



OKLO INC.

Material Categorization and Physical Protection Approach

December 3rd, 2024

Agenda

Open portion

- Introduction
- Overview of pyroprocessing
- Discussion of NRC staff guidance and documents

Closed portion

- Recap of previous engagements
- Overview of the Oklo fuel recycling facility
- Regulatory background
- Oklo's approach to physical protection for its fuel recycling facility
- Discuss NRC staff feedback on the proposed approach



Introduction

Oklo is developing sodium fast reactors (SFRs) partially because of their ability to reuse fuel.

Oklo is developing and seeking to license, build, and operate a first-of-a-kind (FOAK) commercial fuel recycling facility for creation of uranium/transuranic bearing fuel (U/TRU).

Oklo's goal is to implement an economical, vertically-integrated, front-end fuel source for our upcoming reactor fleet that also provides for recycling spent fuel from the back end of the existing reactor fleet.

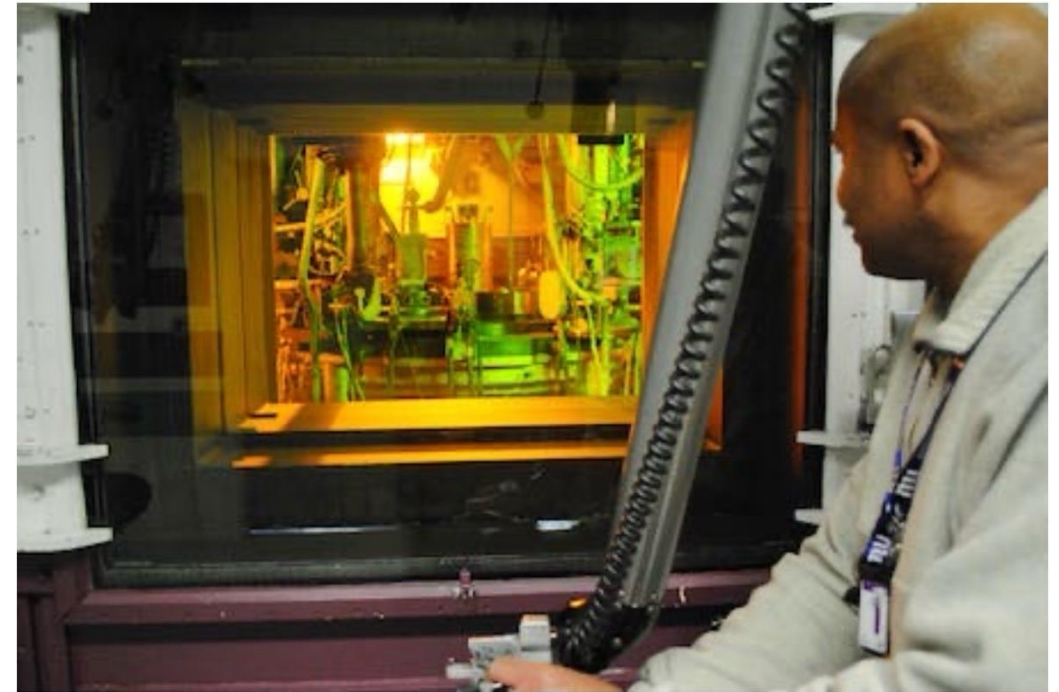


Pyroprocessing

Oklo will be using pyroprocessing-based technology (as opposed to aqueous-based).

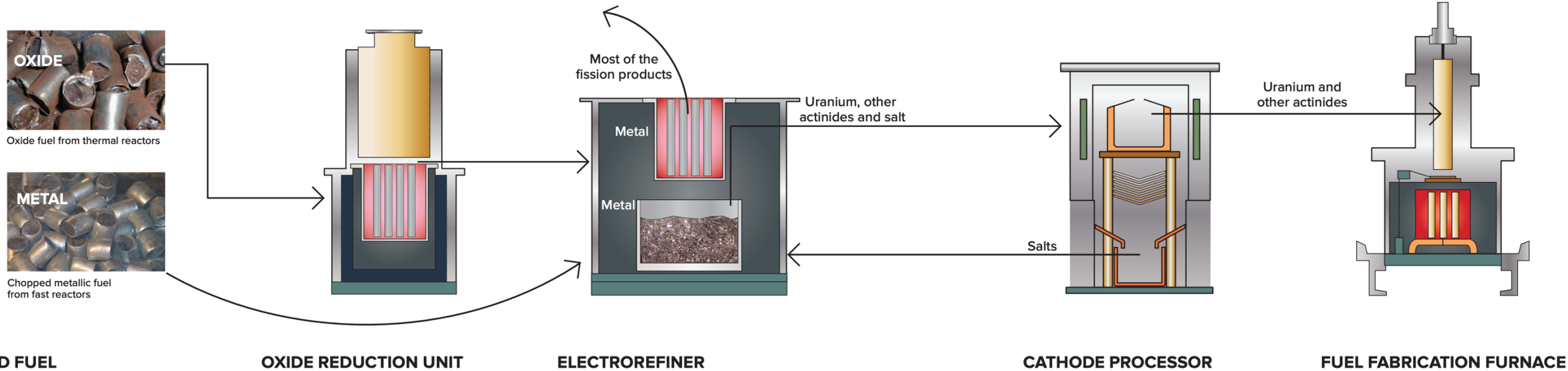
Employing electrorefining for used nuclear fuel reconditioning was technology originally developed by Argonne in the 1960s.

Electrorefining-based used fuel recycling is actively being used at INL (Fuel Conditioning Facility) to recover used EBR-II fuel.



FCF Operations (Credit: INL)

Pyroprocessing



(Credit: ANL)

Existing NRC guidance

In developing its approach to material categorization and physical protection, Oklo considered NRC staff guidance and documents including, but not limited to:

- SECY-09-0082, "Update on Reprocessing Regulatory Framework - Summary of Gap Analysis" (ML091520365)
- SECY-11-0163, "Draft Regulatory Basis for Licensing and Regulating Reprocessing Facilities" (ML112081702)
- Regulatory Basis Document, "Rulemaking for Enhanced Security of Special Nuclear Material" (ML14321A007)
- NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" (ML15176A258)





Conclusion of open portion