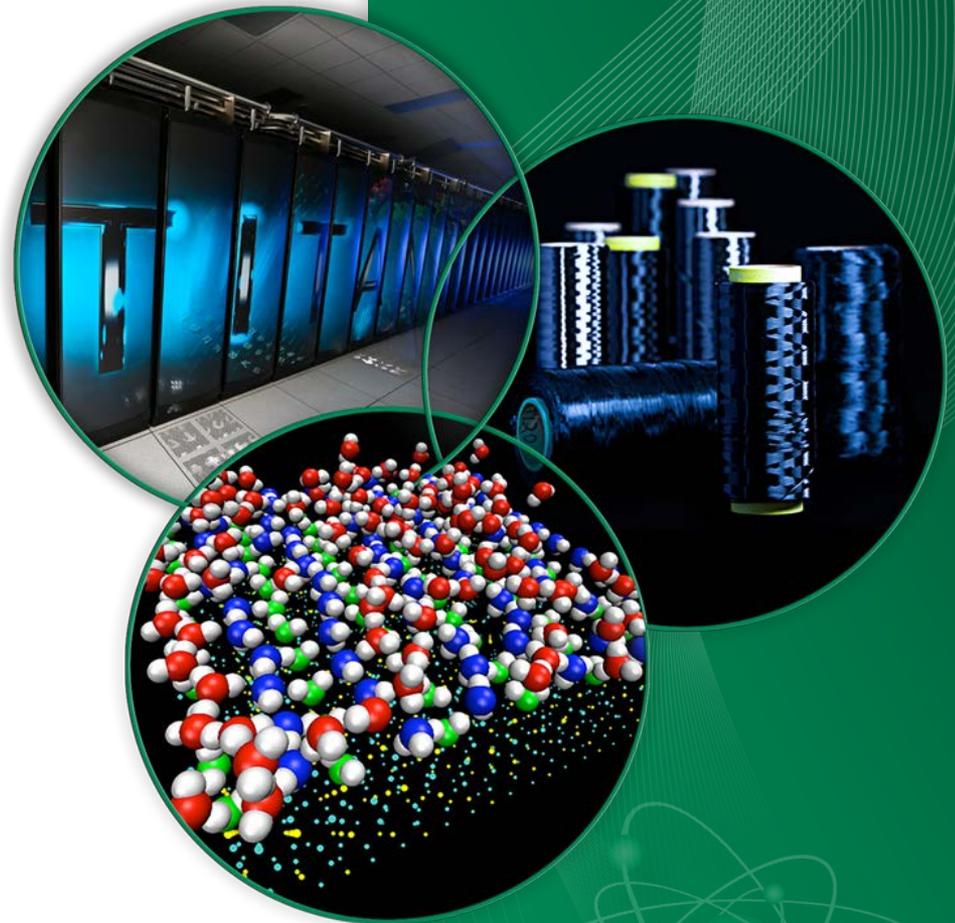


NCSP Nuclear Data Advisory Group (NDAG) Report

Michael Dunn

Interim NDAG Chair

NCSP Technical Program Review Meeting
Los Alamos, NM
March 26-27, 2014



Outline

- NDAG Mission and Objectives
- Charter status
- Path forward for NDAG Chair transition
- Status of Nuclear Data Work Plan

