

## PROBLEM

- Rare Earth Elements (REEs) are used in a variety of advanced electronics
- China provides nearly 90% of REEs, leading supplies sensitive to geopolitical factors
- US sources and supplies remain somewhat unknown and underdeveloped

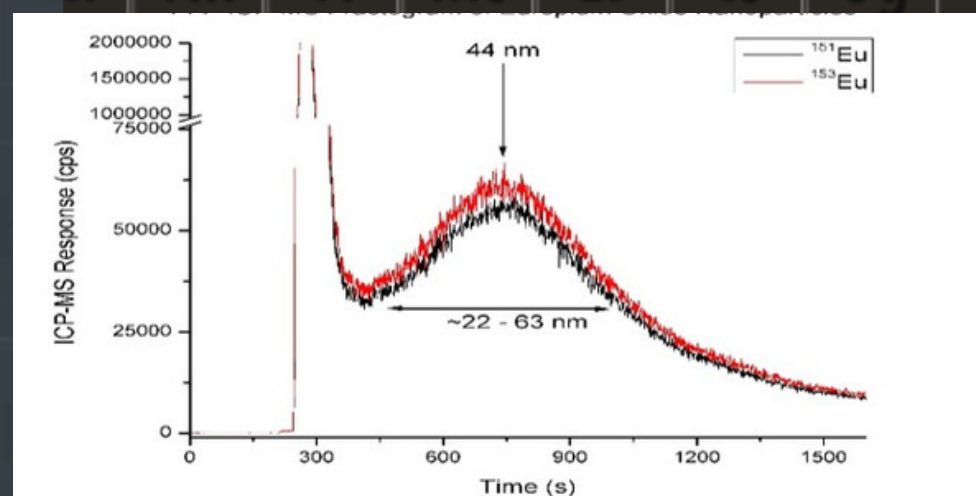
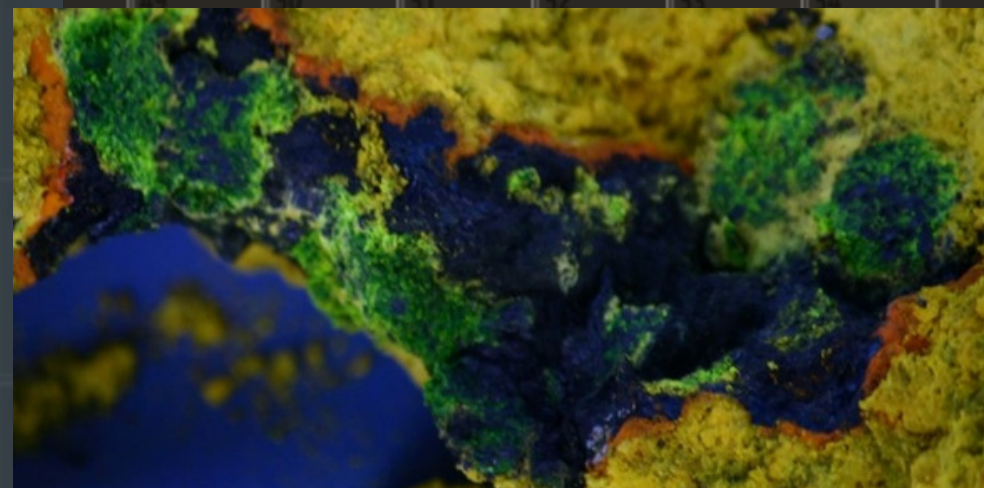
## SOLUTION

- Determine extent and geochemistry of known or suspected U.S. REE sources
- Develop and optimize REEs recovery from various natural and anthropogenic sources

