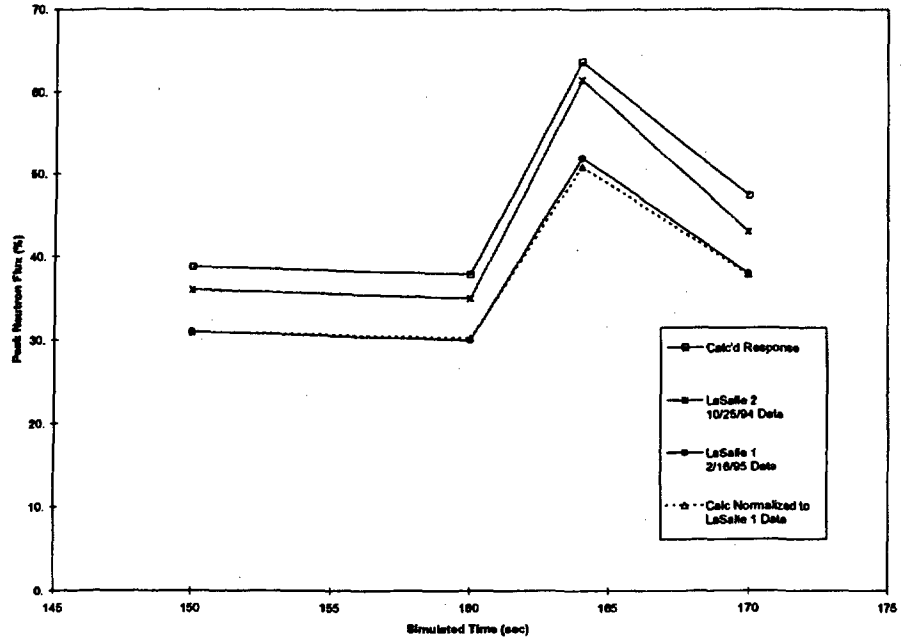
ODYN Model Pump Speed Up-Shift Power Spike Benchmark Figures





GE-NE-B31-00265-01P 'Duane Arnold Energy Center Recirculation Runback Setpoint Evaluation' (Proprietary), April 1998:

This report includes an evaluation to decrease the speed setpoint of the recirculation pump following a loss of feedwater flow event. The partial loss of feedwater from a pump leads to a decrease in water level and may result in a scram if the remaining pumps are not able to increase their flow sufficiently fast and to the level of the steam flow being produced by the reactor. Therefore, if coincident with the loss of feedwater flow the plant initiates a recirculation flow speed decrease, that will lower the steam flow production, the magnitude of the water level decrease will be mitigated and avoid the scram. The pump speed setpoint to be selected needs to be sufficiently low to accommodate the dynamic response of both the feedwater and recirculation systems. The ODYN model is used to predict the water level transient to establish the optimum pump speed setpoint. In order to determine the accuracy of the ODYN model to predict the water level, a benchmark against past loss of feedwater events are made. The figures below illustrate the agreement of the ODYN model prediction of both the recirculation flow and the water level following the trip of a feedwater pump in the Duane Arnold plant. The top figure compares the pump speed reduction to the current setpoint of 45% and the lower figures compares the resulting water level. This event results in a scram at approximately 30 seconds, and is predicted consistently. The agreement of the ODYN model predictions to the actual data demonstrates the capability of the model for this problem.

