United States Government	**Department of Energy**

memorandum

Idaho Operations Office

To: J. N. McKamy, Manager
Nuclear Criticality Safety Program

Attached are the responses of record for the four subject tasks given to the CSSG. Several of these tasks were completed informally and preliminary responses were transmitted by email prior to the stated due dates. This memorandum formalized the CSSG responses in one document for the program files.

Date: May 8, 2008

Subject: CSSG Response to Tasks 2006-1 through 2006-4

Signed copy by slow mail
A. S. Garcia, Chair
Criticality Safety Support Group

Attachments

CSSG TASKING 2006-01

Task Title: CSSG First Annual Review of Criticality Safety Infractions & Deficiencies at Identified Priority Sites

Task Statement: The CSSG is requested to provide a plan, including schedules and review responsibilities, for performing the tracking, trending, and lessons learned review of criticality safety infractions and deficiencies that have occurred during the past 12 months at the sites identified as priority sites in the HQ Criticality Safety Monitoring Program. The plan should also discuss how lessons learned would be documented and shared with other sites and HQ. The reviews should be led at each site by a CSSG member but may utilize CSCT members as well.

Task Deliverable: Formal written implementation plan with milestones provided to the NCSP Manager.

Task Due: February 17, 2006

CSSG Response: Several meetings (teleconferences) of a CSSG subgroup were held to define a plan to review criticality safety infractions at several "higher risk" sites. The following objectives and responsibilities were provided by M. Westfall and C. Hopper.

Though a central objective is to have a single pair of eyes/judgments (Lead-Role) to review the NCS infractions and deficiencies that have happened in the last twelve months, adjustments have been made to permit sharing primary CSSG Lead-Roles between T. McLaughlin and T. Reilly with incidental leadership by R. Wilson and J. McKamy. The Lead-Role persons will develop necessary on-site meeting arrangements and formal commitments of CSSG members.

It is the responsibility of the Lead-Role person to assure the identification, availability, and participation of the identified Team Members and to adjust the schedule as necessary to meet completion of NCSP CSSG Tasking 2006-1 with all Site Draft Reports to the CSSG Chair by May 31 for review/consideration at the Reno, NV ANS Summer Meeting. The CSSG will compile the final report for delivery to the NCSP Manager by June 15.

The following schedule is a draft that was compiled prior to the NCSP review in Nevada and based upon the information available to that date. The schedule shown below is final and is summated to the NCSP Manager, via this memo, for final approval. Based on discussions at the Nevada meeting, reviews of some sites included below will be eliminated from the formal schedule, but will be done when ever a CSSG member has an occasion to visit the particular Sites.

Savannah River
Lead: R. Wilson
Team members: I. Fergus, T. McLaughlin, SRO CSCT?
Review dates: March 14-15, 2006
Draft report: March 16, 2006 (R. Wilson)

Portsmouth
Lead: T. McLaughlin
Team Members: A. Garcia, OFO CSCT?
Review dates: May, 2006
Draft report: April 6, 2006 (T. McLaughlin)

ETTP
Lead: T. Reilly
Team members: M. Westfall, R. McBroom
Review dates: April 11-12, 2006
Draft report: April 13, 2006 (T. Reilly)

Hanford PFP and ORP
Lead: T. McLaughlin
Team members: H. Toffer, RO CSCT?
Review dates: 2006
Draft report: April 21, 2006 (T. McLaughlin)

NTS/DAF
Lead: T. McLaughlin
Team members: D. Heinrichs, NTS CSCT?
Review dates: 2006
Draft report: April 27, 2006 (T. McLaughlin)

Sandia
Lead: T. Reilly
Team members: R. Anderson, J. Hicks
Review dates: 2006
Draft report: May 4, 2006 (T. Reilly)

Y-12
Lead: J. McKamy
Team members: C. Hopper, E. Kendall
Review dates: May 9-10, 2006
Draft report: May 11, 2006 (J. McKamy)

CSSG TASKING 2006-02

Task Title: CSSG Recommendation on Internet Availability of Criticality Safety Related Reports

Task Statement: The CSSG is requested to identify the reports or types of reports documenting criticality safety related research that should be available as full documents on the LLNL NCSP website or as a link from that site per the inquiry from EH in support of the DOE Nuclear Safety Research program.

