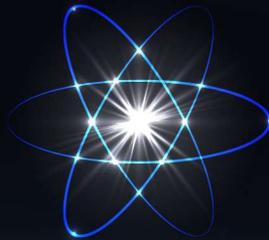
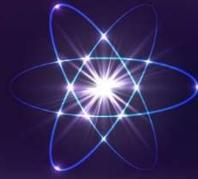




FY22 NCSP Technical Program Review



Presented by:
Angela Chambers, PhD
NCSP Manager
NNSA – NA-511



Agenda

◆ Introduction

◆ Accomplishments

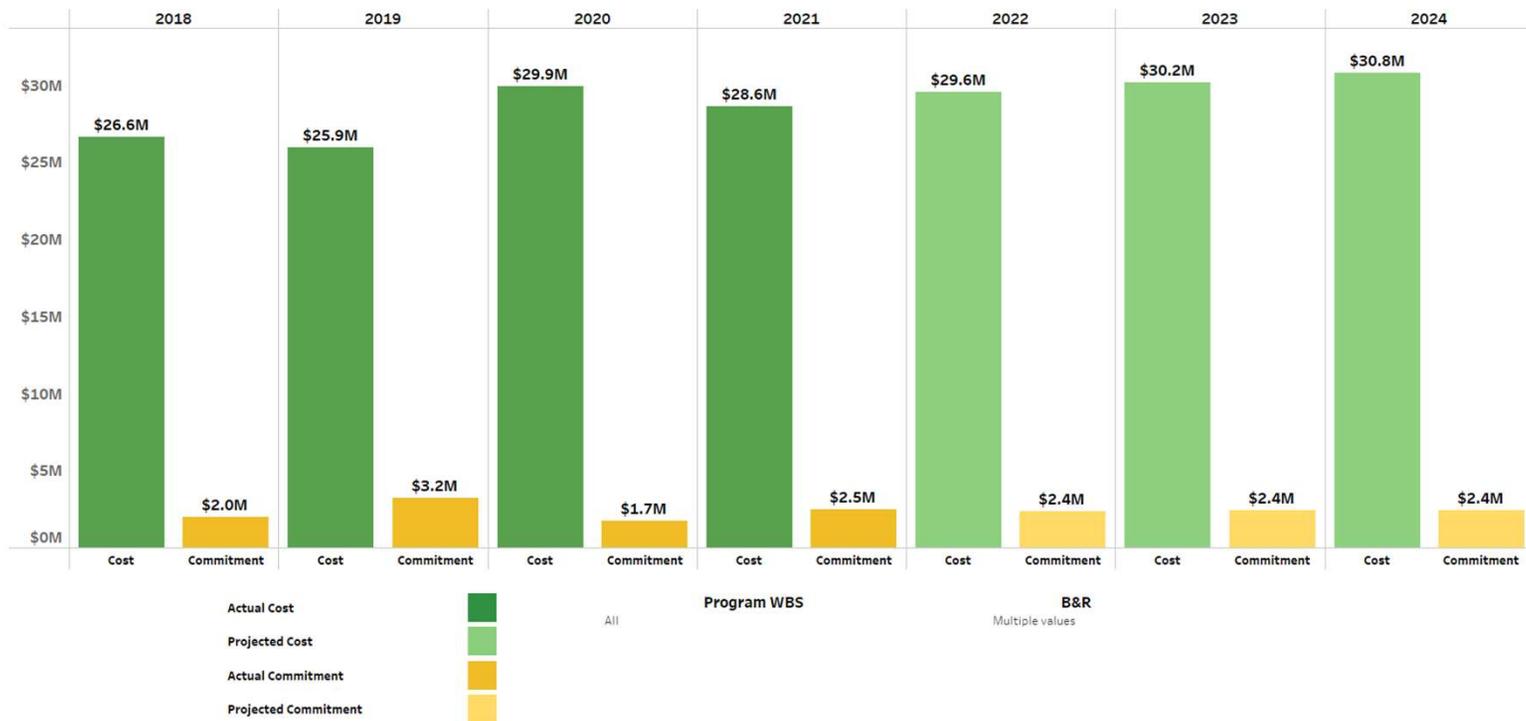
◆ Financial Data

◆ Q&A

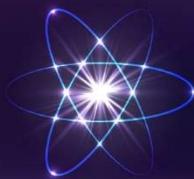
Actual & Projected Costs and Commitments