ODYN Model Flow Runback Water Level Benchmark Figures

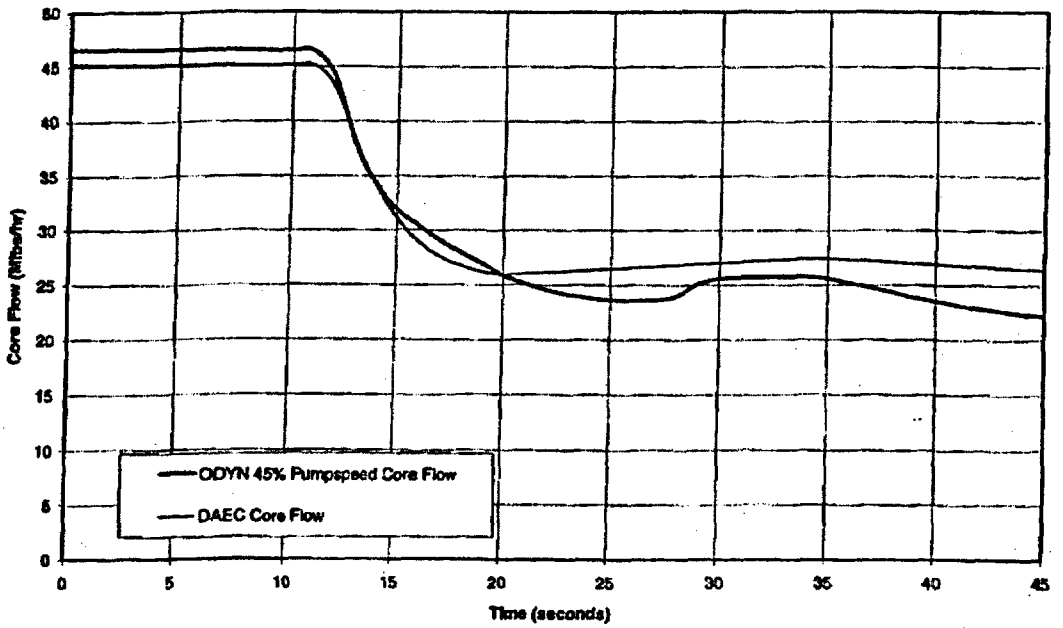


Figure 2. Single Feedwater Pump Trip Event with 45% Runback, Simulation and Test Data Comparison: Core Flow.

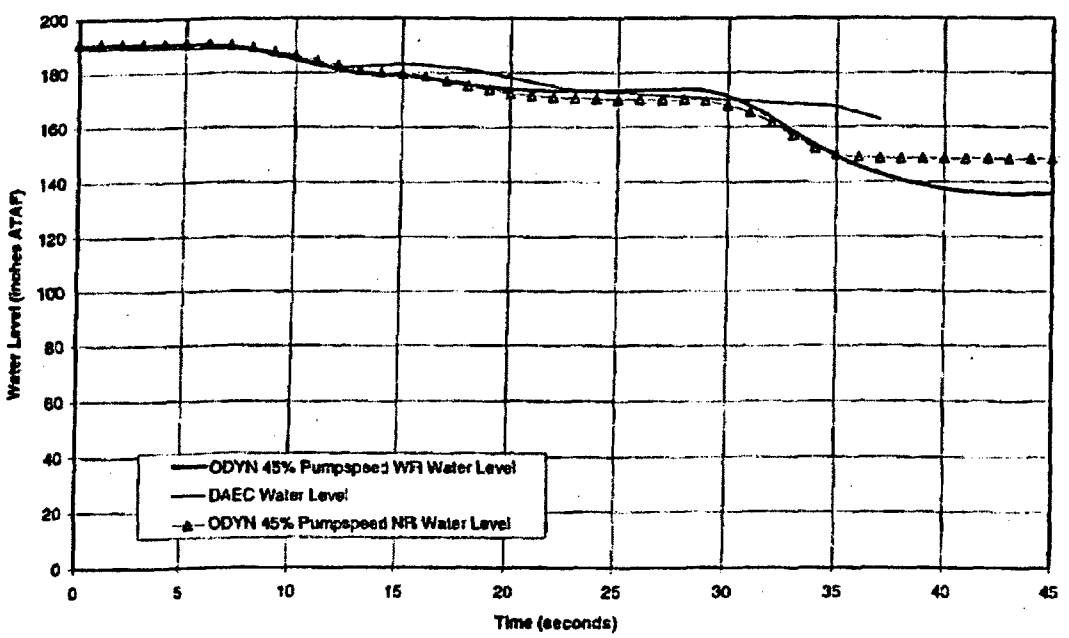


Figure 4. Single Feedwater Pump Trip Event with 45% Runback, Simulation and Test Data Comparison: Water Level.