## IMPACT

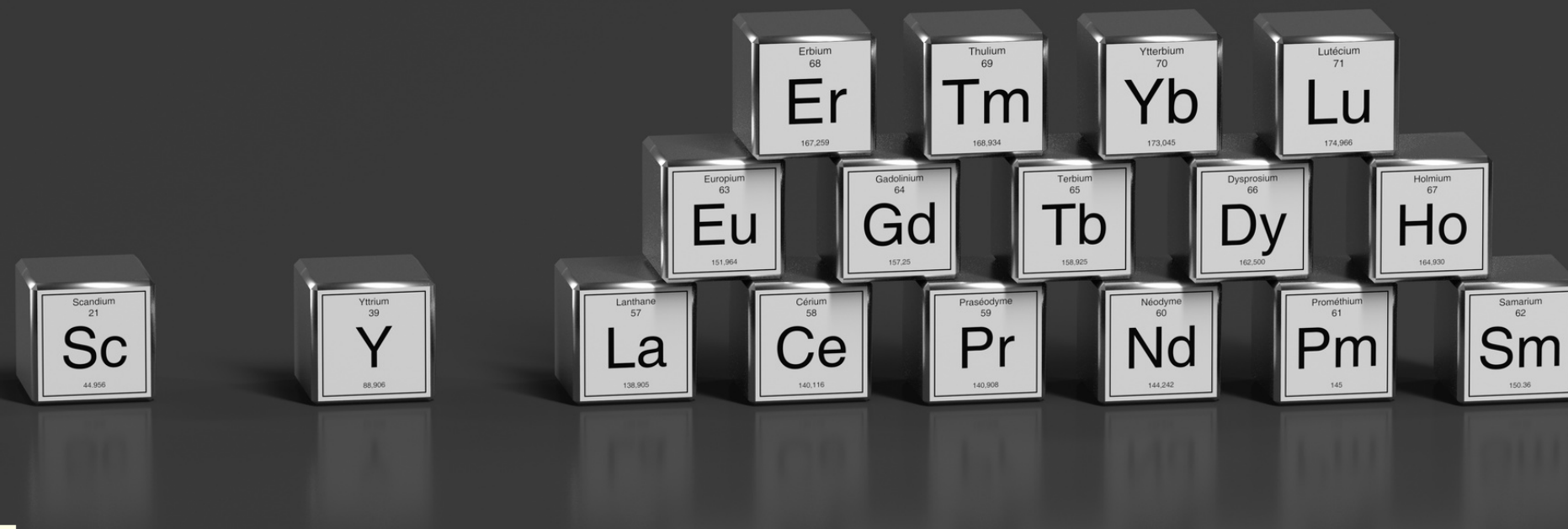
- U.S. source of REEs for advanced technology independent of uncontrollable global factors
- REE recovery optimization for sustainable source use and management

# RARE EARTHS FROM US EXTRACTIONS (REUSE)



57 <b>La</b> Lanthanum 138.905	58 <b>Ce</b> Cerium 140.116	59 <b>Pr</b> Praseodymium 140.908
60 <b>Nd</b> Neodymium 144.243	61 <b>Pm</b> Promethium 144.913	62 <b>Sm</b> Samarium 150.36
63 <b>Eu</b> Europium 151.964	64 <b>Gd</b> Gadolinium 157.25	65 <b>Tb</b> Terbium 158.925
66 <b>Dy</b> Dysprosium 162.500	67 <b>Ho</b> Holmium 164.930	68 <b>Er</b> Erbium 167.259
69 <b>Tm</b> Thulium	70 <b>Yb</b> Ytterbium	71 <b>Lu</b> Lutetium

# RARE EARTHS FROM US EXTRACTIONS (REUSE)



## APPLICATIONS

- Reconnaissance and characterization of domestic resources
- Understanding geochemistry of such deposits for optimal recovery
- Future exploratory efforts for additional REE and other critical mineral detection, characterization and potential recovery

## STATUS

- New start in FY21
- Initial work will build upon previous work identifying REE deposits on U.S. government lands related to navigation dredging operations
- Collaborative partnerships being developed with Academia and the U.S. Geological Survey

## BENEFITS

- Detection and reconnaissance of potential REE resources in the U.S.
- Improved understanding of geochemistry in currently known occurrences of REEs deposits
- Potential reduction of reliance on foreign sources of REEs needed for advanced military and civilian technology