ShortTitle: UraVanDB

Title: Uranium-Vanadium database development

Project leads and contact details:

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- Tom Pool, International Nuclear, Inc. tpool2@qwestoffice.net

Suggested team size: 2-4

Logistics: Can work from anywhere, with periodic meetings (and free lunch) in Berthoud 143

Project description: You will use Python and SQL to modernize and visualize historical data (1948-2024) from 4,390 uranium and vanadium production sites across the western United States. You will apply geospatial tools (e.g., GeoPandas, Folium) to clean, standardize, and analyze legacy datasets, and web-deployment tools (e.g., Streamlit, Voilà) to transform this valuable database into interactive maps and visual summaries. The project includes coordinate normalization, metadata reconciliation, and automated workflows for generating visual outputs that reveal spatial patterns in historical production, site density, and potential environmental impact. In some cases, students may use OCR (optical character recognition) techniques to extract data from scanned paper records, integrating this information into the digital framework. By combining historical mining records with modern data science techniques, students will create a powerful and accessible web-based platform to support decision-making related to future U-V exploration and development as well as environmental remediation, land management, and long-term monitoring.