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SANDIA PULSED REACTOR FACILITY/CRITICAL EXPERIMENT Overview and Recent Experiments

National Organization of Test, Research & Training Reactors

2015 Meeting

Brewster, MA

October 5, 2015

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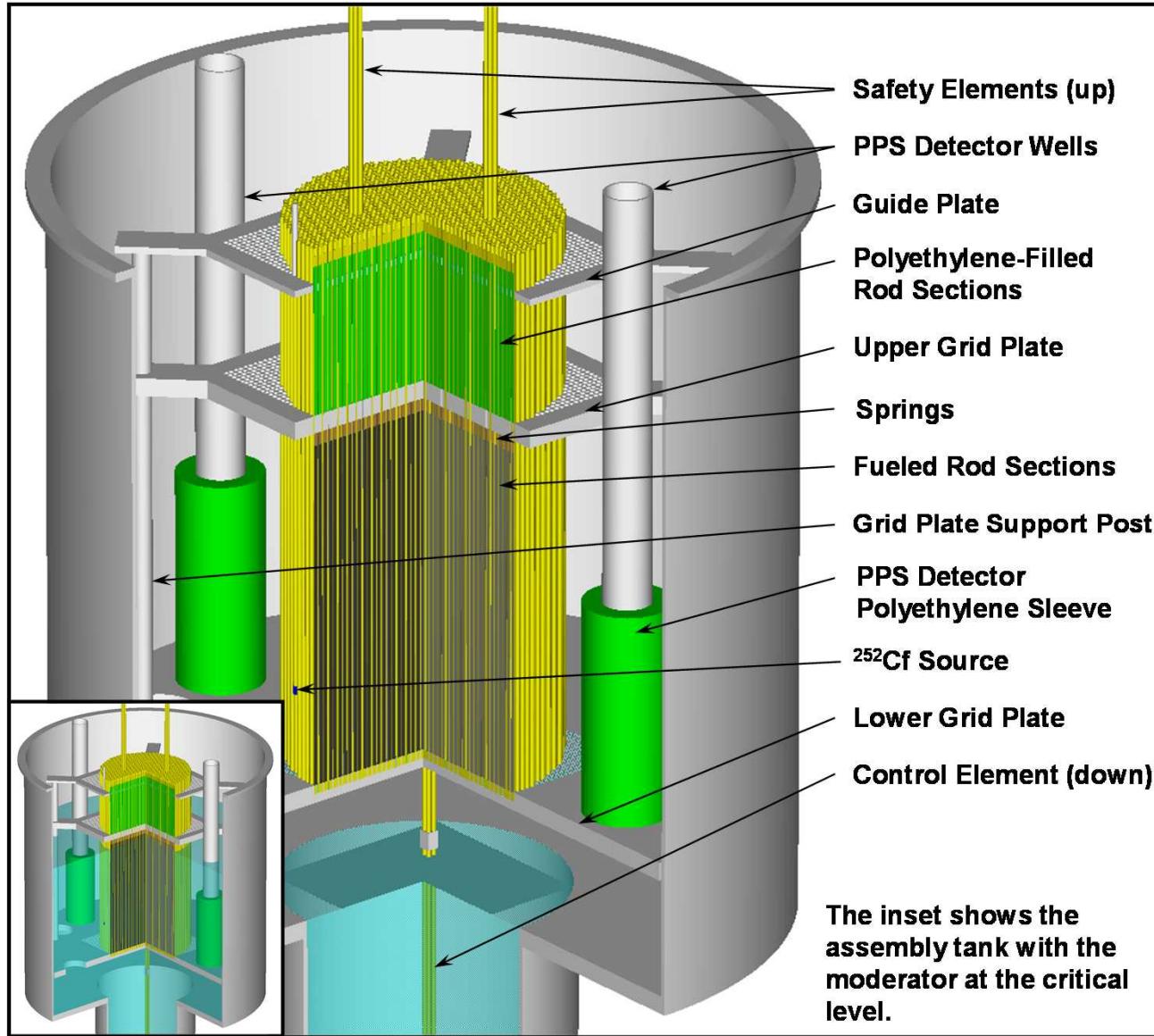
Topics

- CX Overview
- Account of work at the Sandia Critical Experiments (SCX) reactor completed over past couple of years
 - Evaluated in LEU-COMP-THERM-096 in the International Handbook of Evaluated Criticality Safety Benchmark Experiments
 - Approaches on Moderator Level
 - Supported by the DOE Nuclear Criticality Safety Program (NCSP)
- Titanium
 - Reactivity effects and worth of Ti
 - Savannah River process – monosodium titanate

