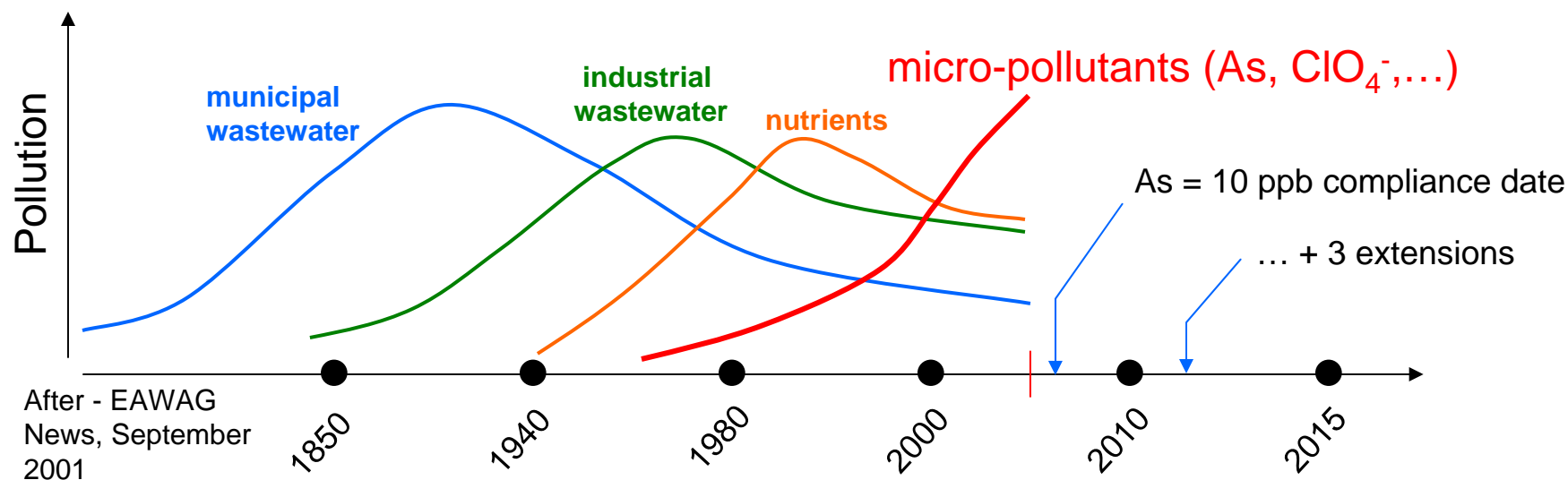


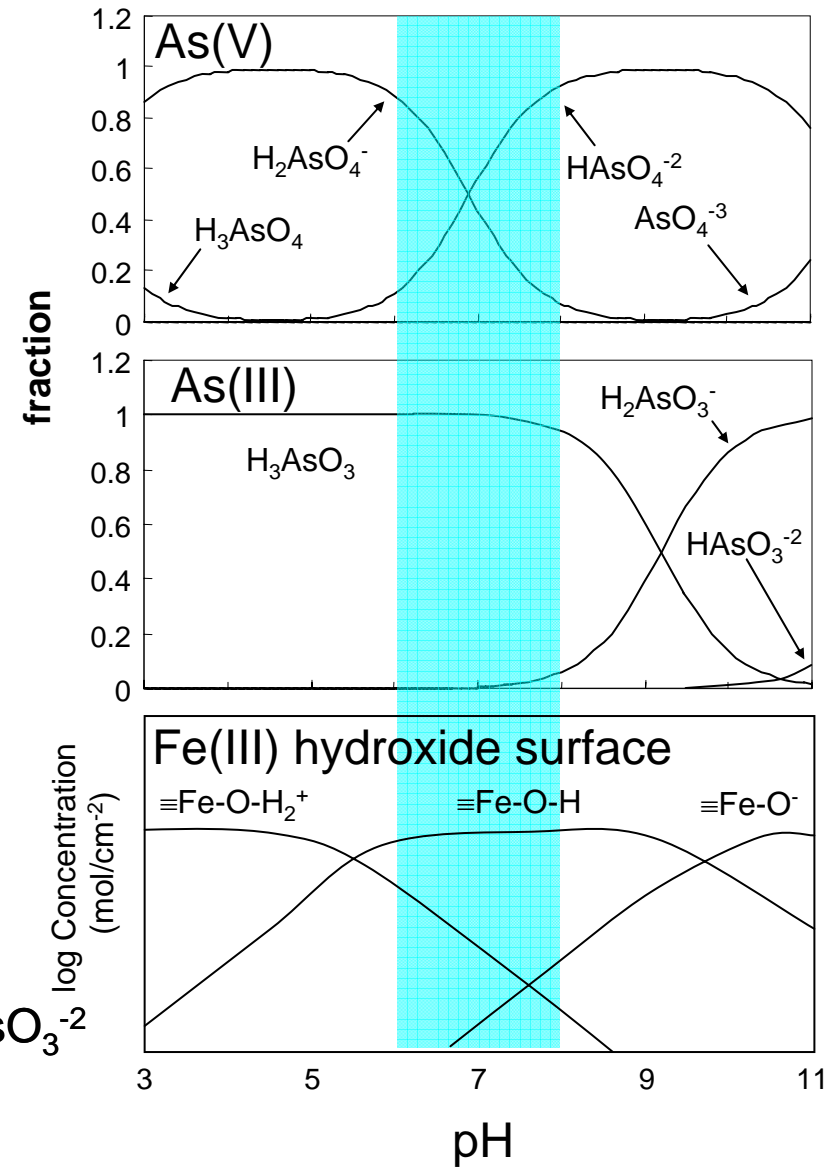
