

Board Findings

Chemistry and Metallurgy Research Replacement Facility: Congressional Certification Review

Topic: Safety-Significant Active Ventilation System

Finding Title: Seismic Design of Active Confinement Ventilation System and Support Systems

Finding: The CMRR project should not proceed into final design until there is high confidence that the PC-3 portions of the active confinement ventilation system can be seismically qualified. The CMRR Nuclear Safety Design Strategy (CMRR-AP-0307, Rev. 1) states that it may not be economically feasible to seismically design and qualify some components of the active confinement ventilation system or its support system to PC-3 seismic design requirements. The structural response of CMRR to vertical design basis ground motions (see most recent SSI calculation) has led to the concern by the project that vertical accelerations are at or above the upper limit of those for which rotating equipment can be economically seismically qualified. It is not acceptable to downgrade PC-3 seismic design requirements for the active confinement ventilation system.

Basis for Finding: DOE O 420.1B Chapter I (3)(b)(7) Safety SSCs must be designed, commensurate with the importance of the safety functions performed, to perform their safety function when called upon; and Chapter IV (3)(a)(1)(a) Facility SSCs must be designed, constructed and operated to withstand NPH and ensure confinement of hazardous materials.

Suggested Resolution or Path Forward: NNSA should reconfirm its commitment to seismically design the active confinement ventilation system to PC-3 seismic design requirements. This reconfirmation should include: (1) Near-term studies to assess the potential conservatism in PC-3 vertical design basis ground motions, and revise PC-3 vertical design basis ground motions as appropriate. (2) An assessment of equipment seismic qualification related to both the safety-class fire suppression system and the safety-significant active ventilation system, and associated support systems. The assessment should document the approach to seismically qualify safety-related equipment to PC-3 design basis ground motions including the potential use of seismic isolation for this equipment.

NNSA Response:

DNFSB Final Resolution:

DNFSB: <u>Roy E. Kasdorf</u> Roy Kasdorf	<u>1/16/09</u> Date	NNSA: _____	_____ Date
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