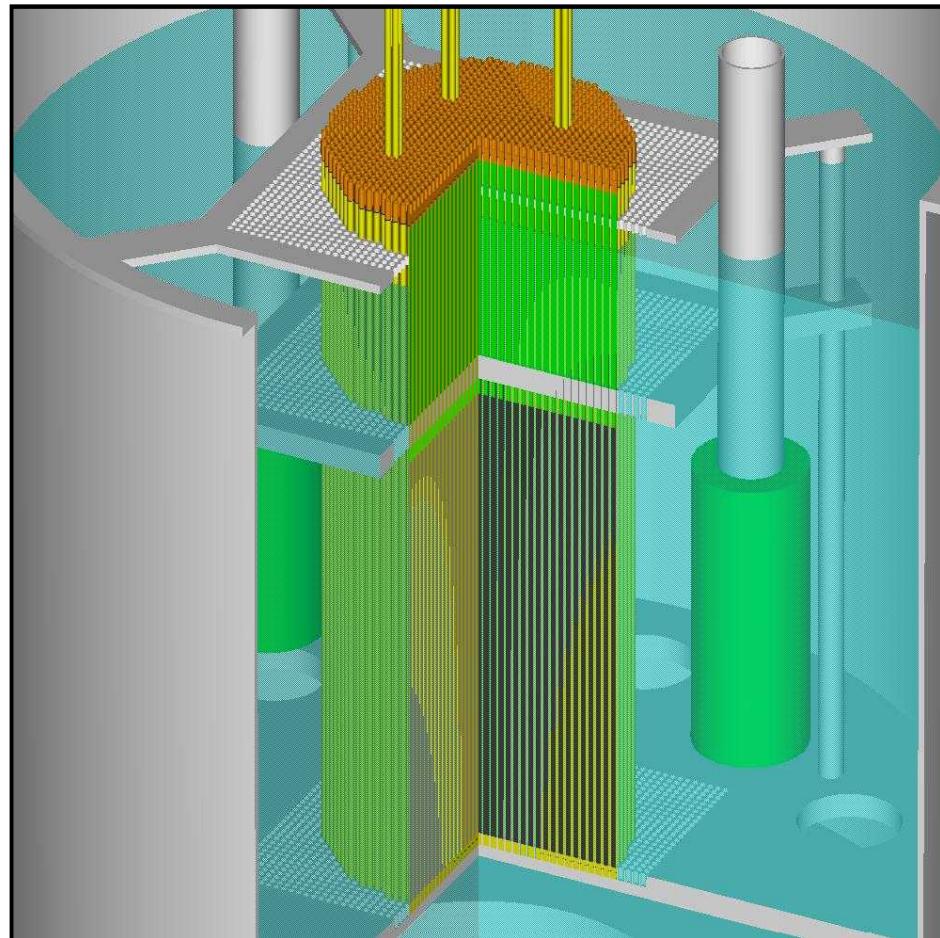
CX - Overview



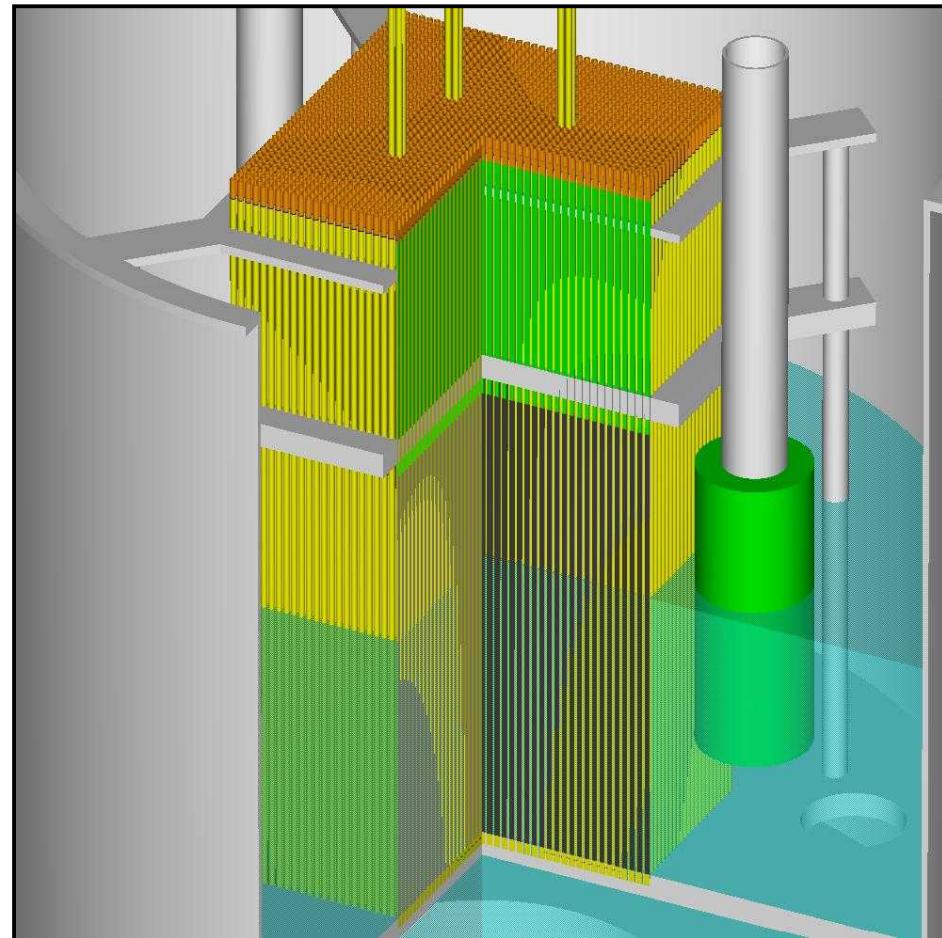
CX – Cross Section



