



## Materials Inspection Report

## 1. Licensee/Location Inspected:

Michigan State University  
FRIB-NSCL  
640 South Shaw Lane  
East Lansing, MI 48824

Report Number(s) 2022-001

## 2. NRC/Regional Office

Region III  
U. S. Nuclear Regulatory Commission  
2443 Warrenville Road, Suite 210  
Lisle, IL 60532-4352

## 3. Docket Number(s)

030-39039

## 4. License Number(s)

21-00023-31

## 5. Date(s) of Inspection

November 14, 2022

## LICENSEE:

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission (NRC) rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The inspection findings are as follows:



1. Based on the inspection findings, no violations were identified.



2. Previous violation(s) closed.



3. During this inspection, certain of your activities, as described below and/or attached, were in violation of NRC requirements, and were assessed at Severity Level IV, in accordance with the NRC Enforcement Policy.



A. The violation(s), specifically described to you by the inspector as non-cited violations, are not being cited because they were self-identified, non-repetitive, corrective action was or is being taken, and the remaining criteria in the NRC Enforcement Policy were satisfied.

(Non-cited violation(s) was/were discussed involving the following requirement(s))

B. The following violation(s) is/are being cited in accordance with NRC Enforcement Policy. This form is a NOTICE OF VIOLATION, which may be subject to posting in accordance with 10 CFR 19.11.  
(Violations and Corrective Actions)


## Statement of Corrective Actions

I hereby state that, within 30 days, the actions described by me to the Inspector will be taken to correct the violations identified. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201 (corrective steps already taken, corrective steps which will be taken, date when full compliance will be achieved). I understand that no further written response to NRC will be required, unless specifically requested.

TITLE	PRINTED NAME	SIGNATURE AND DATE
LICENSEE'S REPRESENTATIVE		
NRC INSPECTOR	Ryan Craffey	 Digitally signed by Ryan J. Craffey Date: 2022.11.29 17:58:44 -05'00'
BRANCH CHIEF	Rhex Edwards	 Digitally signed by Rhex A. Edwards Date: 2022.12.05 15:29:34 -06'00'



## Materials Inspection Record

1. Licensee Name: Michigan State University, FRIB-NSCL		2. Docket Number(s): 030-39039		3. License Number(s) 21-00021-31	
4. Report Number(s): 2022-001			5. Date(s) of Inspection: November 14, 2022		
6. Inspector(s): Ryan Craffey		7. Program Code(s): 03210		8. Priority: 2	9. Inspection Guidance Used: IP 87126
10. Licensee Contact Name(s): Petra Grivins - RSO		11. Licensee E-mail Address: grivins@frib.msu.edu		12. Licensee Telephone Number(s): 517-908-7674	
13. Inspection Type: <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Announced <input type="checkbox"/> Non-Routine <input checked="" type="checkbox"/> Unannounced		14. Locations Inspected: <input type="checkbox"/> Hybrid <input checked="" type="checkbox"/> Main Office <input type="checkbox"/> Temporary Job Site <input type="checkbox"/> Field Office <input type="checkbox"/> Remote		15. Next Inspection Date (MM/DD/YYYY): 11/14/2024 <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Extended <input type="checkbox"/> Reduced <input type="checkbox"/> No change	
16. Location(s) Inspected List: Main Office - 640 South Shaw Lane, East Lansing, MI					
17. Scope and Observations: Michigan State University operated The Facility for Rare Isotope Beams as a user facility for the U.S. Department of Energy Office of Science. The facility operated a 300-kW heavy-ion superconducting linear accelerator for nuclear physics and chemistry research (which officially began in May 2022), and was authorized by its NRC license to possess a wide array of material for R&D, instrument calibration, and activation products. The majority of the licensee's sources were small calibration and reference sources for detectors and other scientific instruments. The licensee also possessed two Am-241:Be neutron howitzers for neutron instrument calibration. Although authorized to produce licensed material using the accelerator, the licensee has not done so since the last inspection. However, the licensee is currently building a radiochemistry laboratory for a proposed Isotope Harvesting process and expects to resume the production of licensed material sometime in 2023 or 2024.  The inspector toured the facility in East Lansing, including the future Isotope Harvesting laboratory. All licensed material was adequately secured, and all licensed material selected for examination was accounted for. Independent surveys of the facility found no evidence of residual contamination or exposures in excess of limits to members of the public in areas accessible to personnel. The inspector interviewed authorized users to discuss the use and storage of calibration sources, operation of the linear accelerator, and remote maintenance and handling of activated accelerator components. All personnel interviewed were knowledgeable of radiation protection principles, licensee procedures, and relevant regulatory requirements. The inspector reviewed a selection of radiation protection program records, including RSC meeting minutes, program audits, sealed source inventories and leak test results, documentation of receipt and transfer of licensed material, survey meter calibration certificates and personnel dosimetry reports. No violations of NRC requirements were identified as a result of this inspection.					
Signature and Date - Branch Chief  Digitally signed by Rhex A. Edwards Date: 2022.12.05 15:30:00 -06'00'					