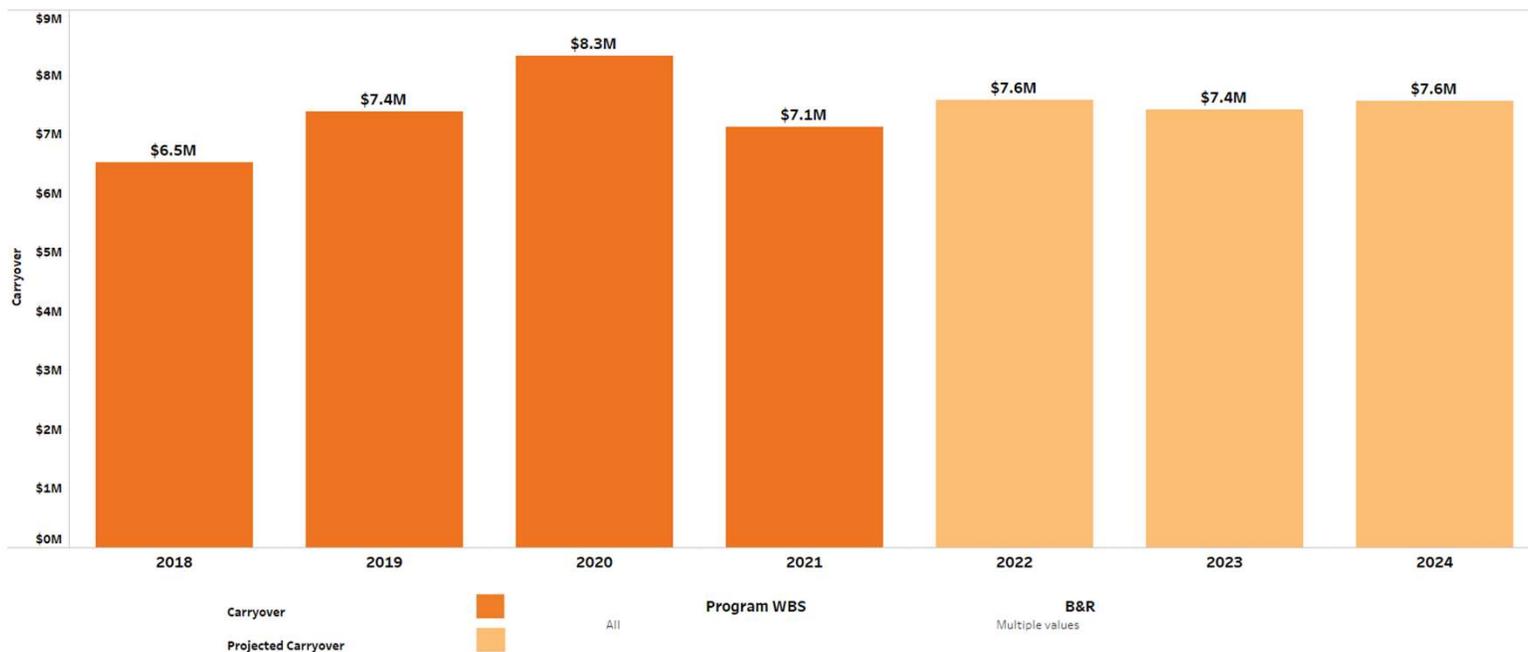
Actual and Projected Costs and Commitments