Reflection – Full vs. Partial

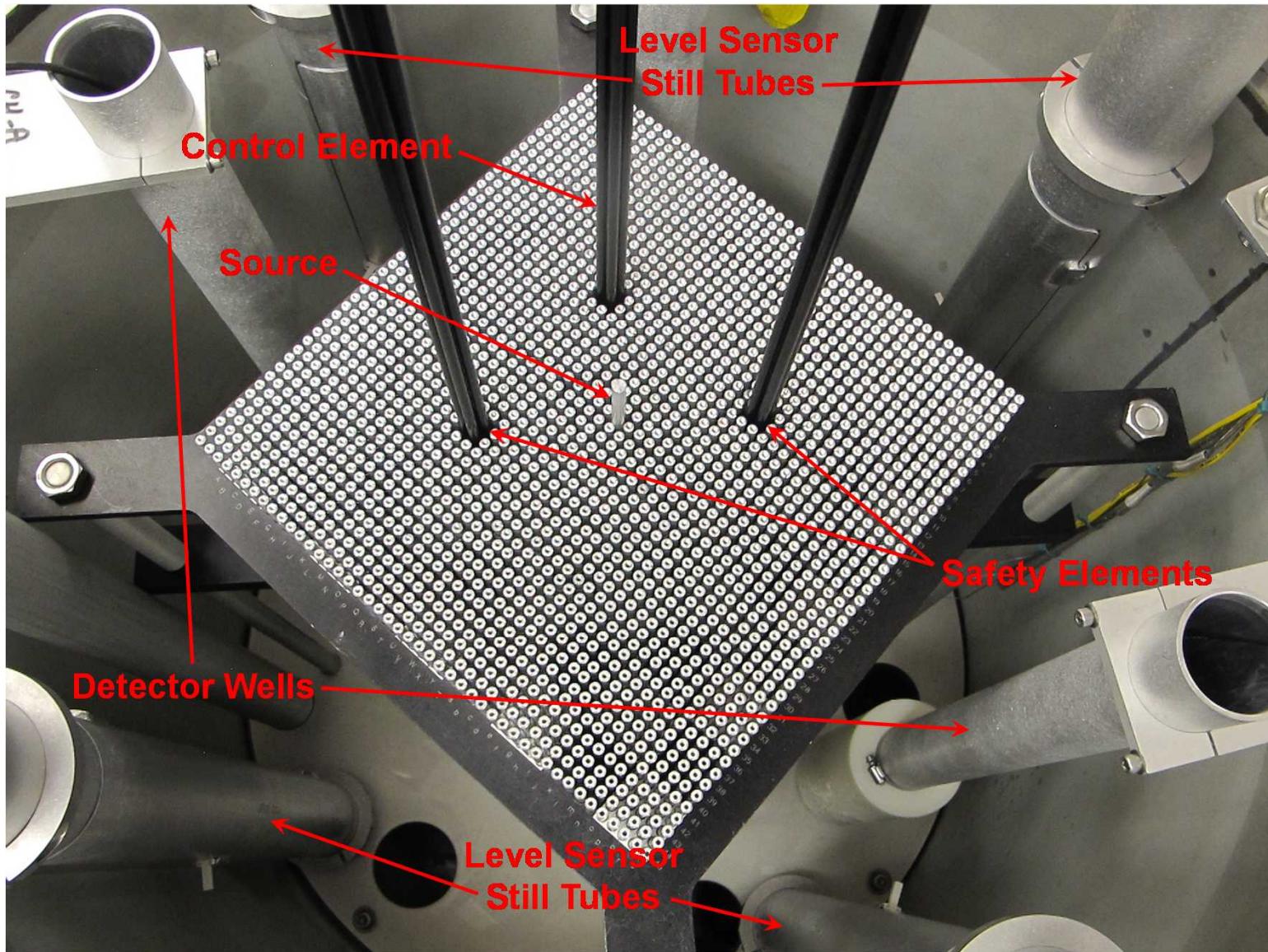


Fully-Reflected

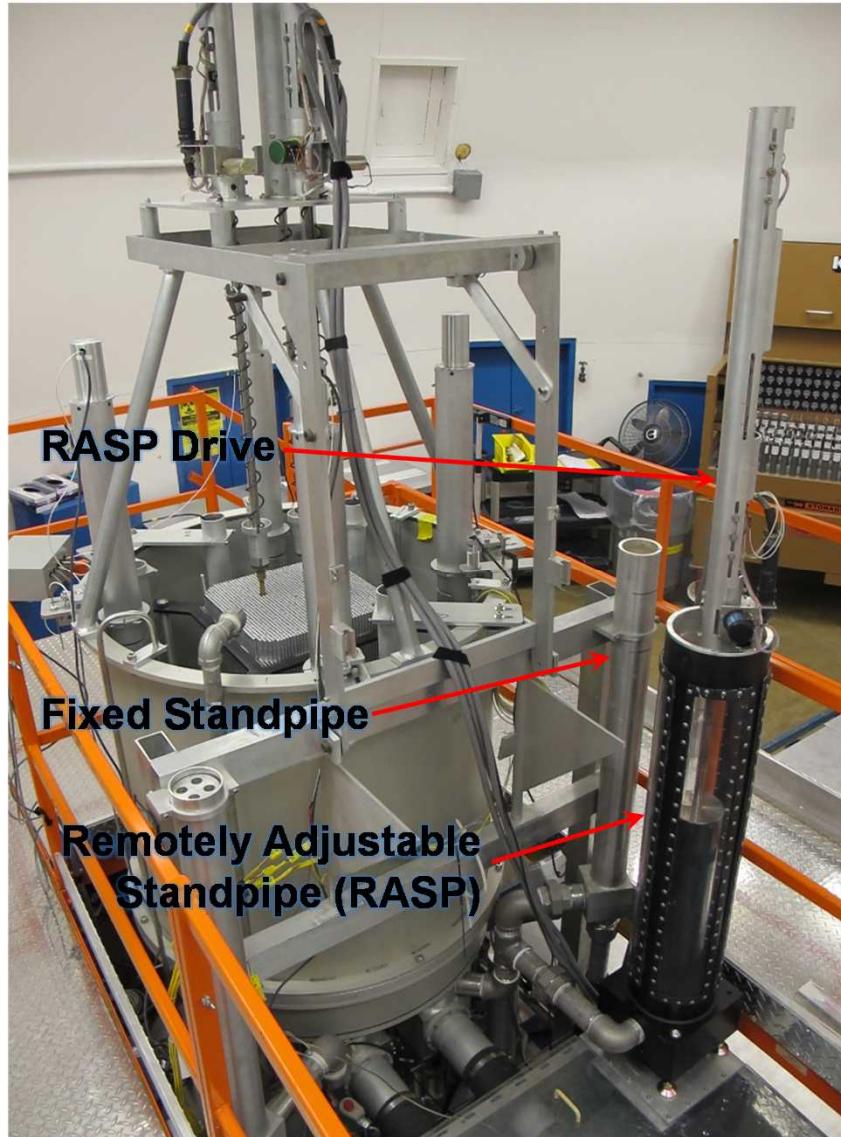


