

Date: Sat, 17 Jun 2000 00:53:48 -0500  
From: "Richard D. McKnight" <rdmcknight@anl.gov>  
Subject: Re: Papers for the WPEC meeting

Dear Colleagues:

I wish to provide some belated words as to the status of three WPEC items which you will be discussing next week. I apologize for my inability to get this to you in a better form and in a more timely fashion. In fact, this might not arrive for some of you prior to your departure for JAERI. If any of this seems pertinent, it may be shared among the participants. The three items are: Subgroup 6 Delayed

Data; the High Priority Request List; and Data Needs for ATW.

Subgroup 6 Delayed Neutron Data Benchmarking:

When Claes notified the WP members of the final reports received for presentation at this meeting, I was surprised that Subgroup 6 was not indicated. When I spoke with Antonio d'Angelo a couple months prior to that, I was told he had sent the final report to Claes. In fact, this meant that a draft final report had been sent to Claes. It is my understanding that there remains resolution of some review comments by John Rowlands upon portions of the validation section provided by Eric Fort.

This Subgroup was one of the original groups established in 1990. There have been three co-ordinators (Rudstam, Filip, and d'Angelo) over that period. This group was asked to "tread water" for the first few years -- while integral measurements of Beta-eff were planned and performed in JAERI, Masurca, and Obninsk. Much good evaluation effort (at the microscopic level) was done over those first years, however, this helped the effort to drift away from its original intent (namely, benchmarking and validation). When this activity was discussed at our meeting last September, it was noted that the subgroup's report was waiting for results of validation work by Fort and there was again concern

about the recommendation of eight families. Resolution of the former subject (validation results) is much more important than the latter subject (6 vs 8 families). There are both positive and negative aspects to the use of either 6 or 8 (or whatever number of) families -- none of which is truly compelling. However, the performance of the recommended set (as well as comparison with performance of standard sets available, such as Keepin, ENDF, JEFF, ...) is paramount.

I did not receive John Rowland's comments regarding Eric's report and do not know their nature. However, as I respect the work of both, it seems we should try to resolve the differences to enable the publication of their report. Perhaps, Robert Jacqmin might be able to assist obtaining some revisions by Eric. I hope the WP will discuss options to assist. It is possible that some (or even all) of the data projects might not adopt the recommended delayed data. However, such a decision would hopefully be based on the performance of the evaluated data.

The High Priority Request List:

I have edited the HPRL in the form which I inherited from John Rowlands in each of the two previous years, but have been unable to update it for the current year. I have received very excellent input from the JENDL community (from their HPRL) which includes items to be closed out as well as new items to be added. I expected to edit the ENDF list based on CSEWG activities, recent meetings, etc. However, I have managed to let the electronic form disappear onto our network migration (backup) system, with as yet no success at retrieving it. I have the previous version in electronic form and could edit it with the aid of the hard copy of the HPRL from last year, together with the input I have received for this year. An aide has retrieved numerous archive directories for me with no success to date. I have about given up on that option, and will face up to the editing job.

Data Needs for ATW:

This effort was to generate a short list of data needs for ATW which includes (quantitatively) the effect (benefit) of meeting the target accuracy. It was proposed that each project (JENDL, JEFF, and ENDF) would produce their own list of data needs appropriate for their own system. We would then share these lists and present a report discussing these data needs to the Working Party. The following two points were stressed in the discussion to initiate this collaboration.

(i) The final list of data needs should not be a complete list of all nuclides for which improvements could be made in their nuclear data. But from such a list, each project would identify (via some sensitivity analysis of their ATW design) which cross sections of which nuclides contribute significant uncertainties in the ATW design parameters and therefore represent the most important nuclear data needs for ATW.

(ii) Because ATW designs are different for each of the projects (e.g., Pb-Bi vs sodium vs gas cooled), each will derive a unique list of data needs. However, it is expected that many of the important data needs will be common.

Participants for this task are:

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It is expected the ENDF list will be largely based on the work reported by Palmiotti, Finck, Gomes, Miklich, and Salvatores in their paper "Uncertainty Assessment for Accelerator-Driven Systems" included in the ANS Global '99 meeting in Jackson Hole, WY. This paper was circulated to the participants. Arjan Koning indicated he would discuss this proposal at a working group meeting on Intermediate energy data at the May JEFF meeting. Tokio Fukahori provided the JENDL High Priority from

the transmutation and accelerator groups, and indicated the topic would be discussed in the HPRL Group of the Japanese Nuclear Data Committee.

In the two previous meetings, WPEC has discussed producing "quantitative targeted HPRL's" and this ATW effort was proposed as a trial balloon to generate such a list. Although the participants have had less than a year to produce their lists, it appears that interests and efforts are at best neutral. In the US ATW design efforts have not expanded as many had hoped and it is unlikely the ENDF list will have more than the analysis in the Global '99 reference. The JENDL project appears more comfortable with the traditional HPRL format (which they produce quite efficiently).

I would recommend the WP again discuss the commitment to perform such analyses. It would seem this "trial balloon" is indicating we would all like to have such "quantitative targeted HPRL's", but perhaps have not the spare resources to produce them.

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You may note that progress on all three of these items is unsatisfactory. (i) Antonio d'Angelo has made good effort to finish the Report of Subgroup 6. It would be beneficial to all of the projects to help resolve the problems with the final report. (ii) Progress on the HPRL has been in REVERSE, even though I have received good input from others. I will not be in my office until July 5th, but will try to repair the List to include contributions received this year by the end of July. (iii) It is not clear that the projects are committed to producing this "different" kind of HPRL for ATW Data Needs, i.e., to performing the necessary sensitivity analysis of their own designs to produce the "quantified request/benefit".

There is a clear common mode failure in these three activities - namely, myself. I have been grossly over committed for the past several months -- with too much travel and too much work (and some illness). This has limited the time I could apply to WPEC activities. There is currently a very strong voicing of support for international collaboration within the U.S. DOE. I will try to get that acknowledged within my own Division with regard to our WPEC efforts. That would be of great help. Again, my apologies for this very late communication and the marginal contributions. I do hope your meetings (WPEC and

ND-2001) are very successful.

Best regards to all, Dick McKnight

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