Task Deliverable: Written response and recommendation to the NCSP Manager.

Task Due: March 30, 2006

CSSG Response: This task resulted from an inquiry by a user of one of the databases now maintained on the NCSP web site. The databases do not contain the full text documents, but only abstracts and complete reference information. In some cases, there are hyperlinks to the full documents, but no effort has been made to provide the links for every document. The question is whether or not NCSP resources should be allocated to make full reports available through the NCSP web site.

A meeting was held at LLNL on March 7, 2006 to discuss this issue. The participants were J. Morman, S. Huang and C. Lee, D. Heinrichs and Catherine Goff. The following bullets summarize the main points made during the discussions.

- The databases now contain about 12000 entries
- The entries contain approximately 300-400 embedded hyperlinks to complete documents on the OSTI web site.
- The NCSP site does have a general link to the CSIRC web site, where many documents can be found in the library section of the site.
- In general, the NCSP web site manager should not be responsible for finding and digitizing all of the references in the databases.
    - If anyone submits complete documents (of interest to the general criticality safety community) to the NCSP web site manager, they will be added to the site or forwarded to the CSIRC site.
    - A "help" link will be added to the database web pages indicating that if a document can't be found, but is of general interest, an attempt might be made to locate it (see below).
- LLNL has collected a library of documents that are generally no longer available in print and have not yet been digitized for preservation. Use of some CSIRC funds to scan this material and add it to the NCSP collection should be considered.

On both of the database web pages, a link will be placed with an explanatory box saying something to the effect that:

The NCSP cannot provide every report in the databases, but if you think that a specific unavailable report would be of general interest to the criticality safety community, please register a request to the web site manager. The request should contain the complete bibliographic reference and if possible a list of resources that you have already searched, such as the CSIRC library, OSTI, etc. Your request will be reviewed, and if approved an attempt will be made to locate the document and add it to the archives. You will be notified if the request is approved and after the search is complete.

This modification to the web site will be done within the next few weeks. J. Morman, S. Huang and C. Lee will work together to decide how best to implement the changes.

CSSG TASKING 2006-03

Task Title: CSSG Review and Recommendation on the LLNL Hands-On Criticality Safety Training Course Syllabus

Task Statement: The CSSG is requested to participate in the review and development of the LLNL Hands-On Criticality Safety Training Course syllabus to be used in the interim while CEF is transitioning to the DAF as an element of criticality safety engineer training and qualification per DOE-STD-1135-99. One element of this review should be participation of a sub-committee of the CSSG in the review discussions on the draft syllabus at LLNL tentatively scheduled for the week of March 6, 2006.

Task Deliverable: Participation in the LLNL meeting and a summary report to the NCSP Manager.

Task Due: March 30, 2006

CSSG Response:

Jerry McKamy and Jim Morman participated in a meeting at LLNL on March 8 to review the proposed course classroom materials and examine the hands-on apparatus and laboratory location. Comments were given to the LLNL staff that were meant to improve the course. These are summarized below. The classroom material was given to CSSG members at the March NCSP review meeting along with a brief presentation on the course outline and the comparison between the LANL courses and the proposed LLNL course. No significant comments were generated at the NCSP review meeting, but CSSG members were asked to review the materials and forward comments to J. McKamy and S. Huang.

The review meeting at LLNL is summarized below (initial version provided by S. Huang).

- Date/location of the meeting: 3/8/2006 at LLNL
- The consisted of: project overview by Tom Meier including presentation of the project schedule; presentation of the 4-day hands-on course contents by day and outline including the purpose of each training module by Catherine Goff; a tour hosted by Tom Anklam to the RMA at B332 with the participation of the LSO management and the DNFSB Livermore representative; and the meeting closeout to identify the action items.