Partially-Reflected

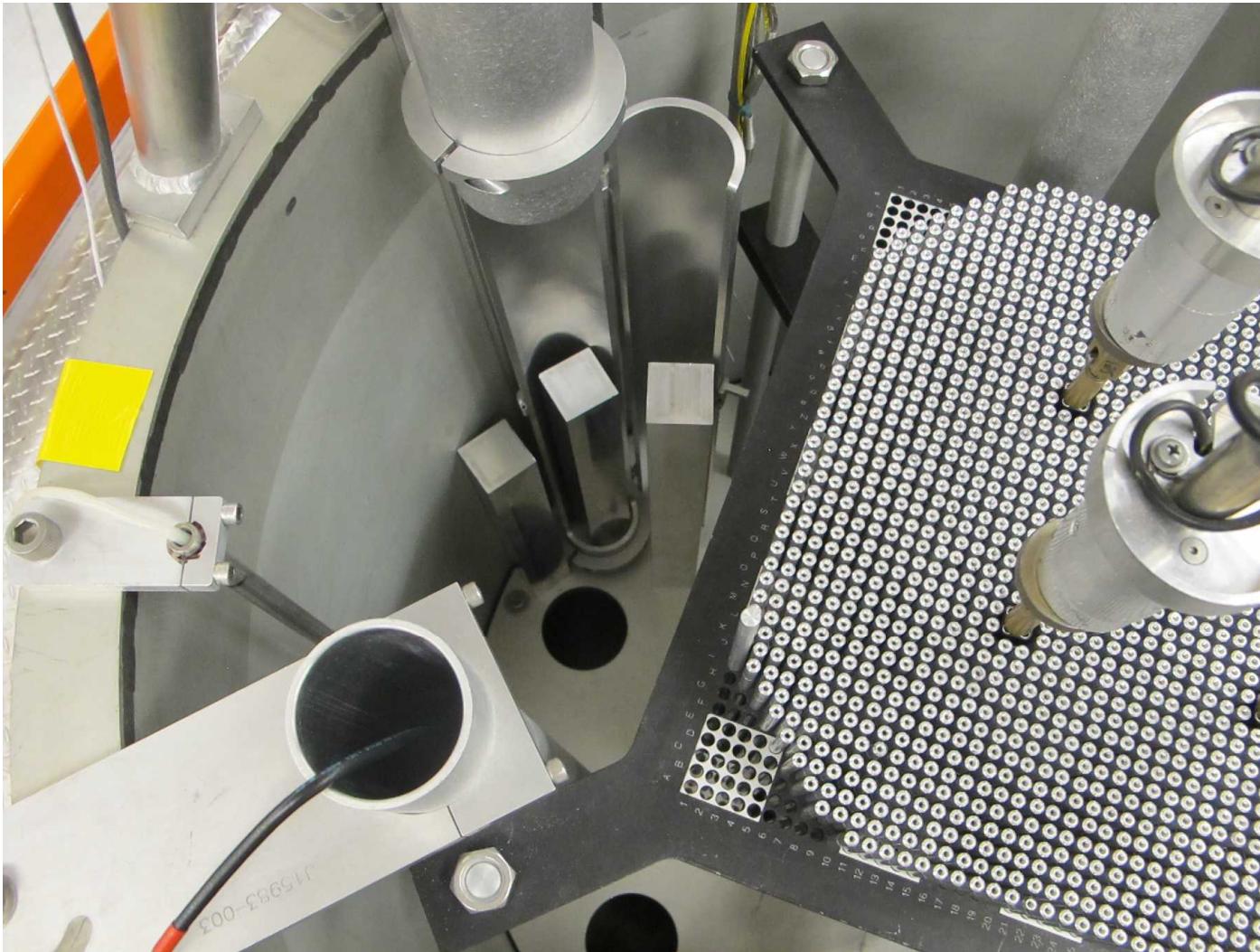
CX – Inside Core Tank



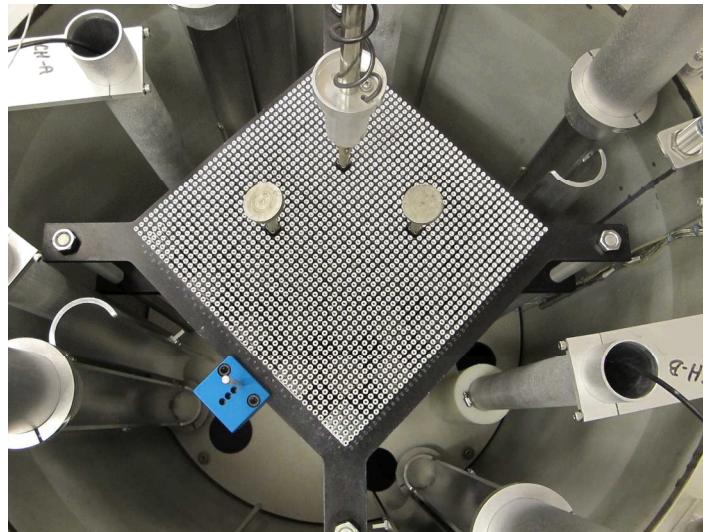