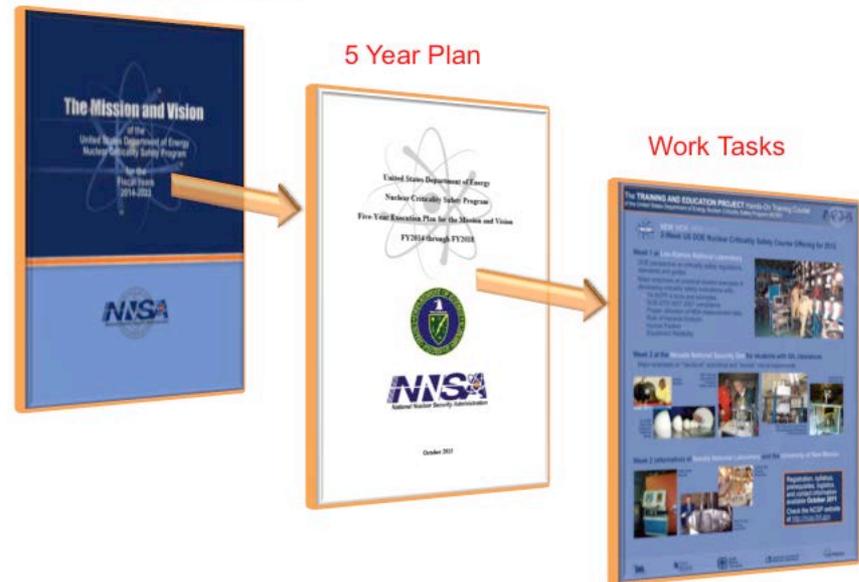
Nuclear Data Advisory Group

- **Mission:** “The Nuclear Data Advisory Group, through making recommendations to the NCSP Manager, enhances the coordination of the NCSP Nuclear Data Element work program with current and future DOE needs and promotes the integration of this work program with the other elements of the NCSP.”
- Key functions
 - Identifies deficiencies in evaluated differential and integral data and recommends priorities and specific resources for meeting identified NCS nuclear data needs
 - Supports the NCSP Manager in approval of IERs and NDRs

NCSP Nuclear data work documented in Five Year Plan and performed to achieve goals documented in NCSP Mission and Vision Document

NNSA Nuclear Criticality Safety Program

10 Year Mission & Vision



Nuclear Data Advisory Group

- Meet at least annually
- Key meeting topics from most recent meeting on November 19, 2013 at BNL
 - Nuclear data requests
 - Review 5-year measurement and evaluation work plan (Appendix B Gantt Charts)
 - Status of RPI nuclear data measurement capabilities and refurbishment effort
 - NDAG charter/review and revision
 - Establish procedure for selection of NDAG Chair
 - Membership policy
 - Membership
 - Evaluation testing
 - Reviewed FY2014-2023 NCSP Mission & Vision Nuclear Data Goals

Current NDAG Membership





[NCSP Home Page](#)

[DOE CS Coordinating Team](#)

Accomplishments
[tasking/responses](#)

CSSG

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NDAG

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Accomplishments
[tasking/responses](#)

[Member List](#)

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Current Members		
Michael E. Dunn, (Acting Chair)	ORNL	dunme@ornl.gov
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David A. Brown	BNL	dbrown@bnl.gov
Yaron Danon	RPI	danony@rpi.edu
Klaus H. Guber	ORNL	guberkh@ornl.gov
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David P. Heinrichs	LLNL	heinrichs1@llnl.gov
Michal W. Herman	BNL	mwherman@bnl.gov
Albert (Skip) Kahler	LANL	akahler@lanl.gov
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Mark L. Williams	ORNL	williamsm@ornl.gov
Michael Zerkle	Bettis	Michael.Zerkle@unpp.gov
Ex-officio Members		
Jerry N. McKamy	DOE	Jerry.McKamy@nnsa.doe.gov
Nichole Ellis	SAIC/DOE	ellis_9899@msn.com
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Gladys Udenta	DOE	Gladys.Udenta@nnsa.doe.gov
Fitz Trumble, CSSG Chair	URS	fitz.trumble@urs-ps.com

NDAG Charter Review / Revision

- Current charter does not define process for selecting new chair—need to update charter before new chair selected
- At November 19, 2013 meeting, defined draft procedure for selecting NDAG Chair and new members
- NDAG Chair:
 - NDAG Chair candidates come from body of NDAG membership
 - Members should notify NDAG Chair if they do not want to be considered
 - Candidates site management has to concur and support nomination
 - NDAG votes to select chair
 - Term for 3 years with reaffirmation vote or possibility of selection of new chair at conclusion of 3-year term
- Membership:
 - Any NDAG member can nominate new member
 - NDAG Chair should have role in proposing new members to fill key technical areas
 - NDAG membership votes on new members
 - Send to NCSP Manager for concurrence
- Next step—update charter