- Main points from meeting
  - Current schedule projects the readiness of the first class is around June 12, 2006. This is the target date.
  - The students to the first class will be required to be Q-cleared with Radworker 2 training. The class size is expected to be 10 students.
  - It would facilitate the classroom preparation in the RMA if the class is planned for "Q only" and for "L only" students as separate classes.
  - Excellent exchanges of ideas took place during the tour concerning the room, equipment, instruments, and the TACS (Training Assembly for Criticality Safety)
  - Positive and free exchanges of ideas occurred for the enhancement of the syllabus for the 4-day class.
- Comments on course materials
  - Module 1- Add more training material on nuclear fission cross sections by showing curves for ^{239}Pu and ^{235}U; similarly, show absorption cross sections for Cd, Gd and ^{10}B and scattering cross sections for hydrogen. Also explain the process of creating cross sections from raw data, evaluated data (e.g., ENDF), cross section preprocessing, and applications of cross sections to codes like Monte Carlo applications. Add in some examples for the criticality anomalies paper (e.g., "Dissolver Paradox") to the reading references.
  - Module 2- Place the emphasis on DOE O420.1B and not on 420.1A. This would entail explanation of the Double Contingency Principle for the requirement of controlling multiple process parameters rather than multiple controls of single parameters.
  - Module 3- Introduce a few hand calculation methods but concentrate on the applications of one or two methods based heavily on examples. Jim will provide additional examples. Discussion was held to add Stuart Vessard's input as well as other input from Jim and Jerry. Also add LA-10860-MS for applications.
  - Module 4- Add more discussion on the contingency analysis, particularly the framework such as What If/ Event Tree/Fault Tree methodologies. It was suggested that the students should do their contingency analysis for a given process problem in their homework assignment. Also add the flow down of the criticality safety controls from the criticality safety evaluation (CSE) to the experimental procedure and the link between the CSE and the DSA.
  - Module 5- Add an explanation on the use of He-3 instruments for the neutron assay application so the students would link the HE-3 used in this experiment module with other applications.
  - Module 6- LLNL will explore the feasibility of procuring additional absorbers such as borated materials to show the effect or non-effect of the neutron poisons as the results of different system configurations.
  - Module 7- Include criticality slide rules in the notebook
- There will not be a formal test for the course. However, the students will be given homework assignments and opportunities to discuss the homework and training modules. Several suggestions were made:
  - There should be a formal questionnaire to solicit class critiques. Add a daily write-in to solicit additional emphasis on the subjects of interest to the students. Also, there will be a critique session to solicit group input at the end of the training class.
  - Attendance sheets will be kept for each day.

- o Students are required to attend four full days of training to get credit for the course.
  - o There will be a class completion certificate for each student who completes the course.
- LLNL will incorporate the input received in the meeting to finalize the course training materials in the coming weeks.
- Action Items
  - o LLNL will send CDs to Jim next week for his distribution to CSSG members as FYI only.
  - o Jim will send additional hand calculation materials and examples to LLNL. Also, Jim will provide additional training material on the link between cross section data, preprocessing, and code application.
  - o LLNL will add a CD of the basic reference set for the students.

There were free exchanges of many excellent ideas and suggestions for the course syllabus. Jerry expressed his appreciation for LLNL's effort to put this course together on such a short time frame. He was very pleased with the leading role of the NMTP program and B332 facility staff in carrying out this work with the CSS support.

From the daylong review, J. McKamy and J. Morman agree that the LLNL criticality safety group has done a really good job in a short time to pull the course, apparatus and people together. The course obviously won't look exactly like the ones at LANL, but all the important topics will be covered. In some respects, the LLNL "approach to critical" device is more interactive and the students should get a lot out of using it.