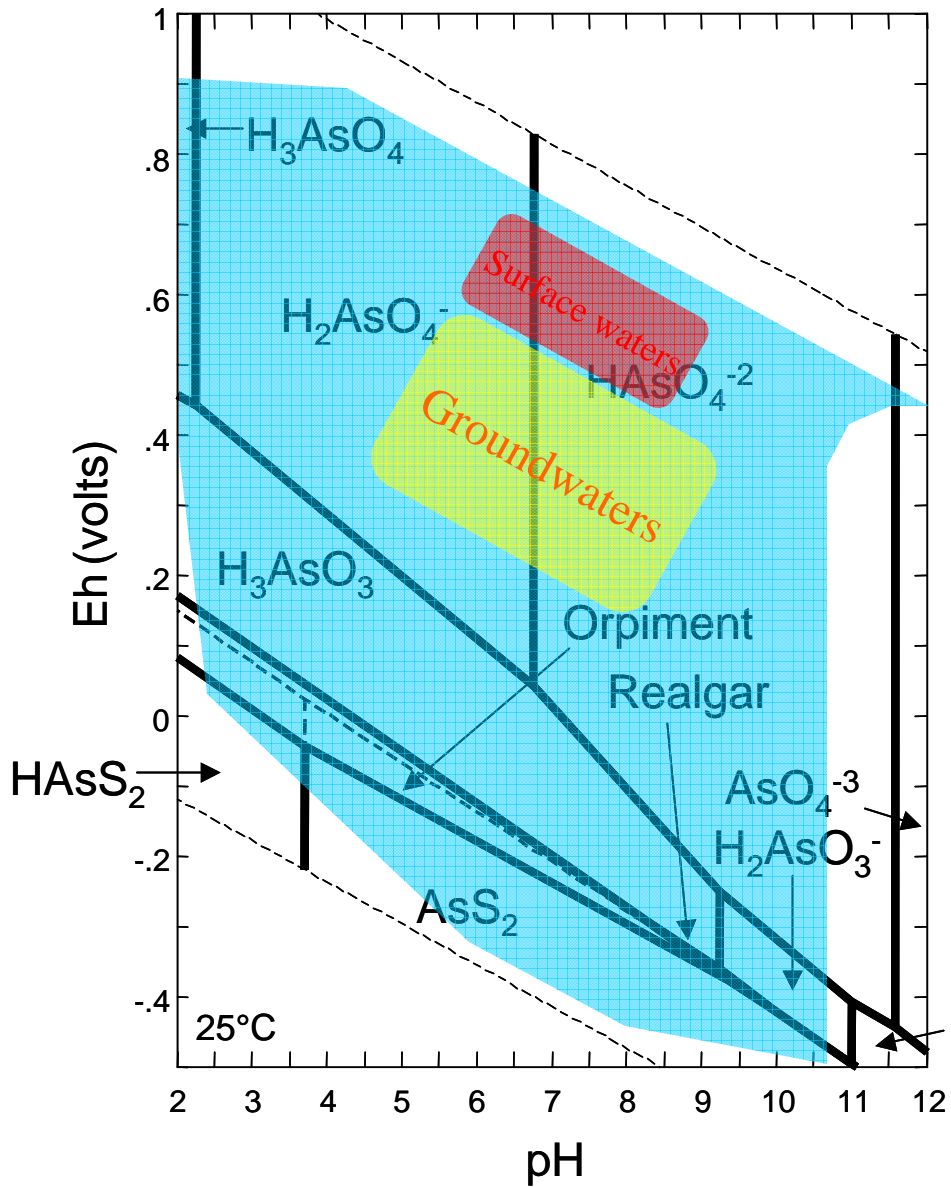
# The Emerging Science of Arsenic Removal

