

The U.S. Nuclear Regulatory Commission (NRC) releases a portion of the NRC's Scenario Authoring, Characterization and Debriefing Application (SACADA) database available to the public. SACADA collects the licensed operator performance information in simulator training and experiments collected. The released data are in the SACADA database until March 2019.

This information in this release includes five Excel files, each contains the performance statistics and corresponding contexts of a macrocognitive function. The five macrocognitive functions are: detecting-alarms, reading meters' indications, diagnosing the situation, deciding the situation response paths, and implementing actions. The context is characterized by a set of performance influencing factors. In the Excel files, each row represents a context. The last two columns are the performance statistics, which includes the number of unsatisfactory performance and the number of trials. The quantification unit in SACADA is the Training Objective Element (TOE). The following show two malfunctions and their corresponding TOEs:

Standby Transformer Trouble:

- Respond to the main control room alarm ABC
- Dispatch operator to the local panel to check the alarm
- Prepare to transfer loads from the standby transformer
- Make appropriate notification

Emergency Diesel Generator Sequencing Failure during a Small Loss of Coolant Accident (SLOCA)

- Identify the emergency diesel generator X failed to load
- Manually start the emergency cooling water Pump per available train or manually Trip Diesel Generator prior to any of the following occurring:
  - Diesel Generator trip
  - Exiting emergency operating procedure – 0 during a loss of coolant accident, main steamline break, or steam generator tube rupture
- Reduce steam generator pilot operated relief valve (SG PORV) or Steam Dump set point to XYZ psig within 45 minutes of initiation of a SLOCA.
- Declares ALERT per the corresponding emergency action level instruction, due to a loss (or potential loss if subcooling is maintained) of the reactor system barrier.
- ESTABLISH charging flow per the procedure addendum ABC.

The SACADA data taxonomy is described in "Chang, Y.J., et al., The SACADA Database for Human Reliability and Human Performance. Reliability Engineering & System Safety, 2014(125): p. 117-133." Questions? Please contact Y. James Chang at James.Chang@nrc.gov.