**Request for Information**
**Radioisotope Production Facility (RPF) Modular Hot Cells (MHC)**

**Overview:** UT-Battelle (the Company) is issuing a Request for Information (RFI) to obtain industry interest and capabilities for the design of a Transloading Modular Hot Cell, Processing Modular Hot Cell and the Fabrication of one(1) Transloading Modular Hot Cell with the options for an additional six(6) Transloading Modular Hot Cells and seven(7) Processing Modular Hot Cells. This is in support of the Radioisotope Processing Facility (RPF), a Hazard Category 2 nuclear facility intended to expand domestic production capacity for high-priority radioisotopes from the High Flux Isotope Reactor (HFIR). The Modular Hot Cells (MHCs) will be utilized as the primary radiological confinement and shielding structures for receiving irradiated targets, processing product materials, and managing radioactive byproducts. The MHC will be delivered to Oak Ridge National Laboratory (ORNL) in support of a DOE funded construction line-item project. The Company intends to install fourteen (14) MHCs within the new facility with an estimated construction completion of 2034.

The MHC Request for Proposal (RFP) is expected to be issued in late 2027, with work to begin soon after contract award. The award will be a competitive Basic Ordering Agreement with fixed price and time and material task orders for design, fabrication and installation. All interested firms should provide contact information (Name, Email and contact number) for further correspondence as part of their response.

**Disclaimer**: This RFI neither constitutes a solicitation, Request for Proposal (RFP), Invitation for Bid, or promise to issue an RFP in the future, nor does it restrict UT-Battelle to an ultimate acquisition approach. This RFI is issued solely for information and planning purposes and should not be construed as a commitment of any kind. RFI submission is not required to be considered for inclusion on the invitation to bid at a later date.

**Scope:** The below encompasses the design requirements of the Transloading MHCs and Processing MHCs and fabrication of one(1) Transloading MHC with shipment and installation at ORNL. The Offeror shall incorporate the operating sequence and handling constraints into both design and fabrication of the MHC systems.

Expected document deliverables will be:

1. Conceptual Design Package
2. Detailed Design Package including stamped drawings, analyses, and fabrication specifications
3. Shielding Analysis including dose estimates and material selection justification
4. Fabrication Plan and Quality Assurance Plan
5. Shipment and Handling Plan
6. Onsite Installation Plan including lift/transport strategies
7. Testing, Commissioning, and Verification Procedures
8. Lifecycle Maintainability and Cost Assessment
9. As-built Documentation for the installed base-unit transloading MHC

*Deliverable associated with optional scope will apply when options are exercised.

The Offeror shall develop complete conceptual and detailed design packages for Transloading Modular Hot Cells and Processing Modular Hot Cells. Transloading MHCs will be designed to interface with shielded shipping casks, supporting safe receipt, unloading, and transfer of irradiated HFIR targets. Processing MHCs will be designed to perform chemical, mechanical, and thermal processing steps; integrate with gloveboxes; and support product finishing and waste management.

The MHC designs must meet the technical, operating, shielding, maintainability, confinement, and lifecycle requirements defined below:

1. The MHC systems must support the following functional workflows:
    - Receipt of irradiated target materials in shielded casks.
    - Unloading into the transloading MHC using top-loading and side-loading interfaces.
    - Transfer between MHCs, maintaining shielding and confinement integrity.
    - Movement to gloveboxes for auxiliary operations.
    - Waste containerization and disposition through controlled pathways.
    - Reconfigurable operational campaigns, with MHC lines rearranged or replaced approximately every seven years or as mission needs evolve.
2. The MHC designs must incorporate the following geometry and configuration requirements:
    - Internal dimensions approx. 6 ft × 6 ft × 8 ft.
    - Two telemanipulator ports per cell.
    - Shielded window approx. 4 ft × 3 ft.
    - Two passthroughs 18 in × 18 in.
    - Rear access door 2 ft × 3 ft.
    - Feedthroughs for gas, liquids, power, and instrumentation.
    - The Transloading MHC shall include a transloading cell cave supporting top-loading cask insertion.
3. The MHC designs must meet the following shielding and dose control requirements:
    - Worker dose controls 0.5 mrem/hr external to the MHC.
    - Baseline shielding equal to 14 in carbon steel (≈ 8.5 in lead).
    - The designer shall evaluate alternative shielding options (concrete, cast lead, chevron brick) for cost, schedule, maintainability.
    - Shielding of walls, corners, shine paths, windows, doors, sleeves, penetrations, cask interfaces shall be evaluated.
4. The MHC designs must include following requirements to support maintainability:
    - Easy telemanipulator installation/removal.
    - Replaceable cameras, lights, and internal components.
    - Access ports for maintenance.
    - Serviceability of cask interface components.
    - Replaceable liners and components.
    - Reliable seals and gaskets under radiation exposure.
    - Ability to decontaminate or recover from upset conditions.
5. The MHC designs must meet the following confinement, ventilation and cleanliness requirements:
    - Negative-pressure operation.
    - Controlled leak paths and confinement integrity.
    - Integration with ORNL exhaust and filtration systems.
    - Internal ventilation design supporting contamination control.

