Application of DOE NEPA Procedure: Categorical Exclusions A1 and A9, Applicable to General Agency Actions (10 CFR Part 1021, Subpart D, Appendix A) and Categorical Exclusion B3.6, Applicable to Specific Agency Actions (10 CFR Part 1021, Subpart D, Appendix B).

Rationale: The U.S. Department of Energy (DOE) National Nuclear Security Administration (NNSA) proposes to provide financial assistance to the *Washington State University (WSU)* for scientific research related to the Determination of Thermodynamic and Kinetic Parameters for Complexation of Tc(IV) with F^-, Cl^-, Br^-, I^-, SO_4^{2-} and PO_4^{3-}, acetate, citrate and EDTA. The PI is Nathalie N. Wall. This project will generate data of a type that is mostly missing to the field of Tc(IV) chemistry, i.e. the complete thermodynamic picture featuring measured values for ΔH and ΔS, which will provide a deeper insight in the thermodynamic parameters that drive complexation reactions and ultimately chemical separations and speciation of Tc(IV) in environmental behavior and process streams and waste streams that arise from actinide and fission product separations. Graduate students who are assigned to this project will first go through the Nuclear Reactor Operator licensing course at the WSU Nuclear Radiation Center in order to prepare them to be able to produce the radioactive materials for use in this project.

Radioactive isotopes of F, Cl, Br, I and Tc will be produced at the WSU Nuclear Radiation Center for experimental use as radiotracers in this project. The F, Cl, Br and I radiotracers will be used as ligands to measure the formation and exchange kinetics of Tc(IV) complexes. The radioactive Tc will be used to measure formation constants for Tc(IV) complexes with F, Cl, Br, I, acetate, citrate and EDTA. Work would be performed at the Nuclear Radiation Center, WSU and the Chemsitry Department - Fulmer Hall, WSU.

A more in depth discussion on the objectives and activities can be found in the technical proposal submitted by the applicant. Non-proprietary information within this document is hereby incorporated by reference.

Categorical Exclusions A1 and A9 apply in cases of:

> (A1) Routine actions necessary to support the normal conduct of DOE business limited to administrative, financial, and personnel actions.
> (A9) Information gathering, data analysis, modeling, simulation, applied mathematics, information dissemination ……

Categorical Exclusion B3.6 applies in cases of:

> ….operation/ decommissioning of facilities for bench-scale research, conventional laboratory operations, small-scale research and development and pilot projects

This proposal fits within the parameters of Categorical Exclusions A1, A9, & B3.6.

Based upon the information from the environmental questionnaire, the technical proposal, my knowledge, this proposal does not present any extraordinary circumstances of a unique or uncertain nature. It is not connected to other actions with potentially or cumulatively significant impacts.[1]

Supported by the information provided by the applicant and my understanding of these activities, the proposal would not[2]:

1. threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including requirements of DOE and/or Executive Orders;
2. require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities;
3. disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; or
4. adversely affect environmentally sensitive resources (including but not limited to those listed in paragraph B.(4)); or
5. Involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10CFR Part 1021, Subpart D, Appendix B.

Therefore, this proposal meets the conditions that are the Integral Elements of the Class of Actions and application of Categorical Exclusions A1, A9, & B3.6 are appropriate.

If changes are made to the scope of actions as described in the proposals, or if the scope is expanded to encompass other actions, NEPA requirements for the action will need to be reassessed at that time.

John E. Weckerle

Digitally signed by John E. Weckerle
DN: c=us, o=u.s. government, ou=department of energy, ou=Energy IT Services, ou=DOE Common Operating Environment, ou=People, cn=John E. Weckerle
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John Weckerle
NEPA Compliance Officer
NNSA Office of General Council

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[1] See 10 CFR § 1021.410(b)(2)and(3)for full text of regulation.
[2] See 10 CFR Part 1021 Subpart D Appendix B (B(1)through(5)).