



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001

April 21, 2008

Mr. Luis A. Reyes  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

SUBJECT: RESPONSE TO YOUR APRIL 7, 2008 LETTER REGARDING STATE-OF-THE-ART REACTOR CONSEQUENCES ANALYSES (SOARCA) PROJECT

Dear Mr. Reyes:

In a letter dated April 7, 2008, you responded to our letter of February 25, 2008 on the SOARCA Project. The staff did not agree with our recommendation that a limited set of level-3 probabilistic risk assessments (PRAs) be performed to benchmark the SOARCA approach developed by the staff.

In your letter, the staff states that "with the knowledge gained from research, including extensive knowledge and experience with PRAs, [they] believe [they] can reliably identify any high consequence scenarios that should be included in SOARCA that have a probability of occurrence lower than the screening criteria."

This might be acceptable if SOARCA were primarily for internal NRC use. However, the SOARCA results are also expected to provide the foundation for communicating this aspect of nuclear safety to Federal, State and Local authorities, licensees, and the general public. We continue to believe that the credibility of the SOARCA Project cannot rely on confidence in the judgment of the staff and on a novel analysis procedure that differs substantially from previous state-of-the-art analyses of the consequences of severe reactor accidents. Such studies include the NRC's WASH-1400 (1975) and NUREG-1150 (1990), as well as industry-sponsored PRAs such as those for Zion (1981), Indian Point (1982), Millstone 3 (1983), and Seabrook (1983). Without including benchmark analyses similar in scope, it will be difficult to demonstrate convincingly that reductions in consequences that might be indicated by the SOARCA results reflect the impact of enhancements in plant design and operation, and improvements in calculation methods for accident progression and consequence analysis, rather than changes in the scope of the calculation.

Dr. Dana Powers did not participate in the Committee's deliberations regarding this matter.

Sincerely,

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William J. Shack  
Chairman

References:

1. Report dated February 25, 2008, from William J. Shack, Chairman, ACRS, to Dale E. Klein, Chairman, NRC, Subject: State-of-the-Art Reactor Consequence Analyses Project.
2. Letter dated April 7, 2008, from Luis A. Reyes, Executive Director for Operations, NRC, to William J. Shack, Chairman, ACRS Subject: State-of-the-Art Reactor Consequence Analyses Project.
3. U.S. Nuclear Regulatory Commission, "Reactor Safety Study – An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants," WASH-1400 (NUREG/75/014), 1975.
4. U.S. Nuclear Regulatory Commission, "Severe Accident Risks: An Assessment of Five U.S. Nuclear Power Plants," Final Summary Report, NUREG-1150, 1990.
5. "Zion Probabilistic Safety Study," Commonwealth Edison Company, 1981.
6. "Indian Point Probabilistic Safety Study," Power Authority of the State of New York and Consolidated Edison Company of New York, Inc., 1982.
7. "Millstone Unit 3 Probabilistic Safety Study," Northeast Utilities, 1983.
8. "Seabrook Station Probabilistic Safety Assessment," Picard, Low and Garrick, Inc., 1983.