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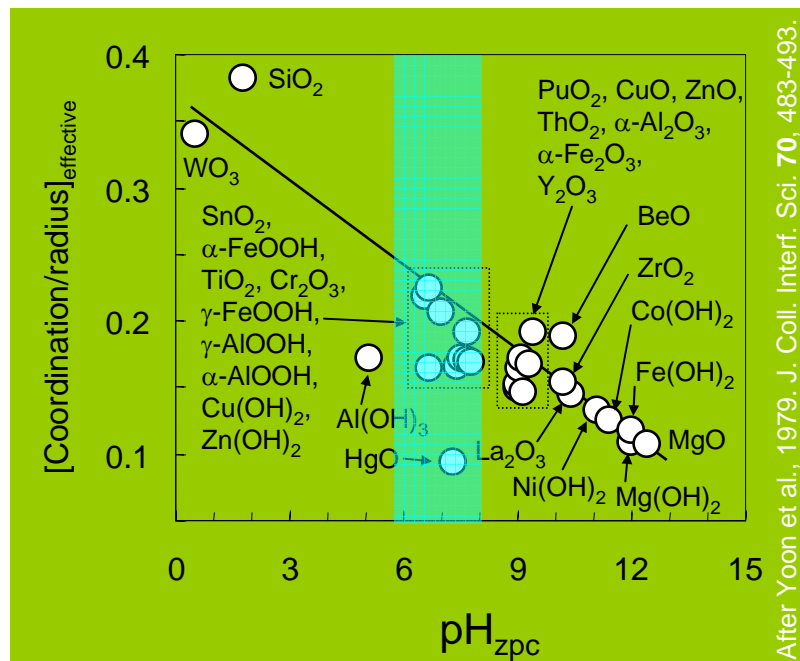
# What surface complexation models can't/don't predict

## 1. Extent of sorption irreversibility,

	$X_{\text{irv}}$
Am	0.6
<b>As</b>	<b>0.9</b>
Ba	0.5
Cd	0.5
Cs	0.9
Cr	0.5
Co	0.9
Cu	0.9
I	0.9
Pb	0.9
Hg	0
Ni	0.9
Ra	0.5
Sr	0.15
Tc	0.1
Th	0.99
$^3\text{H}$	0
U	0.1
Pu	0.99