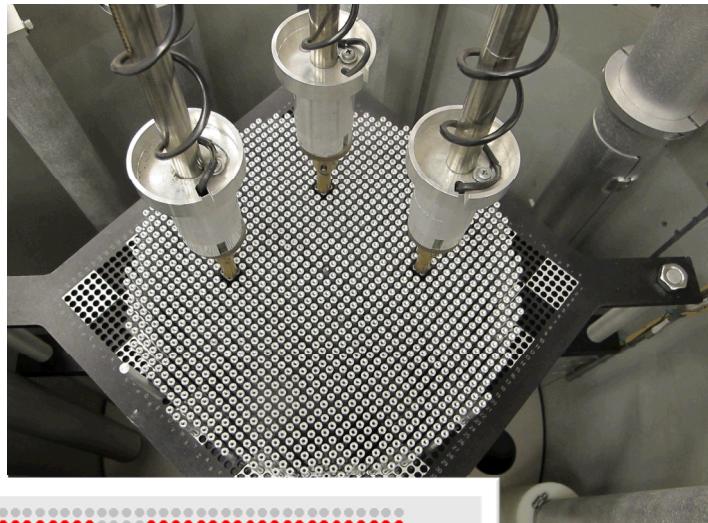
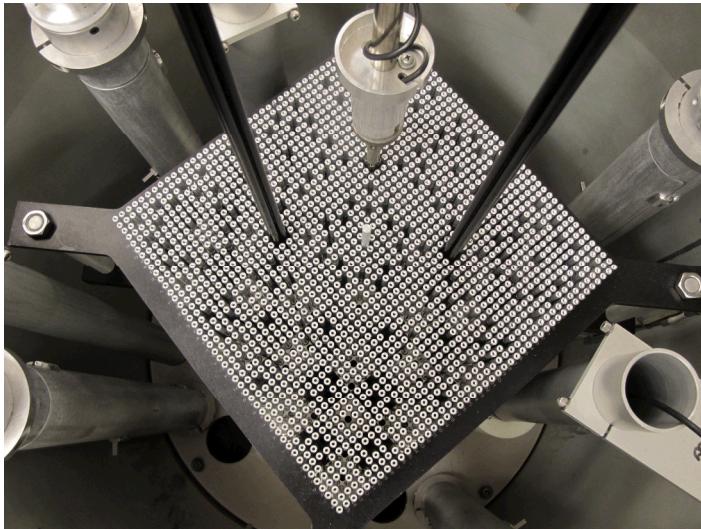
Standpipes – Water Level Control



