These tasks address various objectives:

* PCF predictive capability (2018)
* ENDF/B-VIII in 2017 targeted also to address PCF (2018)
* Diagnostics for fission yield (fission basis confirmation) & late-time
* Advances in our SN and Monte Carlo applications
* NDSE science support

**Green= FY16 done**

**Orange=FY16 To do ?**

**Red=FY17?**

**235U**  
  
Include Talou-Rising PFNS (and IAEA thermal PFNS) into ENDF evaluation. Validation comparisons against prelim 235U chi nu data, and against Lestone 235U Nuex pfns.   
Merge new IAEA low energy resonance and nubar evaluation into ENDF. Check this evaluation matches new dance 235u n,g reductions near 1keV  
Large scale criticality testing of file

Validation testing with IAEA-ORNL team to support improved performance, especially for LEU systems. 7.8-11 eV standard region fixed?

As above – for new March 2016 IAEA file for testing at mini-CSEWG April 2016  
14 MeV Pulsed sphere testing of 235u. Japanese void reactivity testing – does the capture change solve this problem?  
Prompt fission gamma spectrum update PFGS - a) numerical - separate fission gammas from other gammas, to avoid double counting error in event mode.  Test file to assure no change in results in normal usage (B) upgrade data to take advantage of recent LANSCE/DANCE and Geel thermal PFGS data and Talou model calculations   
P(nu) & Chi(nu) representations for first time, for correlation work  
TKE - upgrade to Tovesson LANSCE/TKE data  
  
FPY - upgrade to include any changes implied by TUNL measurement - esp at 14 MeV and fast & LANSCE FPY measurements. Fission theory and model advance validation against FPY data – Lestone model predictions.  
  
Inelastic. Review recent fast region evaluation by IAEA and consider whether to adopt any for B-VIII. Assess any proposed changes based in Kawano theory work. (Unlikely - insufficient time. Waiting for RPI-type semi-integral data)  
  
Capture. Review other recent DANCE data in > keV region to assess whether any ENDF changes warranted – esp 10s of keV (unlikely - insuff time). Asses impacts of modified capture cross section on late-time diagnostics  
  
More extensive criticality validation testing  
Mission-relevant testing  
Update uncertainty covariance evaluations.

Completion of above tasks as needed  
  
  
**239Pu**  
  
SG34 resonances adopted; SG34/JEFF3.2 nubar adopted below 650 eV & total nubar updated.

No changes to fast PFNS yet < 5 MeV- when chi-nu data are available, compare against our current vii.1 pfns evaluation. Compare against Pu Lestone Nuex an Chatillon and other data. Adopt LANL/Neudecker evaluation of PFNS > 5 MeV. Test Neudecker data against LLNL pulsed sphere experiment.  
Make "Romano tweak" to thermal pfns for criticality performance.   
P(nu) & Chi(nu) representations for first time, for correlation work  
  
Adopt Talou’s untweaked nubar from covariance analysis.  Review nubar over whole energy range including sg34 recommendation (which appears low….).   
  
PFGS. As for 235U.   
  
TKE, FPY, as for 235U.    
  
Capture. Obtain Mosby dance data and consider changes to ENDF above 1 keV. validation testing needed to check implications of changes. We ought to be able to include this upgrade soon.   
  
Review TPC 239Pu/235U fission cross section ratio and use international standards committee and Csewg to assess implications and path forward. Likely not enough time to impact VIII.  But assess impacts on mission relevant simulations.   
  
Inelastic. Consider any changes needed for B-VIII based on kwano theory. But probably insufficient time, and maybe best to wait till new RPI type data becomes available.   
  
Consider any lower energy resolved resonance changes beyond sg34 upgrades. Assess status of Iaea ornl and Leal proposed changes. Have dance folk interact with Sammy folk on any changes proposed - including up to 4 keV. Assess whether Tovesson first fission resonance data should impact the new endf evaluation.   
(Much of this will likely not be possible before VIII ).

If any changes warranted, much work will be needed on the database and on validation testing.  
More criticality testing   
More criticality testing  
Mission relevant testing   
  
Update uncertainty covariance evaluations   
Completion of above tasks as needed  
  
**238U**   
IAEA and Geel have a new evaluation proposed for VIII. Test it out.   
n,2n was informed by our TUNL data. Check comparison. Validation tests of 238u n2n crits reaction rates to ensure continued good performance

As above, using new March 2016 update. Check capture consistent with standards.  
  
Validation tests against new rpi semi integral data – by IAEA  
Reflected crit performance slightly worse. Can this be solved – by IAEA?   
Much validation testing for crits, and mission testing  
  
PFNS unchanged from vii.1 ? Assessment of some of the strange recent pfns shape at lower emission energies, measured at RPI and France

P(nu) & Chi(nu) representations for first time, for correlation work

FPY & TKE – as for u235  
More crit testing and mission testing  
Completion of above tasks as needed

**16O**   
Hale’s new R matrix analysis finalized and compared against various measured data, with data testing - including merging with higher energy old data above 8 MeV.   
Compare against the various n,a existing measurements - as being summarized by Georginis.   
Compare total elastic low energy cross section against Plompen recommendation, 3.765b. Articulate reasons for differences – role of Schneider data?  
Compare total against recent RPI data. Consider any evaluation upgrades based on RPI work. (last comparison was C/E =1.01 versus 0.988 for VII.1).  
  
Validation testing of new file. Especially the related impacts of this and the new 235U evaluation in reactor and solution criticality safety applications.   
Test leakage and transport and Kerma as well as criticality

View of the integral (poor?) performance on neutron transmission test problems?  
  
Compare against LENS prelim n,a data as confirmation validation test of the >30% change to n,a in the 3-6 MeV region. Backup plan if LENS data contradict this change?! (Though unlikely to be finalized in time for B-VIII )  
  
Adopt vii.1 capture, but consider any updates in keV region as needed (wick haxton discussion).   
  
Uncertainty covariance upgrades   
  
  
**12C, 13C to replace natC in endf**

Advance 12C and 13C evaluations and perform initial data testing  
Finalize Hale R matrix evaluations   
Criticality validation testing, as well as transport, kerma *etc*   
  
Merging with high energy endf data to 150 MeV. Just for 12c? What for 13c ? Just to 20 MeV.   
  
Standard: Compare averaged isotopic scattering with natural carbon scattering standard - adopt if acceptably close   
  
Uncertainty covariance updates

Completion of above tasks as needed  
  
  
  
**1H.**   
Advance 1H evaluation

Finalize 1H evaluation

Test new changes above 20 MeV up to 150 MeV.   
  
If any cross section changes are proposed below 20 MeV, much testing and discussion is needed.   
  
Update covariance uncertainties - esp in the few MeV region (related to a future tpc 1h ratio measurement).   
Make sure a previous uncertainty "error" was fixed.

Completion of above tasks as needed  
**9Be**   
  
Assess accuracy of existing evaluation. No work is planned. Is that Ok?  
  
Completion of above tasks as needed  
  
**56Fe**  
Initial testing of new files, and suppprt BNL as they decide on the RR region, upper limit, angular distributions, and so on.

Criticality and leakage validation testing of new BNL eval.

Completion of above tasks as needed