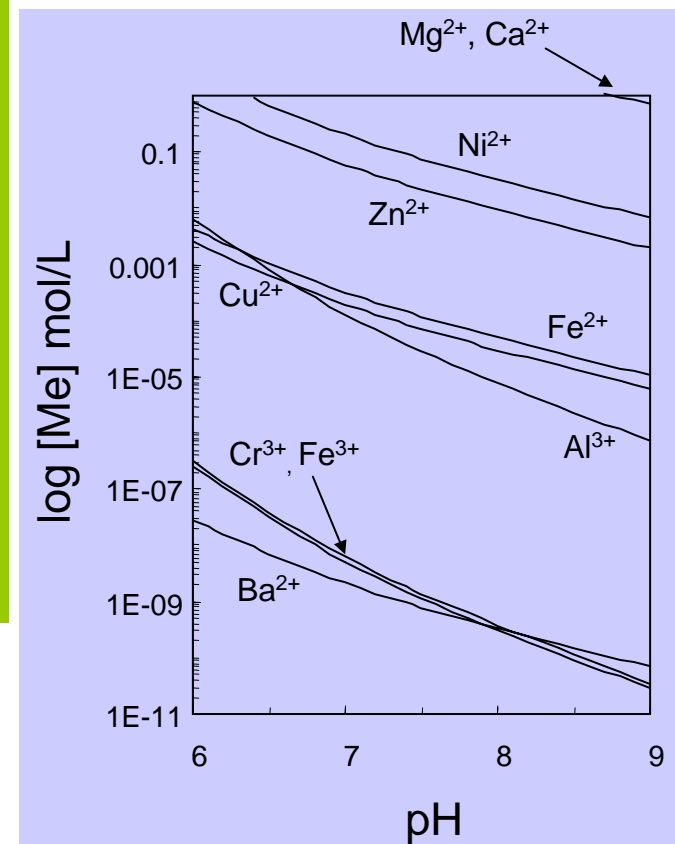
From Brady et al., 1999 - <http://www.sandia.gov/eesector/gc/na/mnatoobox.pdf>

## 2. Sorption to non-Al, Fe(III) Hydroxides,



+ some clays, hydrotalcites, sulfides...

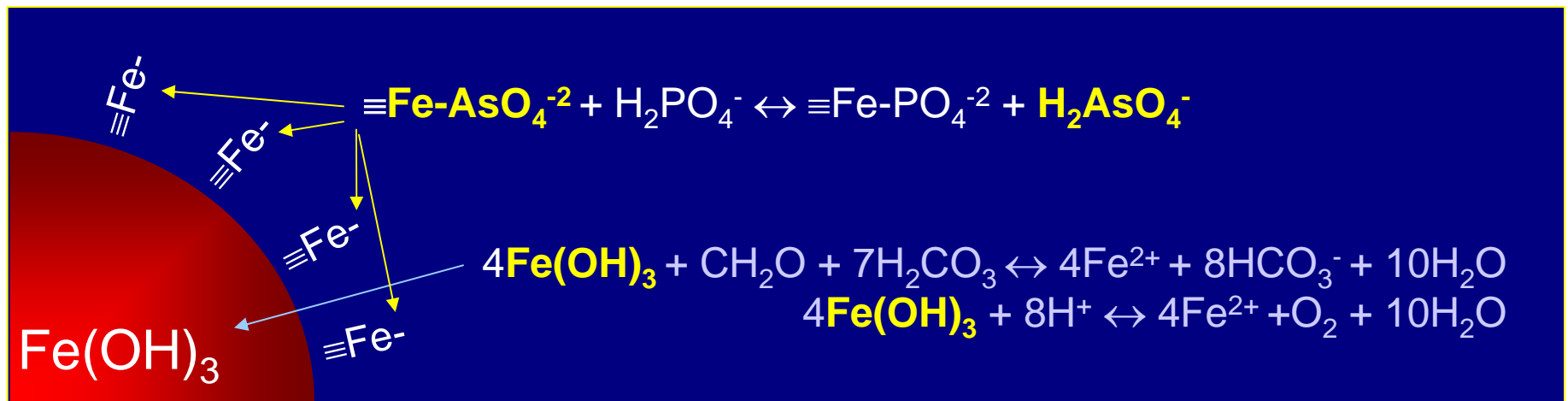
## 3. Metal-arsenate-surface interactions.



# Controls on *in situ* As (im)mobilization

Aquifer storage of surface waters;  
high pH, high P and high Si  
groundwaters.

## Outside In



## Inside Out

Downstream/downgradient of  
landfills; [O<sub>2</sub> injection into aquifers].

# What we know; *what we must know.*

