

April 13, 2016

To: J. N. McKamy, Manager, US DOE Nuclear Criticality Safety Program (NCSP)

From: David Erickson, Chair, US DOE NCSP Criticality Safety Support Group (CSSG)



Subject: CSSG Tasking 2016-02 Response

In Tasking 2016-02 the CSSG was directed to provide a review of all 2017 NCSP Proposals. All proposals, including all current and future projects, were included in the review scope. The entire CSSG participated in the review. The primary effort occurred during the CSSG meeting held in conjunction with the annual Technical Program Review held at Sandia National Laboratory.

A copy of the CSSG revised spreadsheet is included as an attachment. Columns N through AY were added; N, O, and P indicate the CSSG's perceived priorities of each task (5 was highest and 0 was lowest), and Q included a CSSG comment as applicable. Some dollar amounts were adjusted per CSSG discussion and are identified with red/bold text in Columns H – L. At the top of the spreadsheet, in Rows 2 – 6 is the summary of the results of calculations in columns R – AY where the results of the priority ranking were evaluated as far as the funds available.

CSSG Recommendations

As can be seen, (in cells G2 – L6) based on the CSSG priority rankings, all Priority 5 and 4 tasks, based on the identified adjusted numbers, were recommended for funding in Fiscal Years 17 and 18. FY16 was included as a process validation. Due to some changes made after the SNL meeting (see basis in ND discussion, below) there is now \$10K left available for FY-17. Though a number of the new tasks were felt to be worthwhile, only a couple made it to a Priority 4 to potentially receive funding. Due to expanding costs associated with current 'priority' tasks, several lower priority current tasks were also 'defunded'. These adjustments are summarized below.

As was noted in the CSSG T&EP Hands-On Review Tasking Response, use of S/U methods (TSUNAMI, Whisper) requires "... *training and understanding of the methods used and the ability to adequately interpret the data provided.*" Therefore, it is recommended that the MCNP and SCALE developers develop some practical examples and quick training regarding what the capabilities are (based on current, or very near term releases), and what benefits (and under what limitations) they can provide to the CS practitioner. It is further recommended that this be done before significant additional effort is expended on adding additional S/U capability/complexity. The process could begin could be started by educating the CSSG, at a future meeting, to help identify how future AM code maintenance/enhancement funding should be focused. It may also be worthwhile to consider a session at an ANS meeting to educate a broader CS audience, with the focus not being on how to run the code, but instead on why S/U should be used in conjunction with "traditional" methods.

Summary by Program Element

Technical Support:

No specific changes to the identified TS tasks, however, LANL-ND2 appears to belong in TS as well.

Analytical Methods:

ORNL-AM6 numbers for FY17-18 were adjusted to match those of LLNL.

Integral Experiments:

NNSS-IE5 was cut from \$2,000K per year to \$750K as there was insufficient justification for the increase based on identified SB development needs.

SNL-IE1 was increased by \$100K per year to support ongoing upgrade/replacement.

SNL-IE3 cost was aligned with latest estimate, however it was provided a priority of 0 since its cost is now included in SNL-IE1.

LANL-IE25 was reduced to \$185K, and funded, since during the meeting ~\$185K remained for FY17 – 18.

It was proposed, after the meeting that the 'extra' \$185K could instead go to fund some new/upgraded NCSET modules. This would help expand the scope of T&E which is currently focused almost exclusively on the 'Hands-On' Class.

Information Preservation and Dissemination:

No changes in dollar amounts, however some current tasks received lower priority and would not get funded.

Nuclear Data:

ORNL-ND6 funding was reduced to \$100K.

There were two entires labeled as LLNL-ND3. For FY 17 they were \$10K and \$100K, these have been combined in the final spreadsheet, and set at \$100K. This leaves \$10 for FY-17.

Training and Education:

LLNL-T&E3 was changed to \$150K for FY17, the outyears need to be better evaluatied/identified.

ORNL-T&E5 – though the numbers were adjusted, it was assigned a priority of 0 as the need was not agreed upon by the CSSG.

The attached spreadsheet was reviewed by the entire CSSG and all relevant comments to the CSSG observations were addressed and incorporated into the final report.

The CSSG is available to answer any questions that may arise in working with the provided results.

cc: CSSG Members
A. S. Chambers (NA-511)
M. E. Dunn
L. Scott

Attachment (as a separate file): Spreadsheet with CSSG notes, etc.: NCSP FY17-21 Proposed Tasks – CSSG.xlsx