CSSG TASKING 2006-04

<u>Task Title</u>:   CSSG Review and Prioritization of Proposed NCSP Tasks for FY07

<u>Task Statement</u>: The CSSG is requested to review and prioritize the proposed NCSP tasks submitted to the NCSP manager for possible inclusion in the FY07 execution plan. The CSSG shall use the ranking criteria provided and base their prioritization only on technical merit. The NCSP manager would like to have the CSSG task ranking recommendation enough in advance of the March NCSP review meeting in Las Vegas so that we can consider the CSSG proposal and link up funding considerations to support a final discussion of the proposed FY07 tasks in March.

<u>Task Deliverable</u>: Written prioritized list of FY07 NCSP Tasks (highest to lowest) using the ranking criteria provided.

<u>Task Due</u>: March 10, 2006

<u>CSSG Response</u>: The table below is a prioritized list of proposed tasks to be funded in FY2007 by the Nuclear Criticality Safety Program (NCSP). This list has undergone numerous reviews and iterations by members of the Criticality Safety Support Group (CSSG) and this version represents the best compromise within the group on which tasks should be given priority next year.

The initial attempt at prioritization evaluated each task (71) according to the following criteria: Capability Maintenance, Safety Risk, Operational Cost / Efficiency Risk, Compliance Risk, External Regulatory Risk. The results from each CSSG member who responded were averaged to give us the starting point for the final version. While very quantitative, this evaluation method did not account for the required correlations between certain subtasks and did not adequately address the sequential nature of some task components.

Using the averaged numerical priority list as a starting point, several meetings were held to discuss what tasks were critical to the success of the NCSP and what tasks would be beneficial if the budget were not constrained. It was decided that a top priority was to complete the AROBCAD work. It is necessary to produce a robust tool that practitioners can use to support their validations. This prioritized task includes all the other related tasks that are absolutely necessary to complete the main task, such as the development of a complete covariance data set and development of the TSUNAMI training module.

The CSSG also felt that it was important to continue support of the methods development and nuclear data areas, including the ICSBEP. Miscellaneous tasks, such as the continued update to ARH-600, are also included based on their importance to the user community. Training is considered an important component of the program and rates a high priority ranking.

It was decided that the refurbishment effort at ORELA should continue, to determine whether or not continued use of the facility for cross section measurements is feasible. If the work this year shows that it will no longer be able to operate at a level consistent with data needs, then the FY2007 funding for operations and measurements would drop from the list.

With the present uncertainty of when the DAF will be available for experiments, and the common perception that critical experiments will not be done in FY2007, the tasks associated with critical experiments received a lower priority. However, it was considered credible that subcritical experiments might be allowed at the DAF next year, so that task was given a higher priority.

Most of the new tasks fell to the bottom of the priority list. The program has been operating with a minimal budget for some years, and unless continuing tasks are terminated, there is little room in the budget for new projects. Even without budget considerations, most of the new proposals were considered to have a lower priority than most current projects.

The CSSG considers this the best attempt at task prioritization and looks forward to discussion on the topic at the meeting in March.