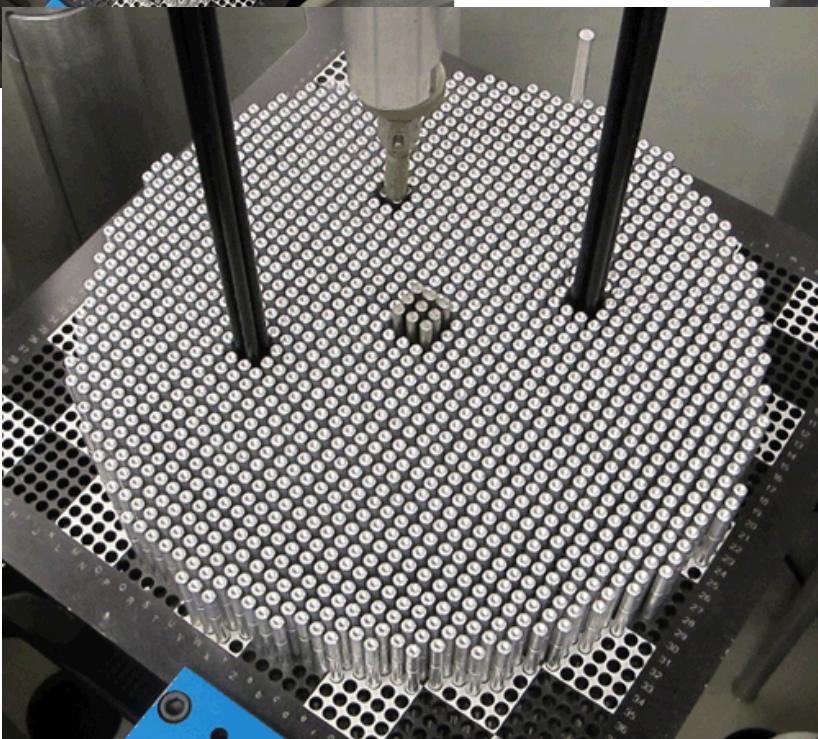
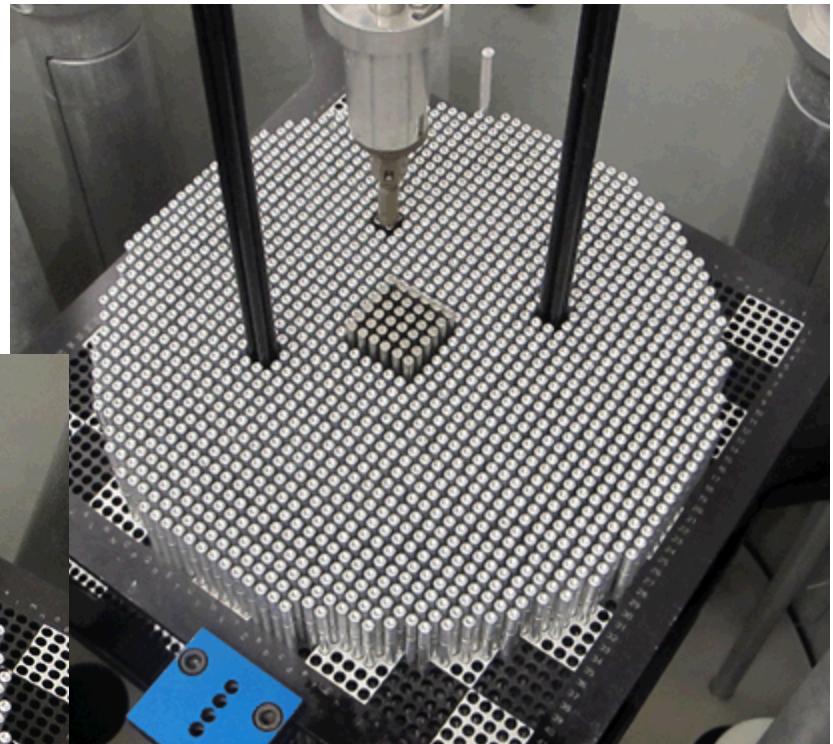
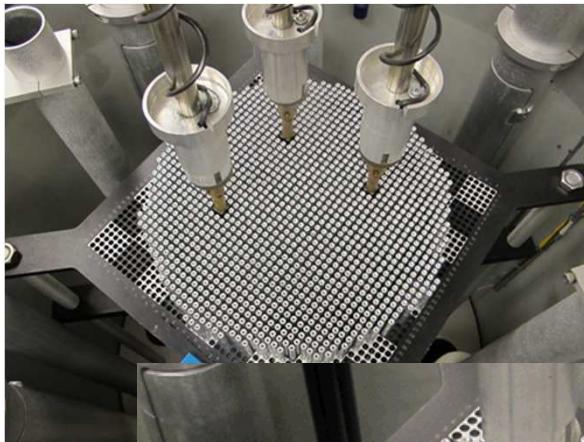
Level Measurement – Four “Ultra”sonic Detectors



