

Acid Mine Drainage (AMD) Quick Facts

- AMD forms when pyrite rich geology is exposed to air and water. Sulfuric acid forms, and heavy metals are leached (including REEs).
- There are over 12,000 stream miles impacted by AMD in the United States.
- In WV alone, 2,500 stream miles are impacted.

Rare Earth Element (REE) Quick Facts

- 17 elements are considered REEs.
 - Includes lanthanides, scandium, and yttrium

H	Rare Earth Elements																He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	*	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	**	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Uut	Fl	Uup	Lv	Uus	Uuo
		*	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
		**	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
			Light Rare Earth Element							Heavy Rare Earth Element							

(Image Source: Sciencenotes.org)

- REEs are used in cellphones, cars, and most of the technology today.
- Most of the world's REEs are mined in China.
 - Their practices are environmentally extractive.
 - There is no secure U.S. supply chain of REEs.
- WVWRI found that REEs exist in raw coal AMD across 140 separate sites.
 - Cobalt and nickel were found to be in a 1:1 ratio with REEs in AMD