Line Number	Task Number	Program Element	Laboratory	SUBTASK DESCRIPTIONS New Proposed Sub-Tasks in GREEN	FY07 Request	Running Total
1	13	Analytical Methods	LANL	LANL Methods-1: MCNP Maintenance and Support (Continuing Sub-task)	470	470
2	19	Analytical Methods	ORNL	ORNL METHODS-1: SCALE/KENO Maintenance (Continuing Sub-task)	725	1195
3	37	Nuclear Data	LANL	LANL DATA-1: LANL Nuclear Data Support (Continuing Task)	300	1495
4	15	Analytical Methods	LANL	LANL METHODS-3: NJOY Support and Development of covariance processing (Continuing Sub-task)	105	1600
5	39	Nuclear Data	ORNL	ORNL DATA-1: Data Evaluations and Covariance Data (Continuing Sub-task)	1132	2732
6	20	Analytical Methods	ORNL	ORNL METHODS-2: AMPX Cross Section Processing (Continuing Sub-task)	100	2832
7	3	AROBCAD	ORNL	AROBCAD-3: Develop approach for establishing safe Administrative Margins of subcriticality	200	3032
8	2	AROBCAD	ORNL	AROBCAD-2: Test/validate TSURFER sequence and analytical methodology for development of user guidance (Subtask 3 below)	180	3212
9	4	AROBCAD	ORNL	AROBCAD-4: Investigate, develop, and justify the process for organizing, formatting and distributing criticality benchmark sensitivity data files of existing and subsequent NCS benchmarks. Prepare and distribute critical experiment TSUNAMI S/U files using ENDF/B-VI/VII data	40	3252
10	1	AROBCAD	ORNL	AROBCAD-1: Complete the development of compatible KENO V & VI adjoint solution/32	225	3477
11	48	Nuclear Data	Multiple labs	MULTI-LAB DATA-1: Produce a complete set of low fidelity covariance data in standard ENDF/B format for all ENDF/B-VII isotopes. Proposed funding split is as follows: 75K (each) for LANL, ANL, and BNL; 25K for ORNL (New Sub-task)	250	3727
12	16	Analytical Methods	LANL	LANL METHODS-4: MCNP Enhancements (Enhancements in FY 2007 include: a capability to access a library of standard materials; the option to specify materials by element or nuclide; gather requirements and document a plan (including milestones and costs) for sensitivity / uncertainty capabilities in MCNP; and complete Automated Source Convergence Testing. Follow on work is proposed for FY 08 and 09.)	220	3947
13	55	Information Preservation and Dissemination	FH	IPD-1: Hanford ARH-600 Development (Continuing Sub-task)	63	4010
14	66	Training and Qualification	LANL	T&Q-4: ORNL TSUNAMI NCSET Module Development (New Sub-task: $50k in FY-07; $25k in FY-08)	50	4060
15	6	AROBCAD	ORNL	AROBCAD-6: AROBCAD Administration	120	4180
16	33	Nuclear Data	ANL	ANL DATA-1: ANL Nuclear Data Support (Continuing Sub-task)	230	4410

