Budget and Spending

• FY 2022 Carryover: $886K
• Final FY 2023 Budget: $6,948K
• FY 2023 Carryover: $522K
• Spending accelerated as we went into Q2
Spending Details (1)

**FY23 Analytical Methods**

- FY22 Carryover: $50K
- FY23 Approved budget (incl. C/O): $2,280K
- Actual spending for Q1: $414K
- Actual spending for Q2: $438K
- Actual spending for Q3: $849K
- Actual spending for Q4: $457K

**FY23 Information Preservation and Dissemination**

- FY22 Carryover: $161K
- FY23 Approved budget (incl. C/O): $251K
- Actual spending for Q1: $24K
- Actual spending for Q2: $45K
- Actual spending for Q3: $57K
- Actual spending for Q4: $54K

<table>
<thead>
<tr>
<th>Project Description</th>
<th>FY23 (k) Adj</th>
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<tbody>
<tr>
<td>ORNL</td>
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<tr>
<td>AM</td>
<td>2230</td>
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<td>ORNL-AM1</td>
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<tr>
<td>Radiation Safety Information Computational Center (RSiCC)</td>
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<td>ORNL-AM10</td>
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<tr>
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<td>ORNL-AM17</td>
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<td>Expansion of the Verified, Archived, Library of Inputs and Data (VALID)</td>
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<td>ORNL-AM18</td>
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<tr>
<td>Determination of Appropriate Integral Parameters for Critical Experiment</td>
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<td>ORNL-AM19</td>
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<tr>
<td>Analysis of Sum-of-Fractions for Nuclide Mixtures</td>
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<td>ORNL-AM2</td>
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<tr>
<td>SCALE/KENO/TSUNAMI Maintenance and Support/Cross-Section Generation/Modernization/etc.</td>
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<td>ORNL-AM3</td>
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<tr>
<td>AMPX Maintenance &amp; Modernization</td>
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<td>ORNL-AM6</td>
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<td>Slide Rule Application</td>
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<td>Grand Total</td>
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Spending Details (2)

FY22 Carryover $27K
FY22 Approved budget (inc. C/O) $227K
Actual spending for Q1 $51K
Actual spending for Q2 $85K
Actual spending for Q3 $68K
Actual spending for Q4 $11K

FY23 Carryover $89K
FY23 Approved budget (inc. C/O) $2,601K
Actual spending for Q1 $591K
Actual spending for Q2 $534K
Actual spending for Q3 $656K
Actual spending for Q4 $544K
### FY22 Carryover

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<tr>
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<td>Nuclear Criticality Safety Training and Pipeline Development</td>
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<td><strong>Grand Total</strong></td>
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### FY23 Approved Budget (inc. C/O)

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<td>T5</td>
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<td>ORNL-TE13</td>
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<td>ORNL-TE52</td>
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<td>ORNL-TE57</td>
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<td>AM, ND Succession Planning</td>
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<td>ORNL-TE58</td>
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<td><strong>Grand Total</strong></td>
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### Actual Spending

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<th>FY23 Approved Budget (inc. C/O)</th>
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<tr>
<td>Actual spending for Q1</td>
<td>$113K</td>
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<td>Actual spending for Q2</td>
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<td>Actual spending for Q3</td>
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<td>Actual spending for Q4</td>
<td>$256K</td>
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Spending Details (4)

- CSSG Tasking 2023-02 Response
- Deputy Chair transition
FY2023 ORNL Highlights

- **AM**
  - **AM1 – RSICC**
    - RSICC code distributions: 510 SCALE, 1051 MCNP, 1,464 University Requests, and 184 NCSP direct requests; [Tim Valentine provided a report](#).
  - **AM2 – SCALE**
    - SCALE 6.3.1 released to RSICC for distribution; export control issues delayed release; SCALE 6.3.2 release to come out soon; SCALE 7 under development (beta testing in progress); [Report to be provided by Will Wieselquist](#).
  - **AM3 – AMPX**
    - Report to be provided by Jordan McDonnell, Jesse Brown and Doro Wiarda.
  - **AM6 – Slide Rule**
    - Criticality Slide Rule collaborations with IRSN and LLNL continue with planned completion of slide rule documents in FY2024; [Report to be provided by Sophie Pignet, IRSN, for the team.](#)
  - **AM10 – Benchmark Intercomparison Study**
    - Supported Beta-eff computations alongside IRSN and LLNL; [Report to be provided by IRSN – Romain Vuiart.](#)
  - **AM17 – Expansion of VALID libraries at ORNL**
    - Report later by Travis Greene
  - **AM19 – Sum of Fractions Method**
    - Completed validation computations to support PNNL work; [Travis Zipperer to talk about the closure of this project.](#)
FY2023 ORNL Highlights