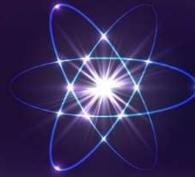
Actual & Projected Carryover



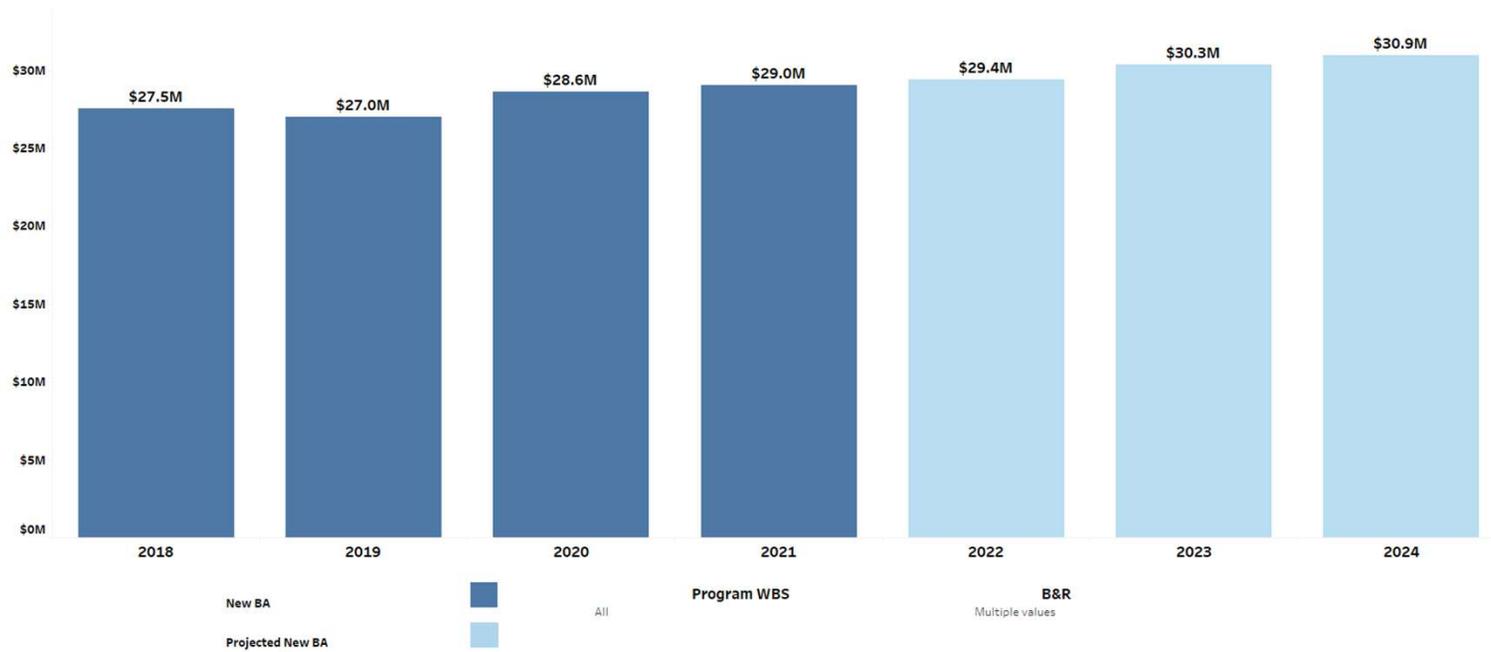
Actual and Projected Carryover



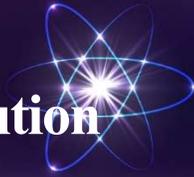
Actual & Projected New BA



Actual and Projected
New BA



NCSP Main Functions and Execution



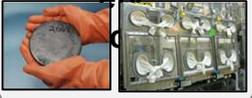
TS provides management support for daily NCSP execution. The CSSG and NDA groups provide NCS and ND expertise to the DOE through the NCSP manager. CSCT plays a key role in ensuring DOE's criticality safety programs stay within the framework of Integrated Safety Management Principles

NCSP Technical Support



NDAG **CSSG**
CSCT

DOE Nuclear Criticality Safety



Analytical Methods



Analytical methods provides support for the development and maintenance of SCALE/MCNP & NCSP site and international collaborations.