Line Number	Task Number	Program Element	Laboratory	SUBTASK DESCRIPTIONS New Proposed Sub-Tasks in GREEN	FY07 Request	Running Total
17	30	ICSBEP	INL	ICSBEP-1: Infrastructure (Continuing Sub-task)	850	5260
18	31	ICSBEP	Multiple labs	ICSBEP-2: National Laboratory Participation (Continuing Sub-task)	985	6245
19	32	ICSBEP		ICSBEP-3: International Experiments (Continuing Sub-task)	100	6345
20	70	NCSP Support		NCSP-2: CSSG Support (10 x $25k = $250k)	250	6595
21	69	NCSP Support		NCSP-1: End Users Support (Continuing Sub-task)	10	6605
22	34	Nuclear Data	BNL	BNL DATA-1: NCSPM/NDAG Support (Continuing Sub-task)	180	6785
23	63	Training and Qualification		T&Q-1: Hands-On Training (Continuing Sub-task)	160	6945
24	57	Information Preservation and Dissemination	LLNL	IPD-3: LLNL Website maintenance, updating, and user support (Continuing Sub-task) (Now includes Hanford DB, task #56)	202	7147
25	65	Training and Qualification	ANL	T&Q-3: ANL NCSET Module Development (Continuing Sub-task)	50	7197
26	21	Analytical Methods	ORNL	ORNL METHODS-3: Radiation Safety Information Computational Center (Continuing Sub-task)	560	7757
27	8	Analytical Methods	ANL	ANL METHODS-1: VIM Maintenance and Support (Continuing Sub-task)	320	8077
28	9	Analytical Methods	ANL	ANL METHODS-2: VIM ENDF/B-VII Library cross-section processing (Continuing Sub-task)	105	8182
29	59	Information Preservation and Dissemination	LANL	IPD-5: CSIRC Maintenance of the LANL Website	60	8242
30	49	Integral Experiments	LLNL/LANL	INTEGRAL EXP-1: Conduct sub-critical measurements at DAF (Continuing Sub-task)	350	8592
31	43	Nuclear Data	ORNL	ORNL DATA-5: ORELA Refurbishment (Continuing Sub-task)	475	9067
32	41	Nuclear Data	ORNL	ORNL DATA-3: ORELA Measurements (Continuing Sub-task)	330	9397
33	42	Nuclear Data	ORNL	ORNL DATA-4: ORELA Operations (Continuing Sub-task)	620	10017
34	44	Nuclear Data	ORNL	ORNL DATA-6: Nuclear Data Administration (Continuing Sub-task)	70	10087
35	25	Analytical Methods	ORNL	ORNL METHODS-7: Analytical Methods Administration – Planning, Coordination, Reporting (Continuing Sub-task)	80	10167
36	50	Integral Experiments	LLNL/LANL	INTEGRAL EXP-2: Conduct Critical Experiments at DAF (New Sub-task)	450	10617
37	54	Integral Experiments	LLNL/LANL	INTEGRAL EXP-6: Maintain and train LACEF/CEF team members (Continuing Sub-task)	350	10967
38	51	Integral Experiments	LLNL/LANL	INTEGRAL EXP-3: Finalize the design for the new SHEBA (Continuing Sub-task)	200	11167
39	14	Analytical Methods	LANL	LANL METHODS-2: MCNP ENDF/B-VII cross-section processing (Continuing Sub-task)	105	11272
40	53	Integral Experiments	LANL	INTEGRAL EXP-5: Identify and ship non-nuclear experiment materials to DAF (Continuing Sub-task)	200	11472
41	40	Nuclear Data	ORNL	ORNL DATA-2: Nuclear Modeling (Continuing Sub-task)	390	11862
42	52	Integral Experiments	LLNL/LANL	INTEGRAL EXP-4: Establish Hand-stacking capability at LANL (Continuing Sub-task)	200	12062

Line Number	Task Number	Program Element	Laboratory	SUBTASK DESCRIPTIONS New Proposed Sub-Tasks in GREEN	FY07 Request	Running Total
43	5	AROBCAD	ORNL	AROBCAD-5: Develop and Update GUIs for existing S/U codes/43	120	12182
44	17	Analytical Methods	LLNL	LLNL METHODS-1: PREPRO/COG support (Continuing Sub-task that includes cross-section processing and a modest level of support for COG maintenance and user support.)	160	12342
45	58	Information Preservation and Dissemination		IPD-4: CSIRC ORCEF Heritage		12342
46	60	Information Preservation and Dissemination		IPD-6: CSIRC		12342
47	61	Information Preservation and Dissemination		IPD-7: CSIRC		12342
48	62	Information Preservation and Dissemination		IPD-8: CSIRC		12342
49	26	Analytical Methods	ORNL	ORNL METHODS-8: Improved Software Quality Assurance – Periodic, Automated Verification (New Sub-task in an Existing Category: SCALE/KENO Maintenance)	100	12442
50	23	Analytical Methods	ORNL	ORNL METHODS-5: Continuous Energy KENO (CE-KENO) – Validation of Cross Section Libraries (Extension of an Existing Sub-task: Generation of CE-KENO Library in FY06)	150	12592
51	22	Analytical Methods	ORNL	ORNL METHODS-4: Automated Pitzer Solution Solver Data – Plutonium Solutions (Extension of the existing sub-task that is addressing uranium solutions)	180	12772
52	46	Nuclear Data	ORNL	ORNL DATA-8: Maintain Scientific/Technical Capability by Transitioning Knowledge/Expertise of SAMMY Model Specialist to New Model Specialist (Extension of an Existing Sub-task)	150	12922
53	68	Training and Qualification	ORNL	T&Q-6: ORNL Training Proposal	1705	14627
54	64	Training and Qualification	ANL	T&Q-2: Criticality Safety/Accident Training Simulator (New Sub-task)	300	14927
55	10	Analytical Methods	ANL	ANL METHODS-3: VIM2KENO / VIM2COG software (Enhancement: Develop Codes to translate VIM plate input files to KENO and COG.)	50	14977
56	24	Analytical Methods	ORNL	ORNL METHODS-6: Automated Fission Source Testing & Convergence Algorithms (New Sub-task in Existing Category: Source Convergence Studies at ANL & LANL)	150	15127
57	12	Analytical Methods	ANL	ANL METHODS-5: Source Convergence (Enhancement: Implement Ueki's entropy convergence test methods in VIM and test.)	75	15202
58	38	Nuclear Data	LLNL	LLNL DATA-1: LLNL participation in CSEWG, IAEA, NDAG, and OECD/NEA activities and meetings and support to universities. (New Sub-task)	40	15242
59	67	Training and Qualification	LLNL	T&Q-5: LLNL Criticality Safety Intern Program (New Sub-task). A summer student internship which provide practical introductory training to the students who major in nuclear engineering related fields and have interest to explore and experience their career opportunity in nuclear criticality safety field.	50	15292