CHARTER OF THE NUCLEAR DATA ADVISORY GROUP FOR THE DOE NUCLEAR CRITICALITY SAFETY PROGRAM (NCSP)

April 2009

Mission: The Nuclear Data Advisory Group (NDAG), through making recommendations to the NCSP Manager, enhances the coordination of the NCSP Nuclear Data Element work program with current and future DOE needs and promotes the integration of this work program with the other elements of the NCSP. Towards these objectives, the NDAG performs the following functions:

1. The NDAG identifies deficiencies in evaluated differential and integral nuclear data and recommends priorities and specific resources for meeting identified DOE criticality safety nuclear data needs. The NDAG supports the NCSP Manager in his approval of Integral Experiment Requests and Nuclear Data Requests as implemented on the NCSP website.
2. The NDAG identifies the required resources and unique capabilities for meeting these needs. These may include but are not limited to facilities and scientists to measure differential and integral nuclear data, scientists to evaluate nuclear data including development and use of nuclear model codes, staff and codes to process evaluated nuclear data into the form required by the nuclear analysis codes, and staff to benchmark evaluated differential nuclear data against integral experiments.
3. In performing functions 1 and 2, the NDAG communicates and works with the

DOE program to identify and implement improvements will be focused on better responsiveness to the DOE line programs at the sites, on identifying improvements in coordination, and on streamlining the process leading to issuing new/improved data to the end-users.

Membership: The NDAG membership benefits from the representation of several important areas of expertise, experience and responsibility:

1. Nuclear data specialists (Experimentalists, Evaluators, Processors).
2. Criticality safety analysts from the major DOE sites.
3. Program management and technical leadership from the NCSP work elements (Nuclear Data, Integral Experiments, Benchmarking, and Analytical Methods).
4. To the extent feasible, individuals with more than one of these areas serve on the NDAG. Alternates back up key areas of expertise and/or activity.

The NDAG Membership Policy is contained in Appendix A and Work Instructions are contained in Appendix B.

Leadership: The NDAG chair is approved by the NCSP Manager and has responsibility for the technical leadership of NDAG. The head of the National Nuclear Data Center of Brookhaven National Laboratory serves in a special consultancy to the NCSP on nuclear data matters and assists the NDAG Chair in overall program evaluation and interfacing with the nuclear data community (CSEWG, WPEC, etc).

Meetings: The NDAG will conduct two meetings a year. Scheduling of these meetings will try to take advantage of opportunities when most of the membership is co-located for some other purpose, e.g., the Fall meeting of the CSEWG at BNL or Spring/Summer meeting of the NCSP.

APPROVED:

Jerry N. McKamy 4/29/09

Dr. Jerry N. McKamy
Nuclear Criticality Safety Program Manager

Path Forward for NDAG Chair Transition in FY14

- Update NDAG Charter with membership and chair selection process
- Submit to NCSP Manager for approval of new NDAG Charter
- Per updated charter, select new members to fill vacancies (maximum of 20 members per charter)
- Once new members are in place, proceed through process to select NDAG Chair for next 3 years
- At November 19, 2013 meeting, defined draft procedures for selecting NDAG Chair and new members

