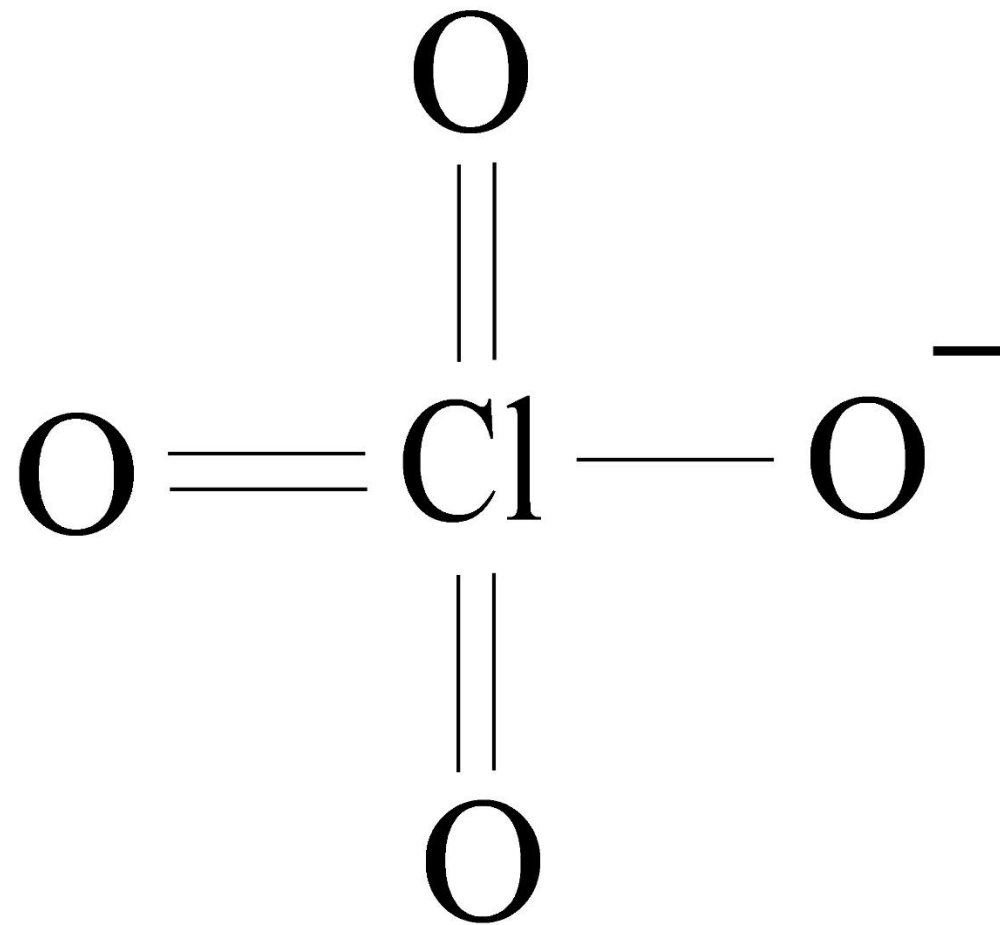


Perchlorate in Groundwater at LHAAP Army/EPA Dispute

George Rice
October 15, 2015



Sources of Perchlorate

- Primarily man made (since 1890s)
- Some natural sources
 - Salt deposits
 - Atmosphere (lightning?)
 - Seaweed
 - Found on Mars

Uses

- Solid rocket fuels, explosives, fireworks, flares, matches.
- Lubricating oils, aluminum refining, rubber manufacturing, paint manufacturing.