6. The MHC designs must support the following constructability and installation requirements:
    - Off-site fabrication to maximum extent possible.
    - Shipment and onsite assembly within ORNL constraints.
    - Installation using air-skate transfer over reinforced floors (the facility includes a central high bay with a 30 ton crane for MHC assembly, but there are no overhead cranes in the process bays).
    - Future relocation, refurbishment, and replacement.
7. The MHC designs must withstand corrosive chemical environments typical of isotope processing. The following liner materials are acceptable:
    - Inconel
    - PVDF-coated stainless steel
    - Other radiation-tolerant materials maintaining leak-rate performance and corrosion resistance may be proposed.

The fabrication, shipment and installation of one Transloading MHC must meet the following requirements:

- Manufacture one (1) fully functional transloading MHC in accordance with the above Company approved design package
- Crate and ship the unit to ORNL.
- Perform onsite installation within the designated RPF MHC bay. Installation shall follow ORNL constraints including movement without overhead cranes using air skate systems.
- Delivery shall include all necessary liners, penetrations, shielding components, windows, telemanipulator interfaces, ventilation features, and cask interaction hardware.

In support of the above, the Company will supply the following to the Offeror for scope execution:

- RPF facility layout drawings
- Interface requirements for cask systems and gloveboxes
- Applicable codes, standards, and safety requirements
- Access to ORNL personnel for technical coordination

The following details potential options for the fabrication, shipment, and installation of additional MHCs to support future RPF configuration and mission needs. The Company may exercise the following options at any point during the subcontract period of performance:

1. The Offeror shall fabricate, ship, and install six additional transloading hot cells identical or functionally equivalent to the base-unit design.
2. The Offeror shall fabricate, ship, and install seven processing hot cells based on the design package developed under the base award.

*Both options must maintain modularity, uniformity of interfaces, and compatibility with future RPF mission changes.

Attachments:

- Attachment 1: Request for Information Radioisotope Production Facility (RPF) Modular Hot Cells (MHC)
- Attachment 2: Radioisotope Processing Facility Conceptual Design Floor Plan
- Attachment 3: Radioisotope Processing Facility Project Layout
- Attachment 4: Modular Hot Cells RFI Questions & Answers

**RFI SUBMITTAL REQUIREMENTS** – The RFI submittal requirements consist of a narrative summary inclusive of the below in response to the detailed scope. The RFI response shall address the following:

- Offeror Main and branch location(s) – describe capabilities of the design team and fabrication shop(s) that would lead the fabrication with special emphasis on local or regional presence.
- DOE/Federal Work Experience – summary shall identify relevant experience preferably working on a federal build/assembly project.
- Provide examples of two (2) projects of similar size, scope, type, and function.
- Describe your methodology to environment, safety, health, and quality (ESH&Q) principles and how your company integrates ESH&Q principles into day-to-day operations in an industrial facility.
- Expected Proposal Development Duration - Bidder shall provide an estimated number of weeks after receiving the RFP to develop and submit a proposal.
- Company name, key contact, and address and Contact information for Bidding process
- A budgetary estimate detailing a cost range to execute the design of a transloading MHC, design of a processing MHC, fabrication of a transloading MHC and fabrication of the above referenced options under an ISO-9001 program with commercial grade dedication performed by the Company or an NQA-1 program.

**Individual meetings may be scheduled at a later date to discuss submittal packages and to provide clarification on the scope requirements.*

**Responses Due:** All responses will be electronic format and emailed to Rachel Botes (botesre@ornl.gov). All responses must be received no later than October 23, 2026at 5pm EST. Additional questions should be submitted with response.