

# Regulatory Aspects – “ARPA-E CONVERTING UNF RADIOISOTOPES INTO ENERGY WORKSHOP”

Jonathan Marcano P.E., NRC/NMSS

Wendy Reed, NRC/RES

July 27, 2021

---

# Efforts to develop a regulatory framework

- In 2013, the Commission directed the staff to develop a technology neutral reprocessing rule focused on light water reactors (SRM-SECY-13-0093).
  - Basis for draft regulatory basis was a large throughput commercial scale reprocessing plant.
- Between 2013-2016, the NRC staff worked to develop a draft regulatory basis for Gap 5.
- In 2016, staff temporarily stopped work due to decline on the level of industry interest on reprocessing of spent fuel.

# Current State

- On March 5, 2021, the staff issued a recommendation to request Commission approval to discontinue the spent fuel reprocessing rulemaking (SECY-21-0026).
  - While a rule could provide additional clarity for potential applicants, it is not currently cost-justified.
  - Considered stakeholder feedback regarding interest and needs for reprocessing.
- Landscape has changed since development of the regulatory infrastructure discussed in SECY-13-0093.
  - Evolving technologies, fuel types and scales (large vs small throughput).

# Current State

- Existing regulatory framework under 10 CFR Part 50 is adequate to address any near-term licensing activities.
  - Leverage knowledge from the regulatory gap analysis enclosed in SECY-13-0093.
  - Likely a need for exemptions from certain regulatory requirements.
- On June 24, 2021, the Commission approved discontinuation of the rulemaking (SRM-SECY-21-0026).
  - Directed staff to continue to engage with DOE, international counterparts, and industry, to monitor and assess interest.
  - Conduct orderly closure and capture experiences through NRC knowledge management processes.

---

# Proactively assess the needs for reprocessing

- Continue to interact with potential applicants and industry to assess the need for reprocessing.
  - Timelines, leading technologies and scale are important considerations to inform regulatory activities.
- NRC staff encourages early interactions from stakeholder on anticipated needs or activities involving reprocessing.

---

# Discussion/Questions

---

# References

- SRM-SECY-21-0026, “Staff Requirements-SECY-21-0026-Discontinuation of Rulemaking-Spent Fuel Reprocessing,” dated June 24, 2021 (ADAMS Accession No. ML21175A065).
- SECY-21-0026, “Discontinuation of Rulemaking-Spent Fuel Reprocessing,” dated March 5, 2021 (ADAMS Accession No. ML20301A388).
- March 4, 2020, Public Meeting Summary (ADAMS Accession No. ML20077K144).
- Letter from the Nuclear Energy Industry (ADAMS Accession No. ML20154K554).
- Letter from the American Nuclear Society (ADAMS Accession No. ML20154K530).
- SRM-SECY-13-0093, “Reprocessing Regulatory Framework – Status and Next Steps,” dated November 4, 2013 (ADAMS Accession No. ML13308A403).