Perchlorate Health Effects

- Disrupts production of thyroid hormones
 - Adults – affects metabolism
 - Children – delayed development, decreased learning capacity

Army/EPA Dispute

Perchlorate Groundwater Cleanup Standard

- Army: 72 $\mu\text{g/L}$
 - Old TCEQ standard for industrial sites
(new standard = 51 $\mu\text{g/l}$)
- EPA: 17 $\mu\text{g/L}$
 - New TCEQ standard for residential sites
(old standard = 26 $\mu\text{g/l}$)

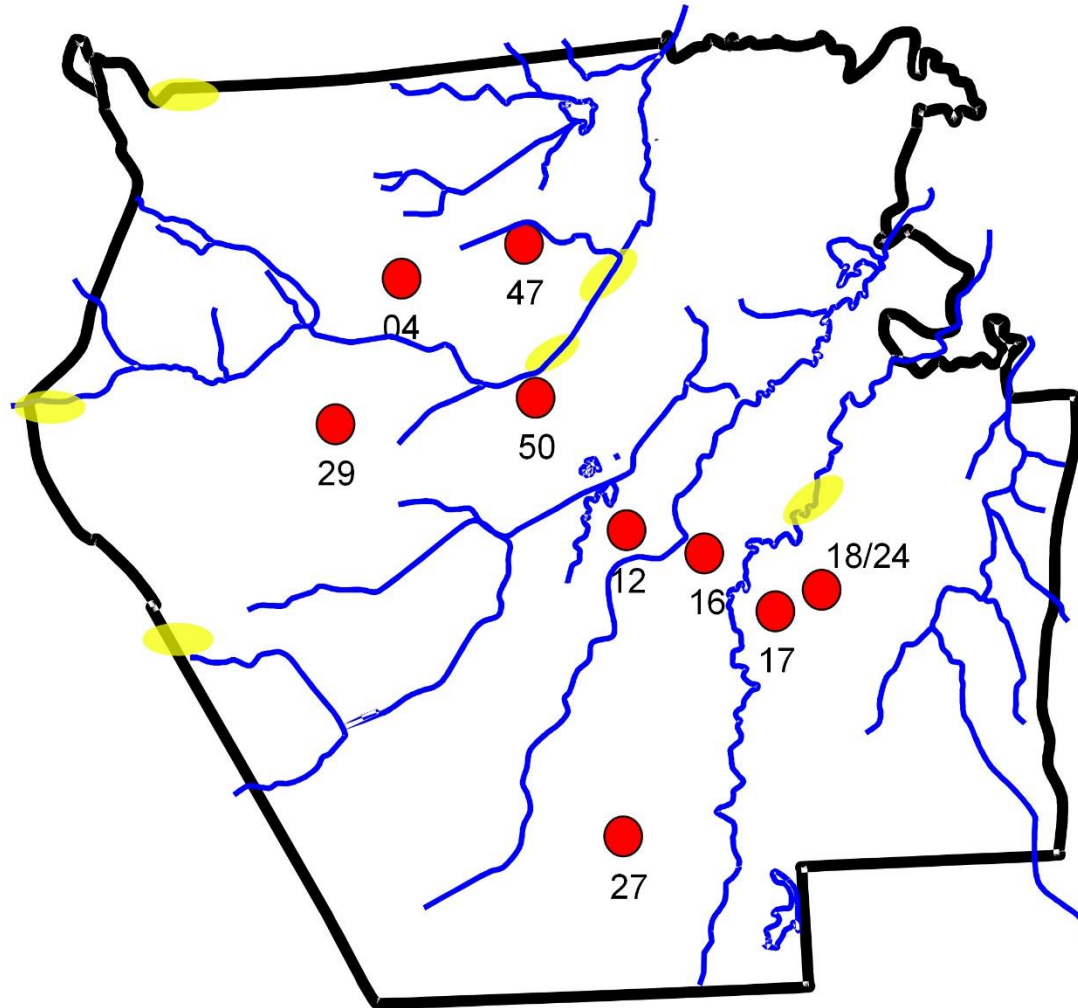
Army/EPA Dispute

