



Pacific Northwest NATIONAL LABORATORY

On-line monitoring coupled with AI for automated process control and real-time MC&A

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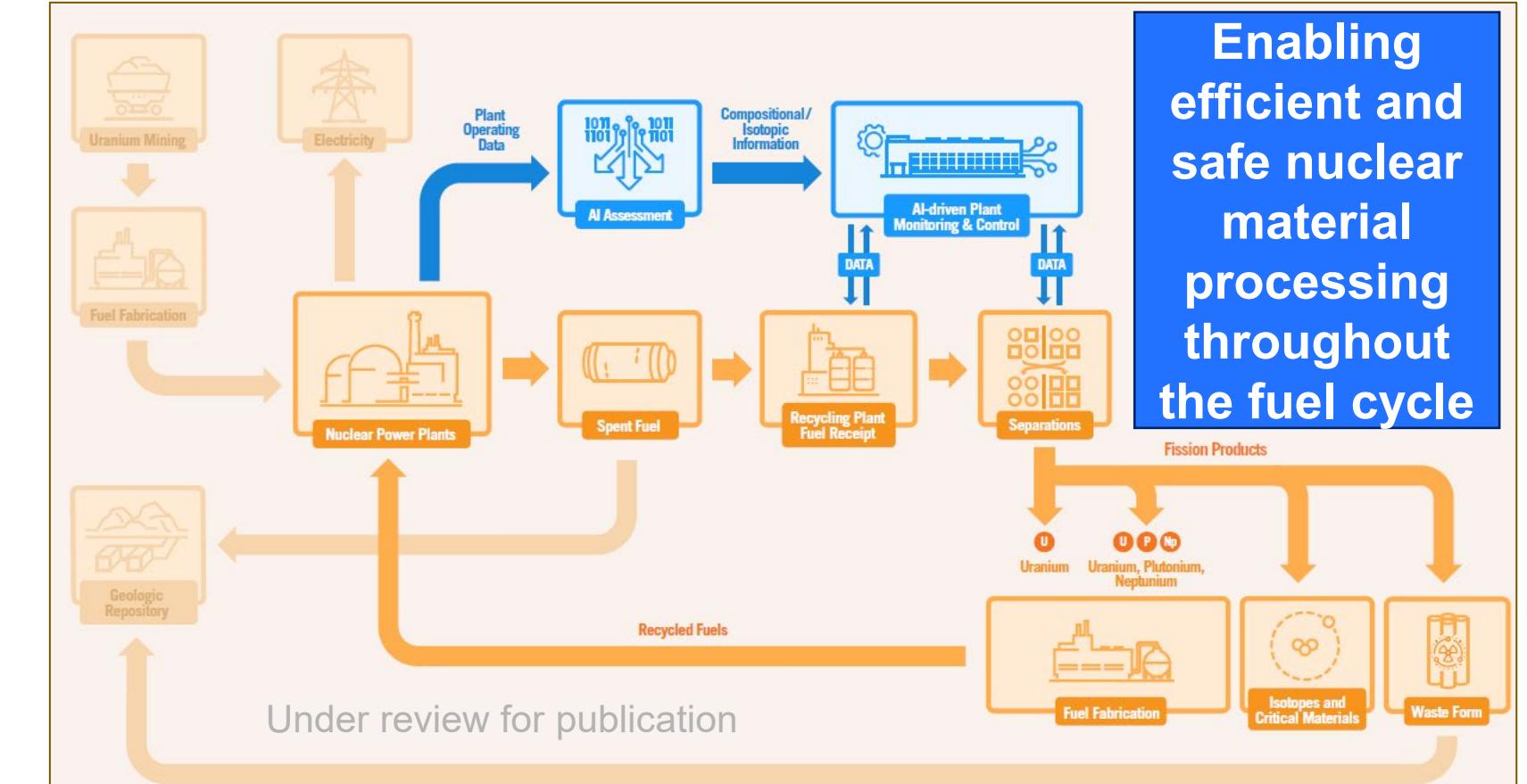


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On-line monitoring coupled with AI for automated process control and real-time MC&A

- AI offers powerful new ways to handle large/complex data from nuclear material processing
- But it must be coupled with robust and diverse monitoring tools to provide real-time information



Branch, Shirmir; et al. Exploring the complex chemistry of Uranium within molten chloride salts" *Industrial & Engineering Chemistry Research*, 2023, 62, 37, 14901–14909

Felmy, Heather M., et al., "Online Monitoring of Reactor Off-Gas: Following Iodine using Raman and Fluorescence Spectroscopy", *Environ. Sci. Technol.* 2021, 55, 6, 3898–3908.

Poki Tse, et al. "Spectroscopic Online Monitoring: Using a Multi-Track Visible Spectrometer to Facilitate a Mass Balance Study in a Simulated TALSPEAK Process", *ACS-Omega*, 2025, 10 (12), 11796–11805

Enabling efficient and safe nuclear material processing throughout the fuel cycle



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Thank you

