

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: Zeolite Membranes for Krypton/Xenon Separation from Spent Nuclear Fuel Reprocessing Off-Gas – Georgia Tech Research Corporation**

**SECTION B. Project Description**

Georgia Tech Research Corporation will develop a novel, high-performance, low-energy intensity, lower-cost zeolite membrane process for Kr/Xe separation during spent nuclear fuel processing; and investigate the underlying molecular adsorption and transport processes in both 'idealized' and 'realistic' operating conditions to develop reliable synthesis-structure-property relationships for such membranes. The results would be a major advancement in the cost-effective and efficient capture and recovery of noble gases.

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

Part of the work will be conducted at a DOE laboratory and has existing NEPA documentation that evaluated the impacts of that work. The remaining work conducted at Georgia Tech will be managed by their existing processes and procedures for managing chemicals and hazardous waste. The action will not create additional environmental impacts above those already occurring at the university.

**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 conducting university laboratory scale research.

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 08/12/2014