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Nuclear Fuels and Materials Library

Nuclear Science User Facilities

INL/MIS-26-92060



Start with the NFML before starting from zero

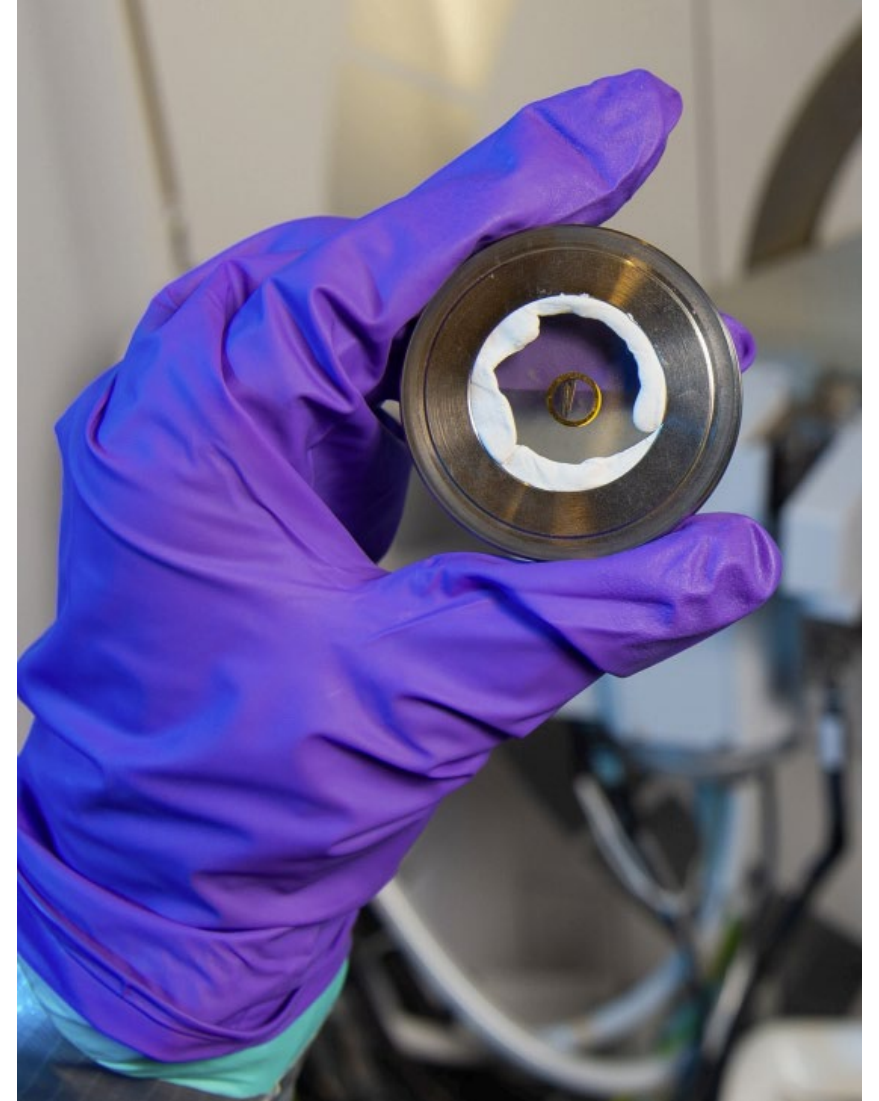
The NFML helps users reuse high-value nuclear fuels and materials instead of recreating them.

For new users, this can reduce sample acquisition uncertainty, shorten the path to characterization, and strengthen the proposal's technical feasibility.

**Ready-to-use
materials**

**Reduced
duplication**

**Clearer proposal
path**



What is the NFML?

Owned by DOE

A national resource for nuclear energy research.



U.S. DEPARTMENT
of **ENERGY**

Curated by NSUF

Organized to help users discover, request, and use samples.



Built for reuse

Includes irradiated and non-irradiated fuels and materials with associated pedigree.

valuable materials → discoverable samples → proposal-ready research inputs

When should a proposal team consider NFML samples?

