National Nuclear Security Administration

NBL PO News

Fiscal Year 2022 | Edition 1

INNOVATE. COLLABORATE. DELIVER.

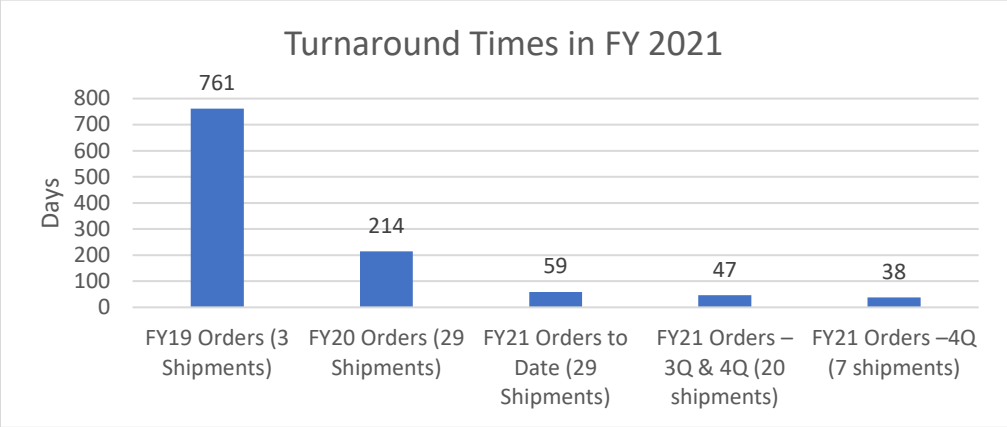
From the Director

Hello all, we will periodically be issuing these updates discussing the NBL Program Office's activities underway and planned activities.

It has been an eventful two years since the NBL PO moved physically from the Chicago area to Oak Ridge—and organizationally from the Office of Science to the National Nuclear Security Administration's Office of Defense Programs. This update will briefly highlight the status of each of these areas. As always, we welcome any and all feedback. Comments, concerns, or complaints can be addressed to me at peter.mason@nnsa.doe.gov or to NBLSales@nnsa.doe.gov.

Improving Turnaround Times for Orders

Over the last several years, NBL PO, Y-12 National Security Complex and Los Alamos National Laboratory have worked to steadily improve order processing and shipping times. Quite often, the longest portion of the overall time between order to shipment occurs while the NBL PO is waiting for the authorization to ship from the receiving site. The bottom line is that if you need nuclear standards and/or reference materials, NBL PO is ready to serve. Order details including inventory and ordering instructions/forms can be found at NBL's website.



You may also contact NBL PO directly at NBLSales@nnsa.doe.gov. Note that we are updating our sales and shipping Terms and Conditions, which will be implemented January 1, 2022. We believe these changes will further improve efficiency.

Certified Reference Material (CRM) Activities

C137/C137A – Plutonium Isotopic Standard: The Lawrence Livermore National Laboratory has successfully completed purification of C137 plutonium isotopic standard and produced units of the soon-to-be C137A. Analytical samples of the candidate CRM are to be distributed in the coming months to participating analytical laboratories for measurements leading to certified values. This will be followed by purification and recertification of C136 and C138 in FY 2022 and FY 2023. These new CRMs will have significantly improved isotopic values and uncertainties, and the lower quantity of material will ease shipping and storage requirements. We expect the C137A material to be available in late FY 2022.

C126B – Pu Metal Standard: NBL PO, Los Alamos National Laboratory, and the Savannah River Site have begun collaborating on the production of CRM C126B Pu metal to replace C126A. The tenth in a series of Pu standards dating to 1962, this material serves as the nation's primary plutonium assay standard and is also utilized in international safeguards and nonproliferation efforts.

C112A – NU Metal Standard: The Oak Ridge National Laboratory (ORNL), as part of an NBL-sponsored effort to establish the uranium high-precision titrimetric method, has performed highly accurate and precise measurements of CRM 112A. NBL is using these measurements to update the Certificate of Analysis for C112A. This material was originally issued by the National Bureau of Standards (NBS) in 1972 as an assay standard. In 2011, NBL added isotopic composition to the certificate. The certified uranium content and isotopic values will not change; however, the uranium content uncertainty will be updated in compliance with JCGM 100 ("GUM guide") and the certificate will be compliant with the requirements of ISO 17034 and related international standards.

Other Activities

The NBL PO is working with several DOE laboratories to develop a replacement for depleted metal uranium standard C115, to issue a new neptunium standard certified for neptunium content, and to develop uranium radiochronometry standards with a 5-10 year 'age'.

The NBL PO is also putting in place a 5-year interagency agreement with several divisions within the National Institute for Standards and Technology (NIST) to further improve the quality of our reference materials. This collaboration will allow NBL to access experts in chemical metrology and statistics to assist in NBL's quality system improvements and accreditation.

Safeguards Measurement Evaluation (SME) Changes and Development

The NBL PO has made improvements to the SME program to increase efficiency, establish compliance with ISO 17043, and prepare for new materials/methods to be added in the coming years. This includes changes to our data evaluation and reporting process, establishing requirements for new materials produced for the Proficiency Testing (PT) program, and adding several new materials to the inventory. We will be resuming UF6 work (both for PT and reference materials) in 2022 with the development of laboratory facilities dedicated to NBL mission work at ORNL. We will also expand our collaboration with other DOE labs for PT and reference materials work.