Nuclear Data testing involves using MCNP/SCALE to model critical benchmarks. Calculated differences from a critical configuration could indicate a code or nuclear data issue.

Nuclear Data

Nuclear data provides support for nuclear data evaluations (SAMMY) and cross section development (AMPX, NJOY). Also, differential nuclear data measurements are performed at RPI and IRMM in Belgium to fix nuclear data issues based on nuclear data testing activities with benchmark IEs. NCSP collaborates with the National Nuclear Data Center at BNL in the development of new Evaluated Nuclear Data Files for use by the NCS community.



Benchmark integral experiments are needed to fill gaps in nuclear data libraries. Nuclear Data deficiencies are used as justification to eventually improve ND libraries

Integral Experiments



NCSP IE programs involve applications of nuclear energy, basic measurements of nuclear parameters, kinetic behavior of chain-reacting systems, nuclear weapons safety, detector development, and nuclear criticality safety.



Training and Education

DOE NCSP training and education program provides NCS training for NCS engineers per ANSI/ANS-8.26 and CSOs/Managers. TE also provides resource pipelines to attract and train new NCS staff at DOE/NNSS sites.



The NCSP Website provides training registration and NCSet training modules and references for use by the community

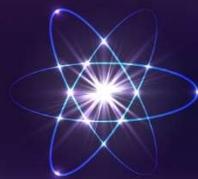


Information Preservation & Dissemination

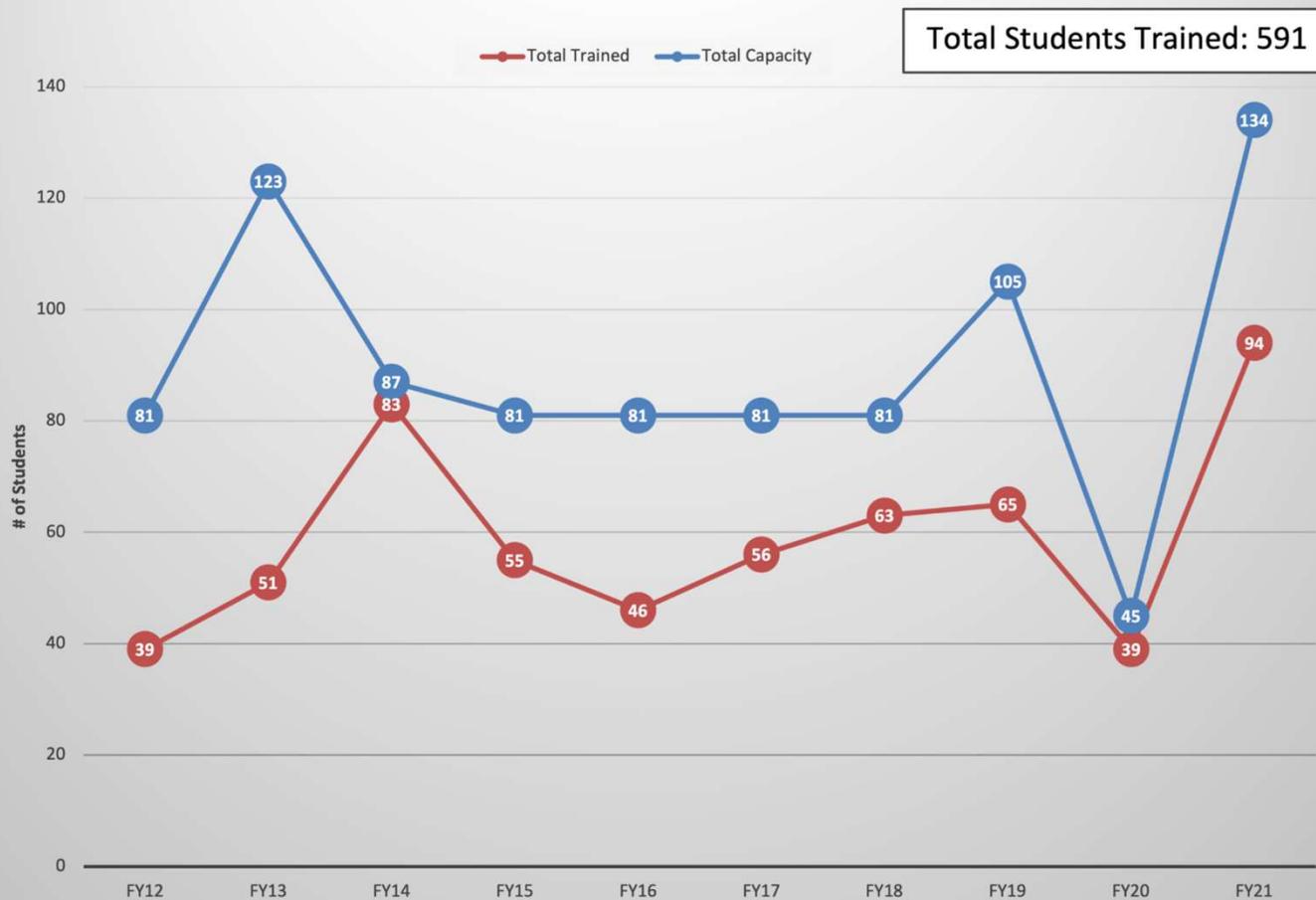
IPD involves sharing resources with the community via a modern website. Includes news, program management, training registration, references, and training aides