Good fit

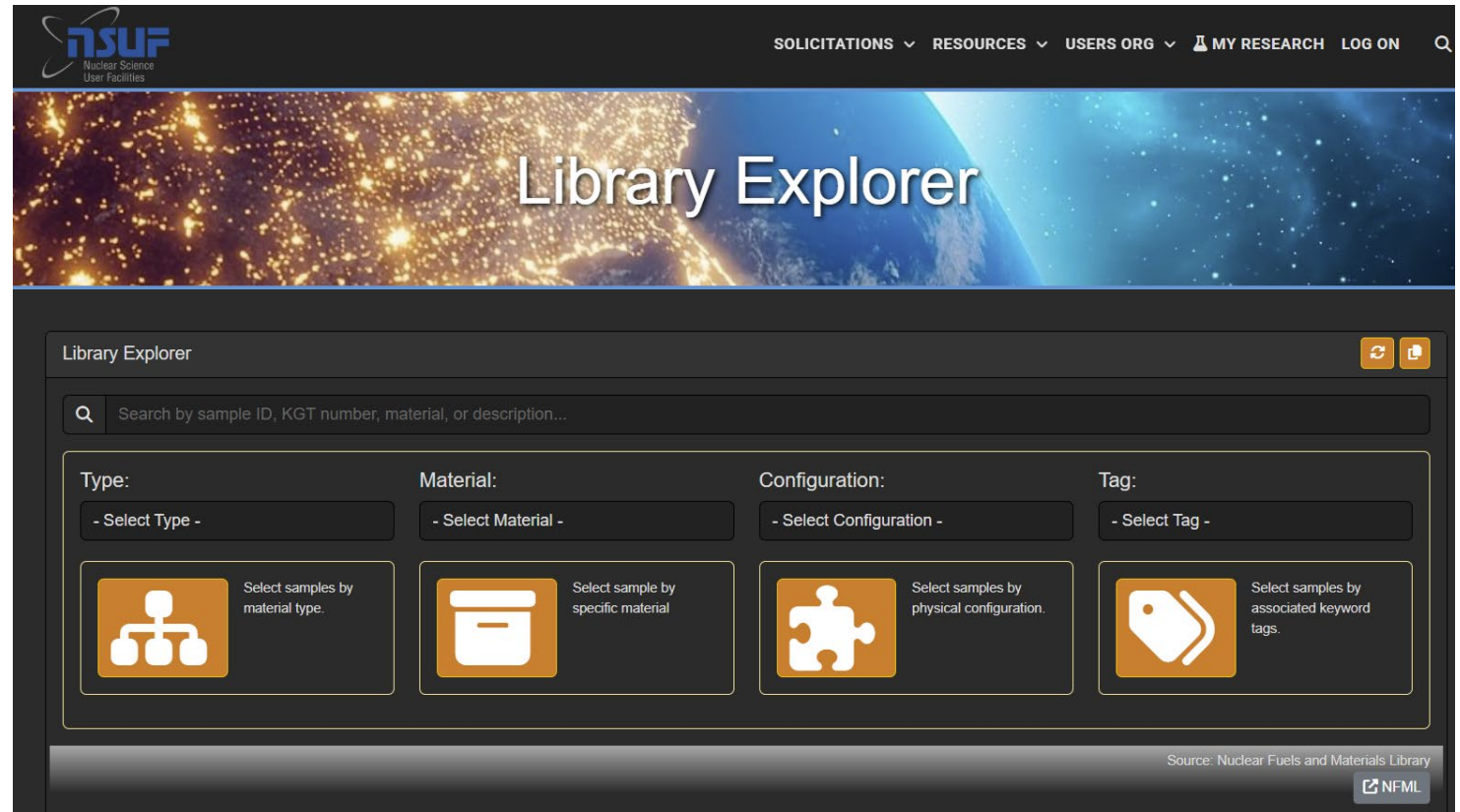
- Need irradiated or archived material quickly
- Can adapt scope to available sample geometry or condition
- Want to compare against prior irradiation history
- Need rare materials that are costly or difficult to recreate

Ask early

- Is the material available for the solicitation timeline?
- Is the pedigree complete enough for the proposed analysis?
- Are there handling, shipment, or PIE facility constraints?
- Is the original PI exclusive-access period still active?