Line Number	Task Number	Program Element	Laboratory	SUBTASK DESCRIPTIONS New Proposed Sub-Tasks in GREEN	FY07 Request	Running Total
60	27	Analytical Methods	ORNL	ORNL METHODS-9: Parallel KENO – Parallelization Strategy Demonstration & Implementation (New Sub-task in an Existing Category: SCALE/KENO Maintenance)	120	15412
61	29	Analytical Methods	ORNL	ORNL METHODS-11: Quality-Assured Access to NCSP Software Tools. (New Sub-task in a Existing Category: RSICC Services)	30	15442
62	18	Analytical Methods	LLNL	LLNL METHODS-2: GUI Development/Demonstration (Enhancement)	60	15502
63	28	Analytical Methods	ORNL	ORNL METHODS-10: Guidance on Stochastic Criticality Accident Alarm System Analyses as Verified with High-Order Deterministic Transport Methods. (New Sub-task in a New Category: CAAS Evaluation)	150	15652
64	36	Nuclear Data	INL	INL DATA-1: Intense Pulsed Neutron Source (IPNS) differential cross section measurements of fission and radiative capture reactions on ^{240}Pu, ^{241}Pu, and ^{242}Pu. ^{240}Pu would be measured first. This proposal spans 3 years at $1,200k per year, total. Proposed funding split is NE: $800k/year; NNSA: $400k/year. NE commitment is required to proceed. (New Sub-task)	400	16052
65	47	Nuclear Data	ORNL	ORNL DATA-9: Investigate Feasibility for Using ORNL/NCSU Approach for Generating $S(\alpha, \beta)$ Data for 2-3 Thermal Moderators Needed for Criticality Safety Applications (New Sub-task)	150	16202
66	45	Nuclear Data	ORNL	ORNL DATA-7: Develop and Test ENDF/B-VII Continuous-energy (CE) CENTRM and Multigroup (MG) Libraries with Approximate Covariance Data for SCALE (New Sub-task)	300	16502
67	35	Nuclear Data	BNL	BNL DATA-2: Production of a new nuclear decay data library for improved decay heat calculations (New Sub-task)	75	16577
68	71	Operations Support	FH/LLNL	OPS SUPPORT-1: Hanford/LLNL Waste Container Criticality Safety System (New Sub-task: FY-07: $60k Hanford; $30k LLNL. Develop a computerized system covering waste package preparation, handling, transportation, and ultimate disposition. This task would continue through FY-11 with the following proposed funding profile: FY-08: $300k; FY-09: $400k; FY-10: $300k; and FY-11: $150k)	90	16667
69	11	Analytical Methods	ANL	ANL METHODS-4: Physics Enhancements (Enhancement: Document physics enhancements and validation results.)	75	16742