Recommendations
and
selected comments from the
USNDP Review

July 2014

USNDP Review

Panel Review, 16-18 July 2014, BNL

Panelists R. Forrest (IAEA), A. Gade (MSU), W. Nazarewicz (UTK), F. Nortier (LANL), E. Ormand (LLNL), J. Vary (ISU, Panel Chair).

DOE NP: T. Barnes (Review Chair), T. Hallman (AD).

Charge: 5 elements, on aspects of Scope of Work, mission, funding; organization; participating institutions; future developments, additional topics.

Presentations by USNDP re Overview and Management; Labs; Universities; expt.; new directions.

Closeout at review. Final panelists' reports collected 8/15/14. Final Review Report to BNL 10/24/14; includes 9 recommendations, to be discussed here, requests response on implementation in *ca.* 6 months.

A few initial steps by DOE NP, NNDC, USNDP:

Initial Steps

Rec. 2. DOE NP & USNDP: Update Mission Statement [done]

Rec. 5. Career Paths in ND (don't lose younger evaluators [had to act fast!]; support senior evaluators; possible univ. sites for recruitment):

- UCB added as a new "Bay Area Nuclear Data" ~ 2 yr. pilot project, research contracts init. for C. Baglin and R. Firestone.
- MSU/FRIB new univ. ND site added, supporting J. Chen.
- Discussion of new SUNYSB univ. site for G. Nobre in progress.

Recommendations:

Recommendations

1. Create an external USNDP Advisory Panel, involving representatives from the major stakeholders across basic and applied nuclear physics, to critically assess current efforts and proposed activities.

2. DOE NP and USNDP should jointly develop an updated Mission Statement for USNDP that takes into account stakeholder interests and input. This should be widely distributed to guide future developments.

<u>USNDP Mission Statement (2014)</u>
The mission of the United States Nuclear Data Program (USNDP) is to provide current, accurate, authoritative data for workers in pure and applied areas of nuclear science and engineering. This is accomplished primarily through the compilation, evaluation, dissemination, and archiving of extensive nuclear datasets. The USNDP also addresses gaps in the data, through targeted experimental studies and the use of theoretical models.

Recommendations

3. Develop a transparent mechanism, such as a periodic round table discussion of priorities, to ensure effective input and participation in decision making by partner institutions.

4. A comprehensive document should be prepared that summarizes and prioritizes the possible future developments in the nuclear data program proposed by all USNDP participants. The prioritization should be developed by USNDP participants, in consultation with the advisory panel.

5. DOE NP should be cognizant of the need for adequately funded career paths for sufficient new evaluators, recruited and trained by USNDP, to carry out the USNDP program.

Recommendations

6. USNDP should devise effective and transparent mechanisms to solicit input and feedback from all stakeholders on nuclear data needs and priorities.

7. Work assignments at individual laboratories should be developed strategically based on “best value” to the USNDP program and the stakeholder community.

8. Pursue a potential collaboration between the USNDP and Brookhaven Linac Isotope Producer (BLIP) with the aim to expand this to collaborations with other DOE NP funded isotope production facilities such as at LANL and ORNL.

9. Develop modified USNDP performance metrics that more closely reflect the total amount of work involved.

Performance metrics

- The performance metrics for USNDP is deficient.

- The number of A-chains evaluated does not seem to be an effective performance evaluation criterion.

Relevance of the activities

- Maintaining a framework for astrophysical network calculations and implementing cloud-computing of basic-research reaction codes needed for the astrophysical work of the ORNL group seems to fall under “Research” rather than being within the mission of USNDP.

- The relevance to the data program of some of the presented activities and whether or not some would more properly be classified as basic research was not always established.

- At present, there is no clear mechanism by which the USNDP institutions assess the user needs broadly and adjust their priorities accordingly. It is unclear what the process is for potential new stakeholders to engage with the USNDP to make their needs known.

- Work assignments at individual laboratories should be developed strategically based on “best value” to the USNDP program irrespective of perceived quantitative performance metrics.

Coordination

- The distribution of work is accomplished with limited centralized authority through peer-to-peer relationships between institutions. Any adjustments to that structure should be instituted through consultations with the network members. Currently, several of the participants do not feel that they have a sufficient say in the planning process.

- The communications between NNDC and partner institutions could be improved. The Data Week held once a year, a main communication vehicle within USNDP, is not sufficient to guarantee transparency

HPRL, New Format

- The suggestion of implementing a “High Priority Request List/website” to express needs for new measurements that arose from evaluation efforts has potentially high impact for the field and would strengthen the communication with the experimental user community. The effort seems modest and should be encouraged.

- The current infrastructure for ENDF and ENSDF is antiquated and limits capabilities of potential users. Options were presented for updating these databases, and should be pursued in order to provide enhanced capabilities to the user communities.

Nuclear Data program in the Bay Area

- There appears to be a good opportunity to extend the current Nuclear Data program in the Bay Area to include the UC-Berkeley campus' Nuclear Engineering Department and, at the same time, assume a significant role in the continued development of the XUNDL database. Further evaluation of this emerging opportunity seems worthwhile since there exists a high potential for effective leveraging of resources while, at the same time, gaining access to a talented pool of students with potentially positive impact on workforce issues.

International cooperation

- It would be beneficial to USNDP, and also cost effective, to attract more international partners. Several examples offered in presentations are encouraging. Possible mechanisms to consider could be enlisting and recognizing foreign facilities (e.g. RIBF or ISOLDE) for inputting recent data into XUNDL. One could also consider organizing a training program in XUNDL