NCSP Training Data



NCSP T&E Courses – Total Trained FY12-FY21



Accomplishments, Challenges, Initiatives



ACCOMPLISHMENTS



- Completed UPF CAAS testing
- 7 Critical Experiment Campaigns Executed (CED 3b completed during FY21)
- 5 Critical Experiment Benchmark Reports Completed for ICSBEP Handbook
- 9 NCSP Criticality Safety Classes
- 94 Hands-on NCS students
 - Had 1st ever virtual course work
- 391 MCNP students (all virtual)
- 173 SCALE students (all virtual)
- 1st Ever MCNP Users' Group Workshop (500+ attendees)
- 5th Annual SCALE Users' Group Workshop (173 attendees)
- 1st ever NCSP ND measurement at LANSCE (U-233)
- NCSP IE Managers using G2 for IER process
- Planet Leveling Upgrade

CHALLENGES



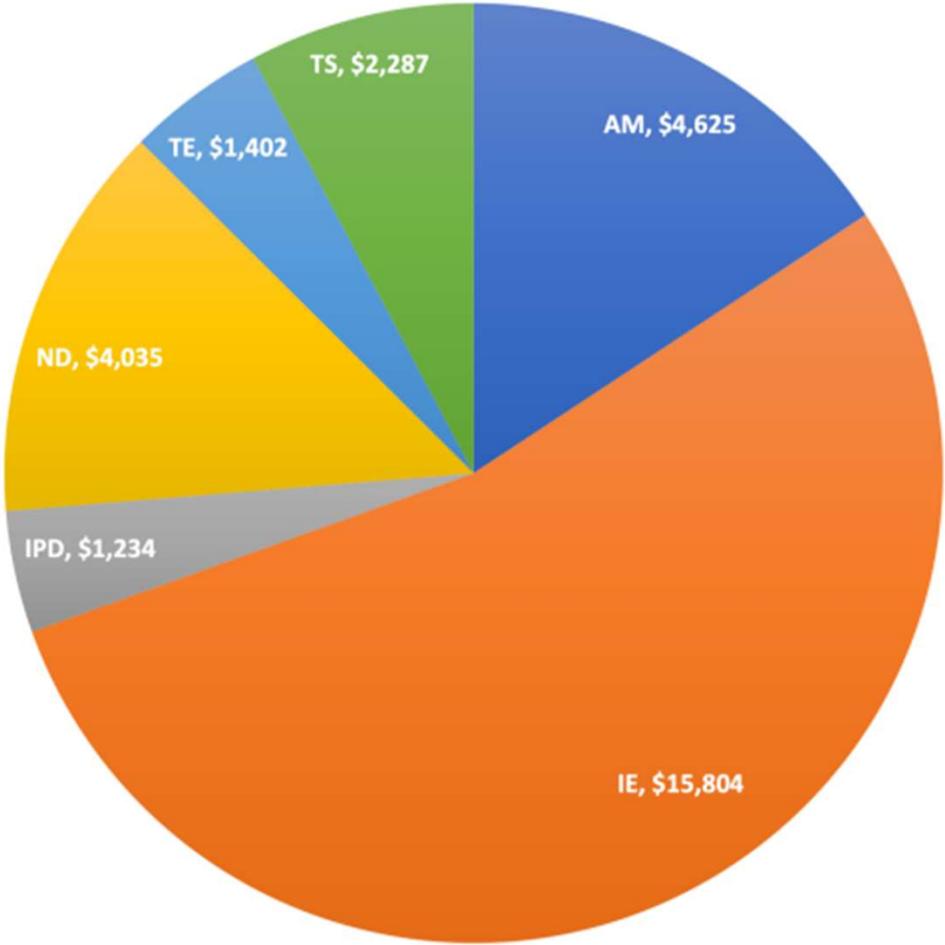
- RPI accelerator refurbishment schedule impacted by COVID (NR reported 8-month delay)
- NCERC-FO personnel impacted by LANL vaccination LWOP policy
- Travel costs are low due to COVID restrictions => more carryover
- TEX-Hf IE delayed to FY22 due to delayed NR Hf procurement
- RTO operations were impacted by COVID
- SPRF/CX Facility activities impacted by COVID
- COVID impacts to training
- Criticality Accident Dosimetry Exercise delayed due to COVID travel restrictions
- ICSBEP Chair leaving INL
- CSSG Panel discussion at ANS meeting delayed
- Nuclear Data measurements at GELINA delayed due to COVID closure
- Supplies - Prices rising; lead times increasing

INITIATIVES



- Capabilities Based Investment (NA-19) funding (\$2.3M for FY21) for NCERC Control Room upgrades