• ND
  – ND1 – Nuclear Data Measurements  (Report to be provided by Klaus Guber)
    • Zr-91 stable isotope measurements completed; Zr-91 shipped back to ORNL isotopes in Q1
    • Zr-92 measurements delayed due GELINA issues (budget and equipment issues); sample shipped to GELINA in March 2023
  – ND2 – Nuclear Data Evaluations  (Report to be provided by Marco Pigni)
    • $^{51}\text{V}$ transmission, capture yield data from GELINA used to extend the evaluation up to 200 keV; improved benchmark results
    • $^{103}\text{Rh}$ transmission, capture data from GELINA used to extend the evaluation up to 8 keV; comparable RPI data used to extend the evaluation to 2 keV; improved benchmark results
    • $^{239}\text{Pu}$ evaluation for RRR updated
    • $^{88}\text{Sr}$ evaluation completed – submitted to ENDF/B repository – (ORNL/LTR-2023/3004), “Resonance Parameter Evaluation of n+88Sr reactions for ENDF/B-VIII.1 Library”
    • $^{140,142}\text{Ce}$ RRR evaluation completed; covariance libraries updated for ENDF/B-VIII.1 release
    • $^{181}\text{Ta}$ – collaboration with NNL; evaluation completed in early FY23; (ORNL/NNL < 2.5 keV – RRR, ORNL – URR, LANL > 100 keV)
    • $^{63,65}\text{Cu}$ – Completed evaluation and covariance analysis to the ENDF/B-VIII.1 library
    • $^{139}\text{La}$ – progress made to extend the resolved resonance range from 20 keV to 40 keV (GELINA transmission & capture data – Guber)
FY2023 ORNL Highlights

• ND Continued...
  – ND3 – Isotopic Sample Leases for ND1
    • Obtained Zr-94 lease approval from DOE
  – ND4 – Thermal Neutron Total Cross Section Measurements for Improvement of Criticality Calculations and Propagation of Scattering Kernel (RPI measurements/ORNL evaluation)
    • Task complete; Report to be provided by Chris Chapman.
  – ND6 – SAMMY Modernization
    • Report to be provided by Doro Wiarda.

• IE
  – IE1 – ORNL CEDT Support
    • Dupont, Marshall, McDonnell, Celik, & Cumberland provided IER team support; IER-554, CED-2, completed; IER Team Lead: Mathieu Dupont; Mathieu Dupont to provide a report.
  – IE2 – Provide Safety Committee Support at DAF/NCERC
    • No significant work performed
  – IE4 – U-233 ZPPR Plate Shipments to DAF/NCERC
    • Supported the MOU between the US DOE Oak Ridge Office of Environmental MGT & the NCSP
FY2023 ORNL Highlights

- **IPD** (Report to be provided by Doug Bowen)
  - **IPD3 – NCS Repository at OSTI**
    - OSTI completed searching for all LLNL bibliography records – gaps determined. NCSP deliverables are being added each quarter
  - **IPD4 – Nuclear Criticality Safety - Learning From Experience (LFE) Database**
    - Planning efforts commenced details of the event/LFE database; Prichard subcontract completed; ANS Annual Meeting panel session conducted to get feedback from the NCS community
  - **IPD5 – Oak Ridge Health Physics Research Reactor CAAS Benchmark Evaluation**
    - Health Physics Research Reactor shielding benchmark report defended at the ICSBEP TRP meeting with completed resolutions; however, the TRG rejected it. Worked to reformat with additional NCSP funds for the SINBAD database.

- **TE** (Report to be provided by Doug Bowen)
  - **TE1 – Manage and Provide Instruction for the DOE NCS Training & Education Program**
    - ORNL successfully executed 4 NCSP training courses (two 1-week & two 2-week); 84 students completed the courses successfully (43 @ Sandia and 41 @ NCERC)
  - **TE14 – NCS Training & Pipeline Development**
    - Course agenda and a significant fraction of course material was completed for the ORNL, Texas A&M, and GA Tech pipeline collaboration for the new NCS certificate program task
  - **FY22 Task – TE3 Hand-Calculation Primer Expansion (LA-14244-M)**
    - Hand Calculation Primer Revision, ORNL/TM-2022/2747, published in FY23Q1; added to NCSET module 9 along with LA-14244-M
FY2023 ORNL Highlights

• TS
  – Executed FY23 NCSP Technical Program Review in Feb. 2023; Sandia hosted
  – Executed FY23 NCSP Budget Execution Meeting in July 2023
  – Supported IER database mods in G2 as necessary
  – Kicked off NCSP Mission and Vision 2024 revision at the LLNL TEX 2.0 meeting
  – 5-year plans published on schedule by August 6th + all related activities conducted successfully; supported multiple 5YP revisions
  – NDA Program: Second Uranium Holdup Measurements Course held at ORNL Sept. 11-14, 2023
NCSP Courses – FY21 Details

Workshops in progress – 2-week hands-on course – lecture portion Aug. 2023

2023 TPR in Albuquerque, NM (Sandia Hosted)
This work was supported by the NCSP, funded and managed by the NNSA for DOE