

MURR-IAEA COORDINATED RESEARCH PROJECT ON DEVELOPING TECHNIQUES FOR SMALL-SCALE INDIGENOUS ⁹⁹MO PRODUCTION USING LEU FISSION OR NEUTRON ACTIVATION

The University of Missouri Research Reactor (MURR) officially became an Agreement Holder in October of 2006 based on the sponsorship provided by Argonne National Laboratory (ANL). MURR's role as an Agreement Holder was to provide support to the CRP based on MURR's collaboration with ANL.

MURR performed two (2) trial demonstrations designed to validate the efficacy of ANL's annular LEU-foil target and LEU-Modified Cintichem process technologies. The first trial demonstration was performed in October of 2008 using LEU-foil supplied by ANL. The second trial demonstration was performed in April of 2009 using LEU-foil supplied by the Korean Atomic Energy Research Institute (KAERI). The ⁹⁹Mo yield of each of the trial demonstrations was about 90%. The quality assay of the finished sodium molybdate product was verified to be comparable to the HEU-based sodium molybdate supplied to the worldwide market by the major ⁹⁹Mo producers. The results and "lessons learned" from these two successful trial demonstrations were shared with all Contract Holders. Other significant contributions made to the subject CRP are:

- Hosted the 3rd Research Coordination Meeting held in October 2008
- Developed and published applicable quality control test methods
- Characterized liquid waste generated during the first trial demonstration
- Hosted a month-long fellowship for two (2) persons from POLATOM
- Improved ANL's target assembly process by transitioning the design of the draw plugs from "spherical" to "conical" geometry
- Assisted ANL on technical visits to Contract Holder sites (BATAN, POLATOM)
- Provided design of improved target disassembly device to ANL
- Prepared several Technical Data Reports (TDRs) for posting on CRP website
- Participated in several RCM workshops
- Provided support to Contract Holders in the area of "Safety Case" document content
- Interacted with Lantheus Medical Imaging (LMI) to create the opportunity for CCHEN personnel to participate in cGMP training at LMI

The University of Missouri sees significant value in continuing to share its knowledge and experience with the Contract Holders as they move forward to develop their domestic ⁹⁹Mo production program.