- Horizontal split table
- FY22 NCSP MIHL
- Implemented wait-list function on T&E section of webpage
- New chairs for CSCT and CSSG
- Pu-240 Measurement at LANSCE
- Low temperature TEX
- Criticality Accident Dosimetry Exercise
- Working with OSTI to create NCS library
- DRACO

FY22 Cost by Technical Program Element

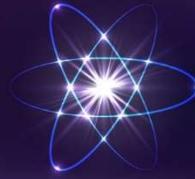


NCSP FY22 Make It Happen List



1. Production and delivery of hafnium to NCERC in support of TEX-Hf (IER 532) - NNL
2. Conduct nuclear accident dosimetry exercise (IER 538) – LLNL
3. Complete TEX low temperature DU surrogate testing (IER 547) - LLNL
4. Submit TEX HEU benchmark report to the International Criticality Safety Benchmark Experiment Program (IER 297) - LLNL
5. Complete critical experiments with UO₂ Rods and molybdenum foils (IER 305) - SNL
6. Complete measurements for the Flattop benchmark (IER 423) - LANL
7. Complete fabrication of lithium for critical experiment (IER 499) – Y-12
8. Complete high multiplication neutron subcritical measurements (IER 518) - Multiple
9. Measure the fission neutron spectrum shape using threshold activation detectors (IER 153) - LANL
10. Promote use of MCNP Version 6.3 at DOE sites - LANL
11. Complete prompt fission neutron spectrum (PFNS) measurement of Plutonium-240 at LANSCE - LANL
12. Complete Zr-91 measurements at GELINA - ORNL
13. Complete site acceptance tests for accelerator section #1 at RPI - NNL
14. Complete GELINA neutron production target – Y-12
15. Complete Sandia CSO/Manager course pilot course - SNL

