



AFFRE

AMERICA'S FIRST FRIENDLY RARE EARTH

PEOPLE ★ RESOURCES ★ INNOVATION ★ A STRONGER TOMORROW

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Rare Earth Processing and Separation: The Missing Middle of America's Critical-Mineral Supply Chain

Why finding rare earths is only the beginning - and why responsible processing, separation, and water stewardship may determine America's ability to turn resources into industrial capability.

THE ELEMENTS ARE NOT THE WHOLE STORY

USGS describes rare earths as relatively abundant in Earth's crust. The harder strategic problem is finding workable concentrations and building the capability to process, separate and refine them into materials industry can use.

WHY SEPARATION MATTERS

Rare earth elements commonly occur together and behave similarly in chemistry. Separating individual elements can require demanding, multi-stage processes. That makes separation a chemistry and engineering challenge - the missing middle between mining and manufacturing.

WATER IS AN ENGINEERING REQUIREMENT

AFFRE puts water management inside the process design from the beginning: measure inputs, recover and reuse where appropriate, treat what must be treated, and document what leaves the system.

RETURN IT AS IT WAS GIVEN - OR BETTER

AFFRE's water statement is an aspiration and design objective, not a claim of proven performance. Environmental claims should follow measurement, testing and evidence.

PROTECT. PROVE. SCALE.

Protect land and water. Prove recovery, purity, throughput, reliability, cost and environmental performance. Scale only when evidence supports the next gate.

THE AMERICAN OPPORTUNITY

Resources create potential. Processing, separation, refining, qualification and manufacturing create industrial capability. America needs both capability and stewardship engineered together.

THE MISSING MIDDLE

1

PROCESS

Turn feedstock into a controlled process stream.

2

SEPARATE

Isolate rare earth elements from one another.

3

REFINE

Produce usable material forms and purity.

4

QUALIFY

Demonstrate composition and performance.

5

MANUFACTURE

Connect materials to American industry.

**PROTECT.
PROVE.
SCALE.**



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AMERICA'S FIRST FRIENDLY RARE EARTH



ENGINEERING
EXCELLENCE



SCIENTIFIC
INTEGRITY



RESPONSIBLE
STEWARDSHIP



LONG-TERM
THINKING



RESPECTFUL
DIALOGUE