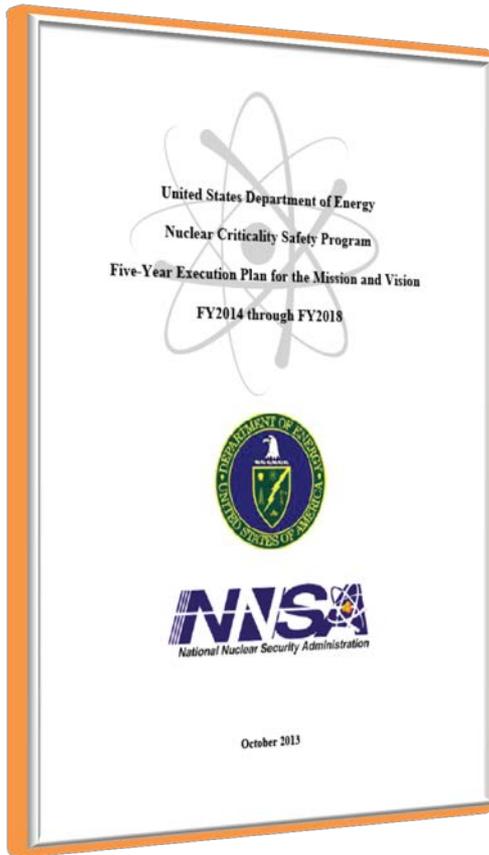


US DOE NCSP ND Work Plan





5 Year Plan



Appendix B Nuclear Data

Priority Needs / Additional Needs		Thermal scattering (BeO, HF, D ₂ O, SiO ₂ , CH ₂ , C ₂ F ₄ , C ₃ O ₂ H ₆ , etc.), ²³⁹ Pu, Cr, ²³⁷ Np, Pb, W, ⁵⁵ Mn, Ti, ²⁴⁰ Pu, Fe, ⁵⁸ Ni, ⁶⁰ Ni, ⁶³ Cu, ⁶⁵ Cu / ²³³ U, Th, Be, ⁵¹ V, Zr, F, K, Ca, Mo, Na, La								
Completed Evaluations		Minor Actinides, SiO ₂ , ⁵⁵ Mn, ^{180,128,183,184,186} W, ²³⁹ Pu, ^{50,52,53,54} Cr, ^{58,60} Ni, ⁵⁵ Mn, ^{39,41} K, ¹⁹ F								
	Materials	Pre-FY2013	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	Post-FY2019
Measurements	Calcium (Ca)									
	Cerium (Ce)									
	Copper (Cu)									
	Dysprosium (Dy)									
	Gadolinium (Gd)									
	Iron (Fe)									
	Strontium (Sr)									
	Tungsten (W)									
	Vanadium (V)									
	Zirconium (Zr)									
Polyethylene (CH ₂)				H ₂ O / CH ₂						
	Materials	Pre-FY2013	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	Post-FY2019
Complete Evaluations	Calcium (Ca)									
	Cerium (Ce)									
	Cobalt (Co)									
	Copper (Cu)									
	Dysprosium (Dy)									
	Gadolinium (Gd)									
	Iron (Fe)									
	Lead (Pb)									
	Nickel (Ni)									
	Oxygen (O)									
	Plutonium-239									
	Strontium (Sr)									
	Tungsten (W)									
	Uranium-235									
	Uranium-238									
Vanadium (V)										
Zirconium (Zr)										
Polyethylene (CH ₂)										
		ORNL		RPI		LANL				

- Requests for additional IE measurements: Ni, Mo, Cr (Fe-Cr alloys), Mn in intermediate energy range (VNIITF, NCERC).
- Request for measurements and evaluation of angular distributions at high energy for Cu.
- Continuing need for thermal scattering data.



Nuclear Data Evaluation Status and Testing

- Recent evaluations completed by ORNL and LANL:
 - ORNL: ^{239}Pu , ^{63}Cu , ^{65}Cu ,
 - LANL: ^{58}Ni , ^{60}Ni ; p(nu) data for ^{235}U , ^{238}U , and ^{239}Pu
- Anticipated FY14 nuclear data evaluations with testing planned by ANL, LANL, LLNL and ORNL
 - ^{56}Fe : need to look at issues with streaming channels (not as open) – JEFF evaluation performs better relative to VII.0
 - ^{16}O (work being performed as part of WPEC/CIELO project) some issues that need to be resolved with measured data – may delay new evaluation
 - ^{235}U capture in low keV region for intermediate systems
 - SiO_2 thermal scattering law evaluation
 - ^9Be
- Subsequent TPR presentations will provide more details on status of evaluations and testing in progress
- Additional nuclear data needs identified during NDAG meeting discussions
 - Thermal moderator data: ZrH and Lucite
 - Lead