NCSP Webpage



<https://ncsp.llnl.gov>

[NCSP Home](#) [Program Management](#) [Integral Experiments](#) [Nuclear Data](#) [Analytical Methods](#) [Information Preservation](#) [Training & Education](#) [Nondestructive Assay Program](#)

2022 NCSP Technical Program Review
Oak Ridge National Laboratory
Hosted Virtually | February 15-17, 2022

[Agenda & Registration information](#)

[Focus Areas](#)

G2 – Integral Experiment Tracking System

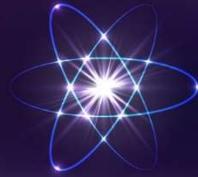


Browser address bar: https://g2.doe.gov/IER/Review

Page title: IER Review

Search by IER title or number... | Facilities | Types | Phase gates | Statuses | Clear all filters

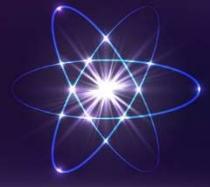
IER No.	IER Title	Facility	Type	CED-0	CED-1	CED-2	CED-3a	CED-3b	CED-4a	CED-4b
292	LLNL Foil Irradiation add-on to NCT Material #2 Measurement (IER...	NCERC	NCSP Funded (Full CeDT Pr...	10/19/2014	10/19/2014	10/19/2014	10/19/2014	10/09/2017	10/09/2017	11/21/2019
293	MC-15 LANL/LLNL Measurements of RTOs	NCERC	Non-NCSP Funded	10/19/2014	10/19/2014	10/19/2014	10/19/2014	11/21/2019		
294	OSRP Support	NCERC	Non-NCSP Funded	08/20/2014	08/20/2014	08/20/2014	08/20/2014	06/19/2020		
295	TEX-Fe: ZPPR Plates with Iron	NCERC	NCSP Funded (Full CeDT Pr...	12/29/2014	09/27/2018					
296	MOX Experiments Using Pu ZPPR Plates	NCERC	NCSP Funded (Full CeDT Pr...	10/19/2014	12/02/2020					
297	TEX: U (Jemima Plates) Baselines	NCERC	NCSP Funded (Full CeDT Pr...	10/19/2014	03/24/2016	01/10/2018	05/27/2019	02/05/2021	02/05/2021	
298	Blue Flash Measurement from Godiva	OTHER	NCSP Funded (Full CeDT Pr...	10/19/2014	09/27/2018					
299	KRUSTY Cold/Warm approach-to-critical multiplication measureme...	NCERC	NCSP Funded (Full CeDT Pr...	10/19/2014	04/03/2017	04/03/2017	11/13/2017	02/17/2019	09/29/2020	06/22/2021
300	ZPPR Receipt at Device Assembly Facility	OTHER	NCSP Funded (Full CeDT Pr...	08/10/2014	08/10/2014					
301	Criticality Effects Due To Plutonium Aging	NCERC	NCSP Funded (Full CeDT Pr...	10/19/2014	05/04/2016	03/05/2017	12/03/2020			
302	Dynamic Multiplication Measurements	NCERC	NCSP Funded (Full CeDT Pr...	10/19/2014	09/27/2018					
303	TEXAS	NCERC	NCSP Funded (Full CeDT Pr...	08/10/2014	09/27/2018					
304	Temperature dependent critical benchmarks	SNL	NCSP Funded (Full CeDT Pr...	10/19/2014	02/06/2018	09/30/2021	09/30/2021			
305	Critical Experiments with UO2 Rods and Molybdenum foils	SNL	NCSP Funded (Full CeDT Pr...	10/19/2014	04/18/2018	01/21/2021	01/21/2021			

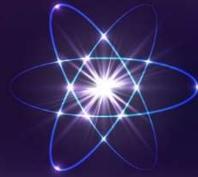


Y-12 Fabricated DU Target for Use at GELINA



NCERC Operations





Resources

- ◆ angela.chambers@nnsa.doe.gov
- ◆ (806) 573-6407
- ◆ <https://ncsp.llnl.gov>