

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: Online Monitoring System for Concrete Structures Affected by Alkali-Silica Reaction (ASR) – University of Nebraska, Lincoln**

**SECTION B. Project Description**

The University of Nebraska, in collaboration with the University of Alabama, proposes to develop and employ two highly sensitive active and passive stress wave sensing techniques and advanced signal processing algorithms to monitor and quantify alkali-silica reaction-induced microcracking damage in concrete.

**SECTION C. Environmental Aspects / Potential Sources of Impact**

Chemical Use/Storage / Chemical Waste Disposal – 50% w/w NaOH solution will be added to the concrete mixtures at The University of Alabama to accelerate the development of alkali-silica reaction. Quantities will be on the order of 16 lb of solution per cubic yard of concrete. The NaOH will be chemically bound either in cement hydration products or alkali-silica reaction product and should therefore not present disposal concerns. Disposal of waste is handled by the University of Alabama’s Environmental, Health, and Safety office.

**SECTION D. Determine the Level of Environmental Review (or Documentation) and Reference(s):** Identify the applicable categorical exclusion from 10 CFR 1021, Appendix B; give the appropriate justification, and the approval date.

Note: For Categorical Exclusions (CXs) the proposed action must not: 1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, including requirements of DOE orders; 2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; 3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; 4) adversely affect environmentally sensitive resources. In addition, no extraordinary circumstances related to the proposal exist which would affect the significance of the action, and the action is not “connected” nor “related” (40 CFR 1508.25(a)(1) and (2), respectively) to other actions with potentially or cumulatively significant impacts.

References: B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial development.

Justification: The activity consists of university-scale research on microcracking damage in concrete.

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 06/29/2016