

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Development of LWR Fuels with Enhanced Accident Tolerance – AREVA Federal Services LLC

SECTION B. Project Description

The AREVA team, which includes Duke Energy, the Tennessee Valley Authority, Savannah River National Laboratory, the University of Florida, and University of Wisconsin, will investigate three fuel pellet concepts and six cladding coatings and document the concept for a coolant nanoparticle additive. The team will assess the potential benefit, manufacturability, suitability, and performance of the concepts for commercially deploying enhanced accident tolerant fuel.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use – AREVA will supply the University of Florida with depleted uranium pellets. The University of Florida will press and sinter pellets out the depleted uranium oxide.

Chemical Use/Storage/Chemical Waste Disposal/Hazardous Waste Generation – At the University of Wisconsin, routine metallurgical chemicals will be used and disposed of within existing university protocols. Nanoparticles will be used in the coating process and these are handled in approved fume hoods using approved procedures to prevent any inhalation. The Savannah River National Laboratory will use acid etchants and samples post evaluation. Procedures are in place for the disposal of the expected waste of liquid acid etchant and solid samples.

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.

B3.15 Siting, construction, modification, operation, and decommissioning of facilities for indoor small-scale research and development projects and small-scale pilot projects using nanoscale materials in accordance with applicable requirements (such as engineering, worker safety, procedural, and administrative regulations) necessary to ensure the containment of any hazardous materials. Construction and modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible).

Justification: The activity consists of evaluating light water reactor fuel for research purposes.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) Yes No

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 9/25/2012

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