Perchlorate Groundwater Cleanup Standard

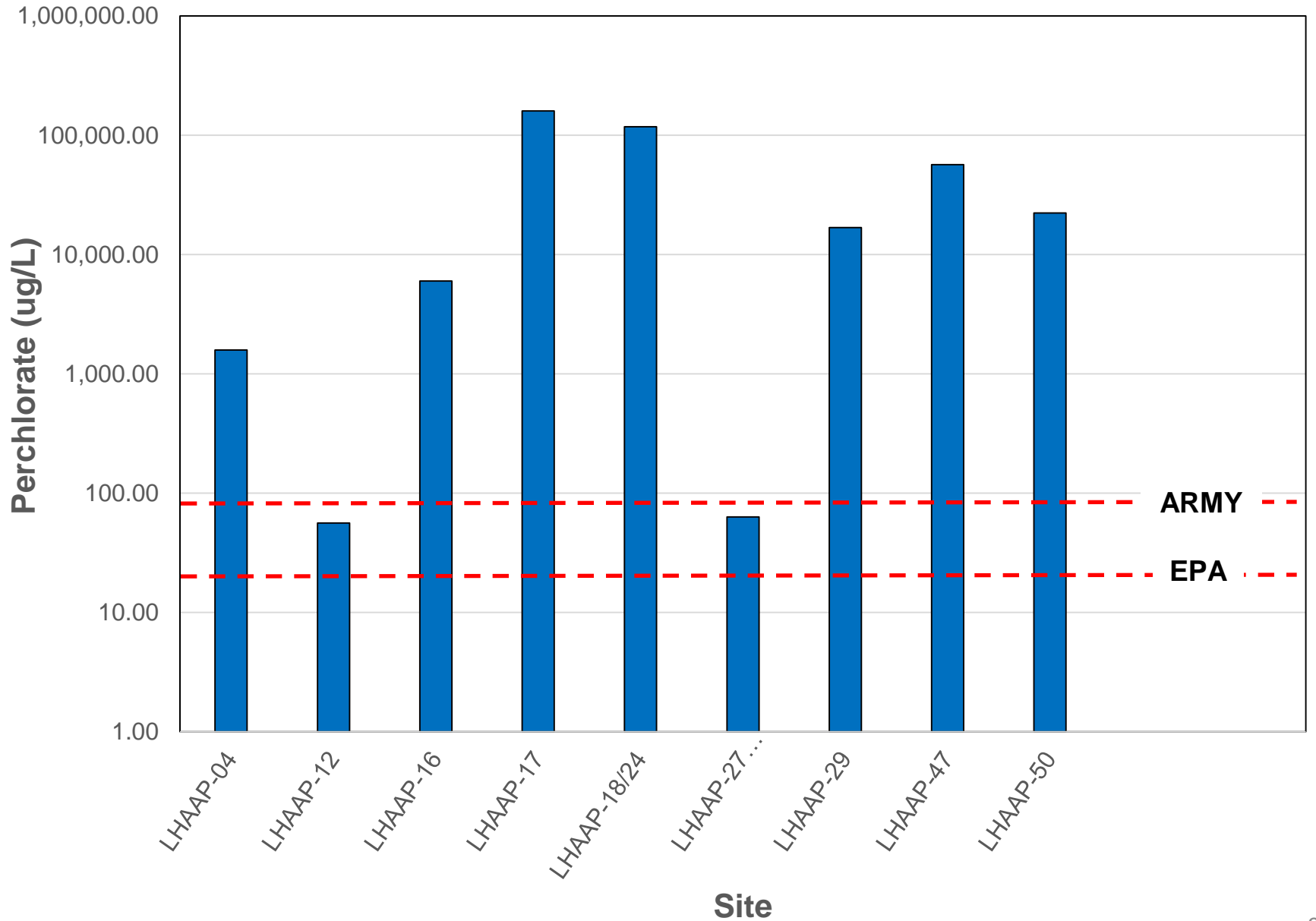
(continued)

- TCEQ considers groundwater at LHAAP to be a potential source of drinking water.
- Currently no EPA drinking water standard for perchlorate (being developed).
- After EPA establishes drinking water standard, Army agrees that it will be the cleanup standard.
- EPA interim drinking water health advisory level = 15 µg/l.
- Army has used standard of 26 µg/L in past (old residential standard).