19 Cases – APPROACHES ON MODERATOR LEVEL

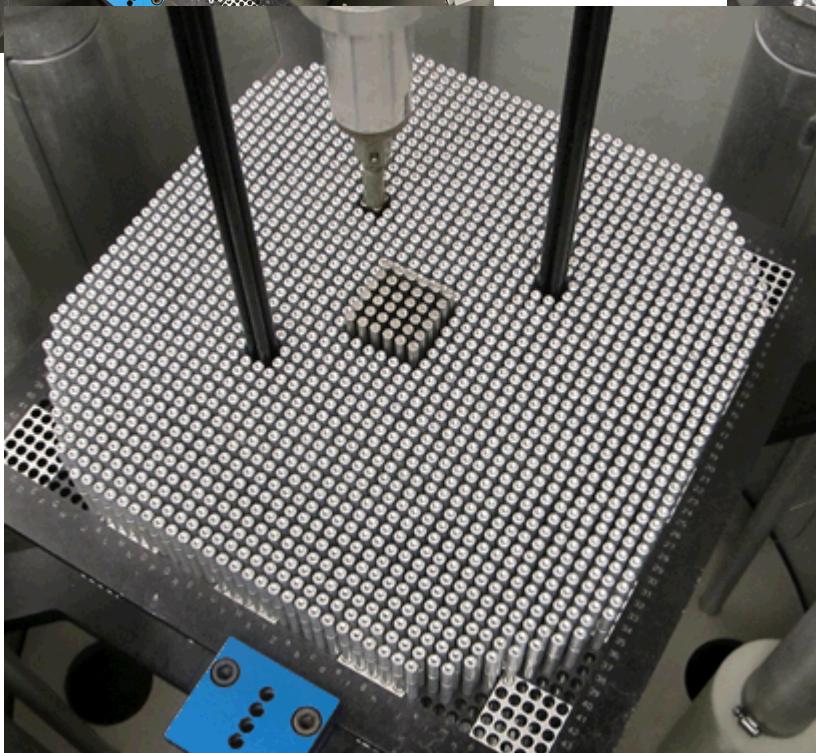
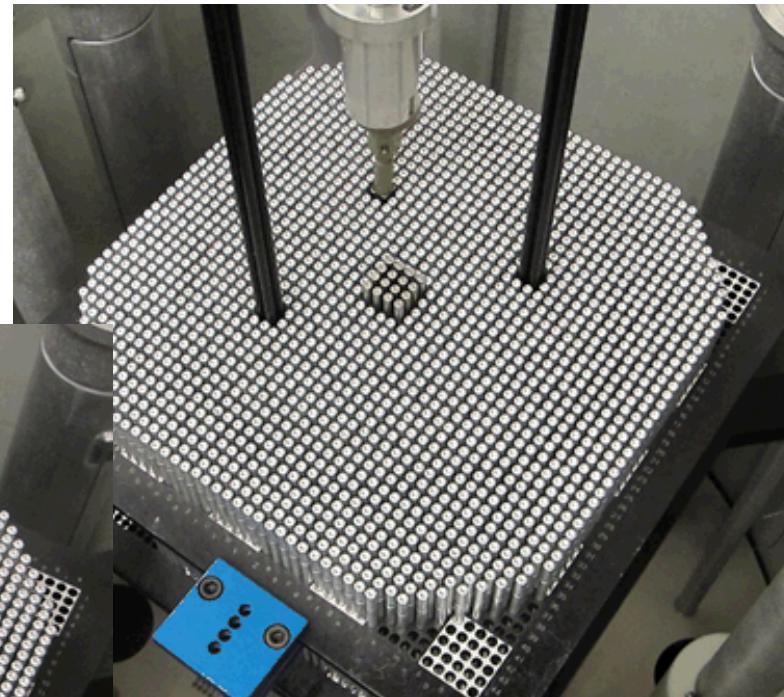
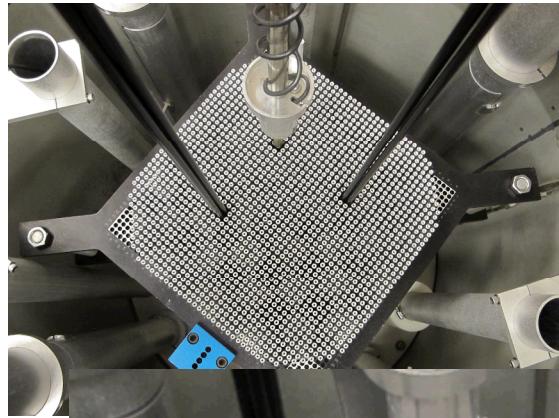


