DOE/NNSA Nuclear Criticality Safety Program (NCSP)

Request for Proposals for FY2025

Proposals Due: February 2, 2024

This announcement serves as the Request for Proposals for NCSP tasks for Fiscal Year 2025. The projected NCSP Planning Budget is approximately $1M for FY2025. NCSP tasks for FY2024 are discussed in the Five-Year Plan. Proposals must be submitted in the format specified in the provided NCSP proposal template. Proposals should be limited to a maximum of 3 pages in length.

The following information provides additional guidance for proposals this year:

1. For the FY25 planning cycle, Dr. Angela Chambers will task the Criticality Safety Support Group (CSSG) and Nuclear Data Advisory Group (NDAG) to review and rank all new NCSP proposals before the NCSP Technical Program Review meeting, scheduled for February 2024.
2. There is no need to submit proposals for on-going work.
3. Each proposal must fill a Mission and Vision (M&V) goal (see list in this proposal call). Everyone must complete a new proposal using the proposal template form. Please carefully follow the instructions in the proposal template. Incomplete proposals and proposals that do not meet a M&V gap will not be considered.
4. The proposed work should have a beginning and an end. These tasks should be completed within the 5-year period, unless the NCSP Manager approves continuation of the task because of budget realities or technical risk.
5. Mission and Vision tasks the proposals should address the gaps provided on the next two pages of this call. The new proposal template will ask you to define which gap you are addressing in your proposal.

Proposals are due to the NCSP Manager on February 2, 2024.

Please e-mail proposals to ncspteam@ornl.govby the due date.

NCSP Management Team
Angela Chambers, Doug Bowen, John Miller, and Marsha Henley

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Acronyms:

- **TPE – Technical Program Element**
- **AM – Analytical Methods**
- **IE – Integral Experiment**
- **IPD – Information Preservation & Dissemination**
- **ND – Nuclear Data**
- **TE – Training & Education**

TPE	Attribute Category	Attribute	Goal
AM	Processing codes and Data libraries	Ability to process: - Input evaluations in standard formats from all international compilations - Input evaluations in standard formats from all international compilations - Covariances (reaction/energy/angle)	Process new covariance evaluations for thermal scattering law data, collision kinematics, fission energy distributions
AM	Radiation Transport Codes	Geometry - 1D - generalized 3D - CAD/computer-aided engineering (CAE) interface - Time dependence (e.g., Godiva ringing)	Develop and maintain time-dependent geometry modeling capability
AM	S/U Methods	Sensitivity analysis capabilities - Sensitivity profiles - Similarity assessment - Covariance data (differential, integral, computational)	1) Develop and deploy methods to provide integral experiment correlation data OR 2) Provide correlation data for integral benchmark experiments
AM	S/U Methods	Covariance adjustment	Develop and maintain S/U covariance adjustment capabilities per new CSEWG recommendation
IE	Facilities	Support for all nuclear material types and forms	Develop authorization basis to support powders and solutions
IPD	Personnel/Facilities	Maintenance/development of unclassified and classified web-based repositories with controlled access as needed for important data for criticality safety. Examples include but are not limited to: - ICSBEP benchmarks - Classified benchmarks - Critical experiments	Implement a process to rapidly disseminate information (e.g., operational upsets, emergency response) to criticality safety professionals (“Crit spam”)

M&V Gaps - Proposal Tasks (continued)

TPE	Attribute Category	Attribute	Goal
ND	Personnel	Nuclear data evaluators	Document best practices for nuclear data evaluations (knowledge management)
ND	Models and Calculations	Capability to evaluate experimental data	Develop new analysis tools to fully utilize new experimental capabilities such as the time projection chamber (TPC), Chi-Nu, and correlated data
ND	Evaluations	Cross section and other nuclear reaction evaluations with covariance data for priority NCSP nuclear data needs	Develop new evaluations with covariance data for fission product yields and delayed neutron data—will require re-establishing and sustaining expertise in this area
TE	Personnel/Facilities	Efficient application of training and qualification of criticality safety engineers within criticality safety programs	Develop best practices through a review of training and qualification programs throughout the DOE complex to include approaches for assessment of competency
TE	Personnel/Facilities	Provision of criticality safety training not readily available from other sources	Develop and maintain deployable training for operators and process supervisors