How users discover potential samples – Library Explorer

Access: nsuf.inl.gov →
Resources → Explore Library



Type

Fuel cladding,
structural material,
sensor, etc.

Material

316 Stainless Steel,
Inconel 718,
Graphite, etc.

Configuration

Bolt, tensile, 3mm
disk, etc.

Tag

Alloy, annealed,
actinide, etc.

How users discover potential samples – Sample Library Database

Access: nsuf.inl.gov →
Resources → Sample
Library (NFML)

Requires NSUF account &
login

Nuclear Fuels and Materials Library [NFML Policy](#)

The Nuclear Fuels and Materials Library contains materials from NSUF experiments and other legacy sources. The library houses available specimens for awarded NSUF-1/NSUF-2 CINR FOA proposals as well as NSUF Rapid Turnaround Experiment (RTE) proposals. You may browse the library by project or material using the options below. You may also search the library by keyword and/or irradiation conditions if desired. Please send all questions to nsuf@inl.gov.

Browse Library: [By Search](#) [By Materials](#) [By Projects](#) Search By: [Irradiation Conditions](#) [Export Library](#)

Search by sample ID, KGT number, material, or description...

Type:	Material:	Configuration:	Tag:
- Select Type -	- Select Material -	- Select Configuration -	- Select Tag -
 Select samples by material type.	 Select sample by specific material	 Select samples by physical configuration.	 Select samples by associated keyword tags.

