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Improved Identification Techniques Against Alkali-Silica Reaction Concrete Degradation at Nuclear Power Plants

Comment On: NRC-2014-0257-0002
Improved Identification Techniques Against Alkali-Silica Reaction Concrete Degradation at Nuclear Power Plants; Request for Comments on Petition for Rulemaking

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General Comment

Reference NRC-2014-0257 Proposed Rule for Improved Identification Techniques Against Alkali-Silica Reaction Regarding Concrete Degradation at Nuclear Power Plants. Comment from Garry L. Morgan, Blue Ridge Environmental Defense League's local Chapter - Bellefonte Efficiency and Sustainability Team/Mothers Against Tennessee River Radiation, BREDL/BEST/MATRR, located at Scottsboro, Alabama.

I agree with the petitioners request as a need in improving the safety of nuclear power plants, thus reducing failure risks of nuclear power plants which enhances public safety.

In the Tennessee River Valley the Tennessee Valley Authority, TVA, operates the Browns Ferry, 3 BWRs; at Sequoyah 2 PWRs and at Watts Bar 1 PWR and another at Watts Bar which is in the process of being licensed. At the Bellefonte Nuclear power plant site there are 2 nuclear power units which have not been completed but have demonstrated continuous concerns about concrete degradation as a result of time and water contamination of the concrete structures which would effect the safe operations of a future nuclear power operation. The same concerns holds true at Watts Bar Unit #2.

I request that the NRC amend its regulations to improve identification techniques against Alkali-Silica Reaction, ASR, concrete degradation at U.S. nuclear power plants. The petitioner suggests that the reliance on a visual inspection does not adequately identify nor confirm ASR, or provide the current state of ASR damage (if

present) without petrographic analysis under current existing code. There are engineering and NRC standards described below which confirm this need.

The petitioner asserts, and I concur, that codes and standards exist that are capable of detecting ASR and determining the key material properties needed to evaluate the degree and severity of ASR damage. American Concrete Institute, ACI, Standard 349.3R, Evaluation of Existing Nuclear Safety-Related Concrete Structures, for instance, has been endorsed by the NRC (ADAMS Accession No. ML112241029) as an acceptable method of protecting against excessive ASR concrete degradation, but is not a regulatory requirement. The petitioner and I requests that the NRC amend its regulations to require that all licensees comply with industry codes and standards that have already been endorsed by the agency, and identified two standards for which the NRC's regulations should require compliance: (1) ACI Standard 349.3R; and (2) American Society for Testing & Materials (ASTM) C856-11, Standard Practice for Petrographic Examination of Hardened Concrete.

I also concur with the professional summary submitted by David Lochbaum, Director of the Union of Concerned Scientists Nuclear Safety Project which states: "Having found that (a) existing inspections will not ensure that concrete degradation caused by alkali-silica reaction is detected, (b) concrete degradation caused by alkali-silica reaction can have adverse nuclear safety implications, and (c) the measures requested in the petition are appropriate solutions to the problem, the Union of Concerned Scientists concludes that the Nuclear Regulatory Commission should revise its regulations to ensure that alkali-silica reaction effects are effectively managed."

In Summary - The petitioner has brought forward an important need to enhance public safety at nuclear power facilities via the proposed rule change. The NRC standards described in ML112241029, professional science and engineering organizations, ACI & ASTM, agree with this important requirement for a rule as evidenced by engineering standards submitted and engineer's comments, UCS - Dave Lochbaum, submitted as attached comments in this proposed rule change action. The professional standards outlined and submitted demonstrates the need for increased concrete surveillance to protect the public against nuclear power plant failures as a result of concrete ASR damage.

Garry L. Morgan, Director of BEST-MATRR Community Health and Radiation Monitoring Project; P.O. Box 241, Scottsboro, Al., 35768.