

**ENCLOSURE 4**

**SHINE MEDICAL TECHNOLOGIES, LLC**

**MEETING SLIDES FROM THE APRIL 13, 2021 PUBLIC MEETING  
BETWEEN SHINE MEDICAL TECHNOLOGIES, LLC AND THE NRC**

**POSSESSION-ONLY LICENSE AMENDMENT REQUEST  
PUBLIC VERSION**



---

# Possession-Only License Amendment Request

**Jeff Bartelme, Director of Licensing**

Health. Illuminated.™



## Scope of Possession-Only License Amendment Request

---

- To support on-going facility construction activities, SHINE intends to seek NRC authorization to receive and possess certain radioactive materials required to be installed within SHINE systems as part of construction activity sequencing
  - Sealed americium-241 beryllium neutron sources, as described in Subsection 4a2.2.4 of the FSAR
  - Natural uranium, in the form of neutron multipliers, as described in Subsection 4a2.2.6 of the FSAR
  - Depleted uranium, in the form of tritium storage beds, as described in Subsection 9a2.7.1 of the FSAR
- SHINE intends to submit a request to amend the SHINE construction permit, in accordance with 10 CFR 50.90, to authorize receipt and possession of these radioactive materials in connection with construction of the SHINE facility



## Approach to Preparing the License Amendment Request

---

- To ensure compliance with the applicable regulations of 10 CFR Parts 30 and 40, SHINE is preparing the content of the request in accordance with the guidance of NUREG-1556, Volume 7, Revision 1, “Consolidated Guidance About Materials Licenses – Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope Including Electron Capture Devices and X-Ray Fluorescence Analyzers”
- In lieu of submitting a completed NRC Form 313, consistent with the guidance of NUREG-1556, Volume 7, SHINE will translate the NRC Form 313 content into a request to amend the SHINE construction permit
  - The content of the amendment request will follow the Suggested Response guidance provided in Appendix B of NUREG-1556, Volume 7
  - The amendment request is independent of the on-going NRC review of the SHINE operating license application, and does not rely on any programs or plans currently under review by the NRC Staff



## Radioactive Material/Purpose for Which Material Will Be Used

- The amendment request will include the following radioactive materials and stated purposes:

<b>Unsealed Sources</b>		
Radioisotope	Natural Uranium	Depleted Uranium
Chemical/Physical Form	Solid metal	Solid metal
Maximum Possession Limit	10,000 kg	10 kg
Purpose	Installation within subcritical assembly system	Installation within tritium purification system
<b>Sealed Sources</b>		
Radioisotope	Americium-241/Beryllium	
Chemical/Physical Form	Solid	
Maximum Activity Per Source	[ ] <sup>SRI</sup>	
Maximum Number of Sources	16	
Maximum Possession Limit	[ ] <sup>SRI</sup>	
Purpose	Installation within subcritical assembly system	



## Proposed Construction Permit Conditions

---

- The amendment request will propose the following conditions be added to Section 3 of the SHINE construction permit:

Pursuant to the Act and 10 CFR Part 30, the following activities are included:

- a. to receive and possess, in connection with construction of the facility, up to [ ]<sup>SRI</sup> of sealed americium-241 beryllium neutron sources.

Pursuant to the Act and 10 CFR Part 40, the following activities are included:

- a. to receive and possess, in connection with construction of the facility, up to 10,000 kg of natural uranium in the form of neutron multipliers; and
- b. to receive and possess, in connection with construction of the facility, up to 10 kg of depleted uranium in the form of tritium storage beds.



## Subsequent Request for Additional Materials and Schedule

---

- SHINE is currently scoping a subsequent request for radioactive materials related to the operation of the SHINE facility, including byproduct, source, and special nuclear material
- The following schedule reflects the current SHINE project schedule needs for radioactive material:
  - Submit Request for Radioactive Materials to Support Construction Activities: April 2021
  - Anticipated NRC Review Timeframe: Four Months
  - Submit Request for Radioactive Materials to Support Operational Activities: Calendar Q4 2021
  - Anticipated NRC Review Timeframe: Six Months