Reactivity Worth - Titanium



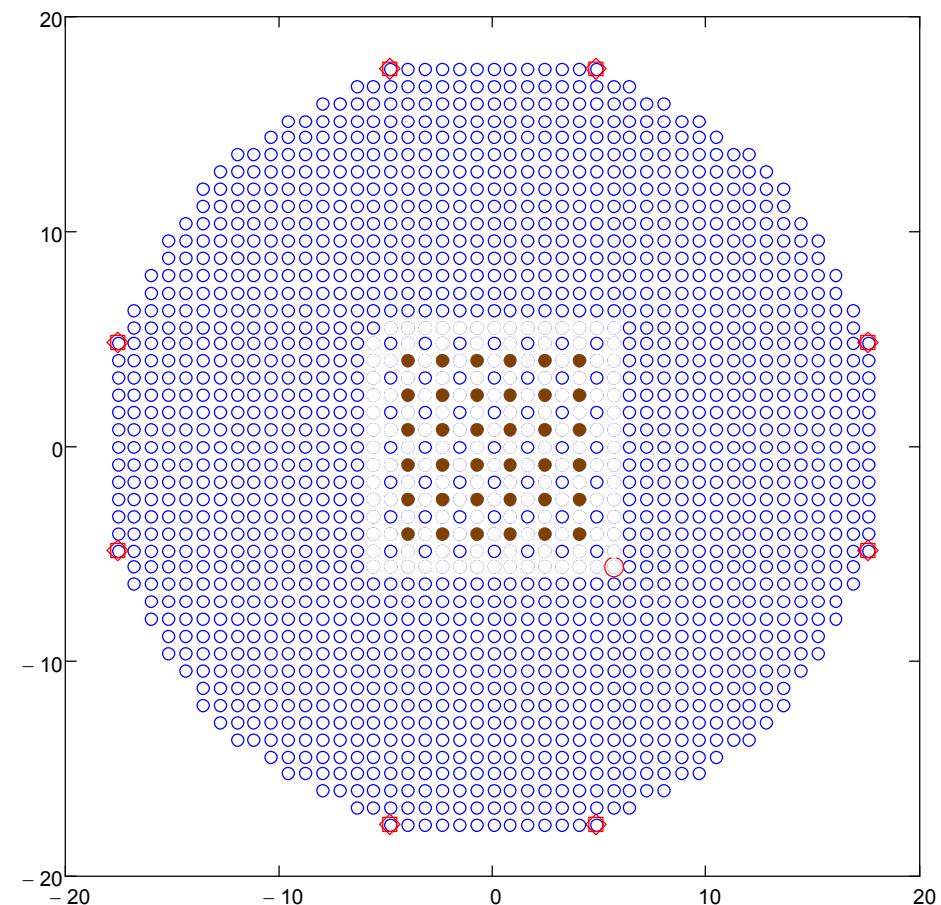
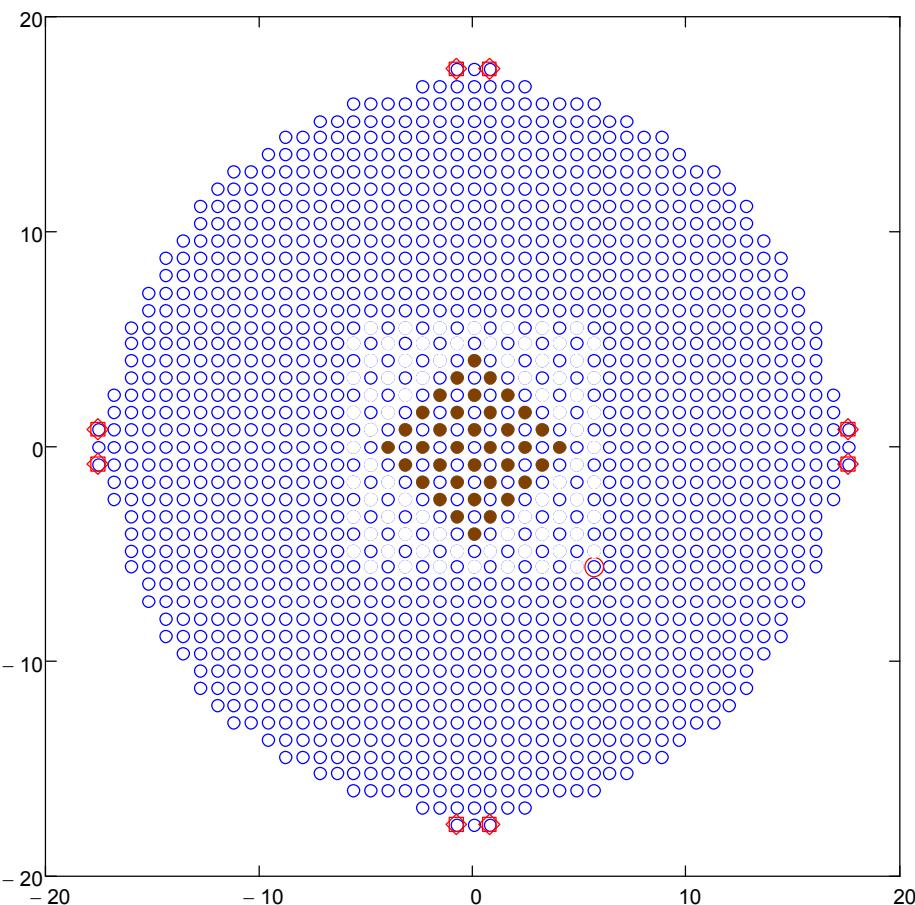
Fully Reflected

Reactivity Worth - Titanium



Partially Reflected

Planned Experiments - Titanium



SPRF/CX – Critical Experiments