By Search

Keywords in search
bar

By Material

Sorted materials list

By Projects

Sorted projects list

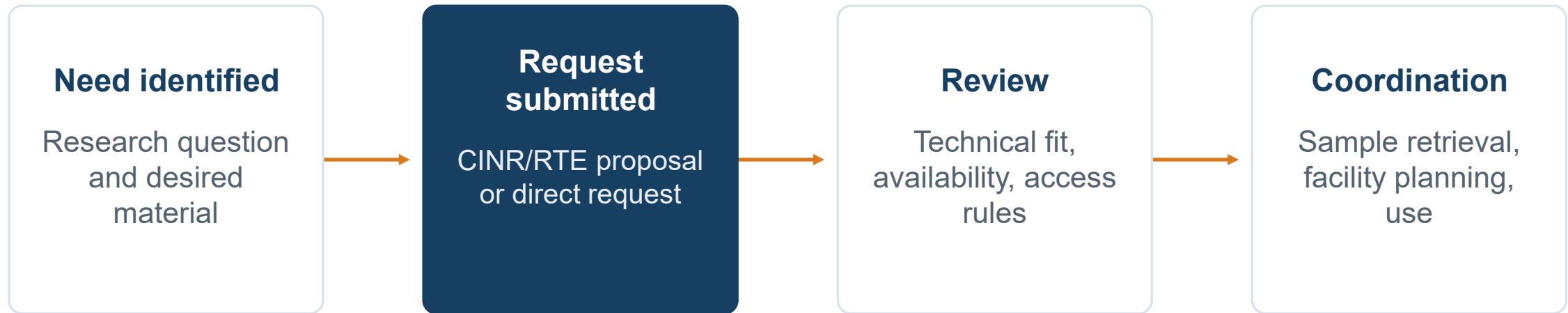
Irradiation Conditions

Match dose,
temperature, flux

What to capture before requesting NFML samples in a proposal

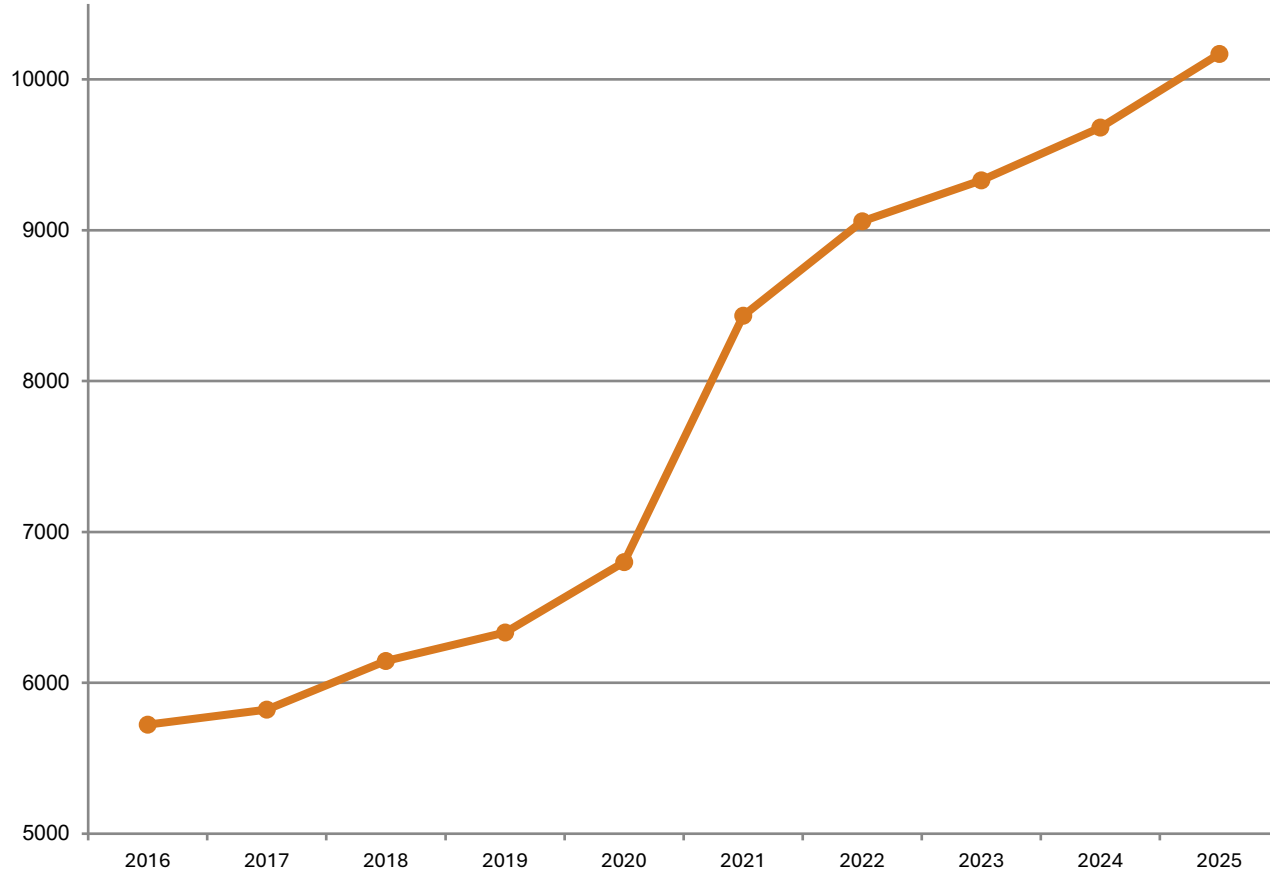
- 1 **Material identity and sample ID(s)**
- 2 **Irradiation pedigree needed for the science**
- 3 **Geometry, quantity, condition, and handling assumptions**
- 4 **Facility access or PIE capability needed**
- 5 **Availability and request pathway**
- 6 **Reports, publications, or data that support the scope**

How users request NFML materials



Remember: NFML materials are generally intended for non-proprietary research. NSUF-generated irradiated samples may be subject to an original PI exclusive-access period before broader reuse.

NFML is growing and supporting NSUF proposals



10,000+
samples in NFML by 2025

14%
typical proposal request
range

50%
average award rate

**For help finding samples or confirming
availability:**

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Connect
with us