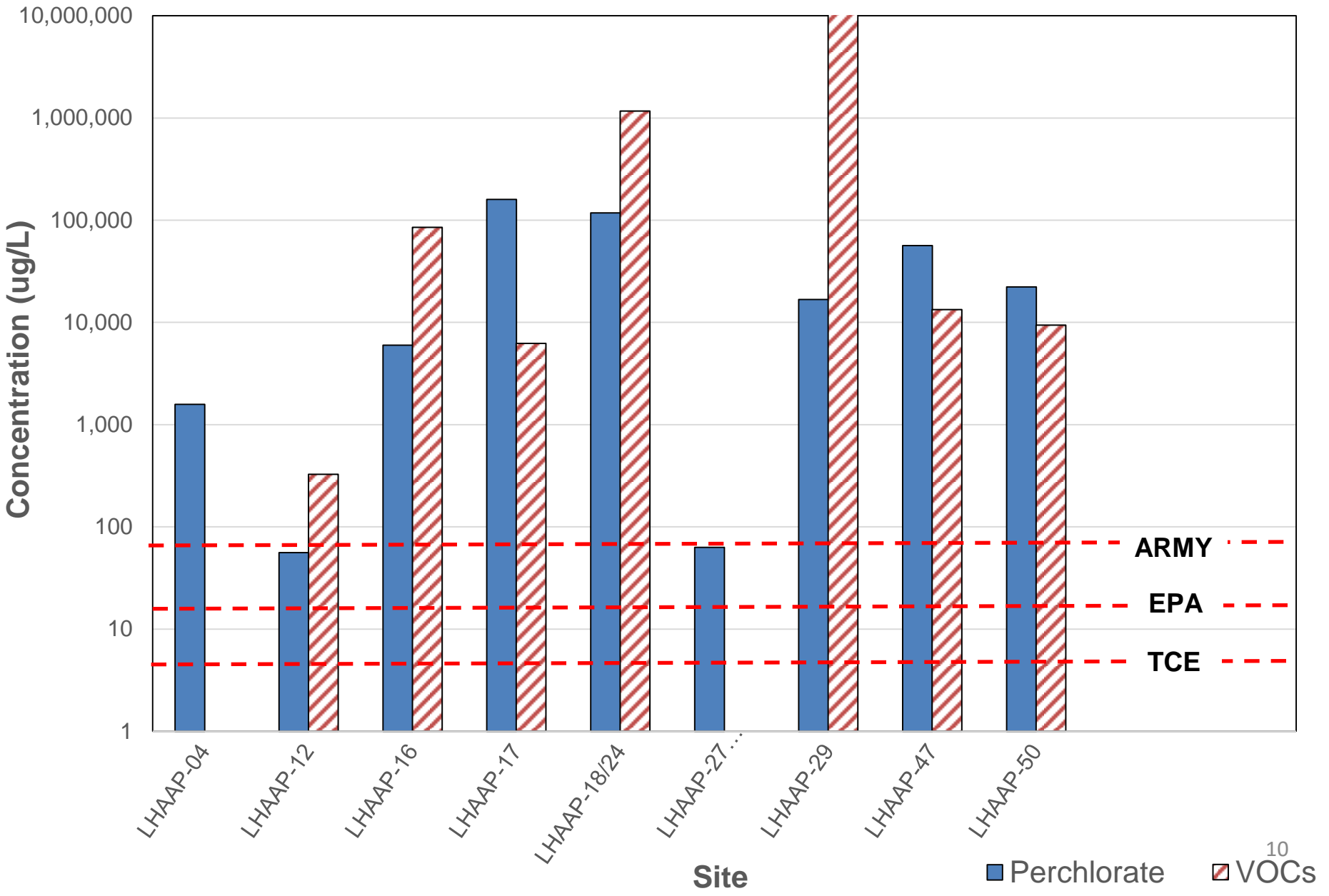
Perchlorate at LHAAP



Maximum Perchlorate Concentrations



Maximum Perchlorate and VOC Concentrations



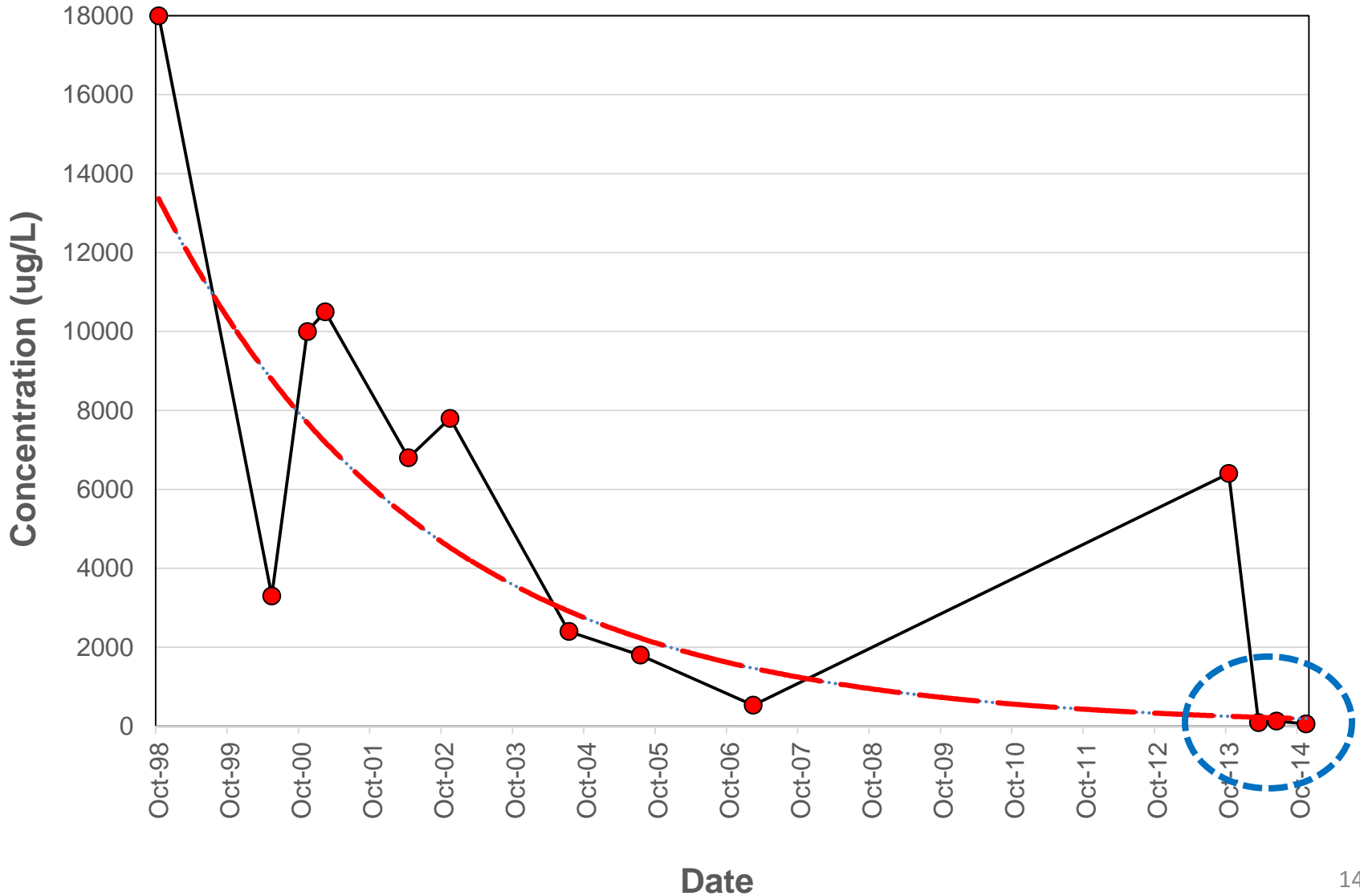
Effect of EPA Standard on Perchlorate Cleanup

- Additional cleanup effort or time for natural attenuation to reduce levels.
- Because other contaminants (e.g., VOCs) must also be cleaned up, additional effort or time not likely to be great.

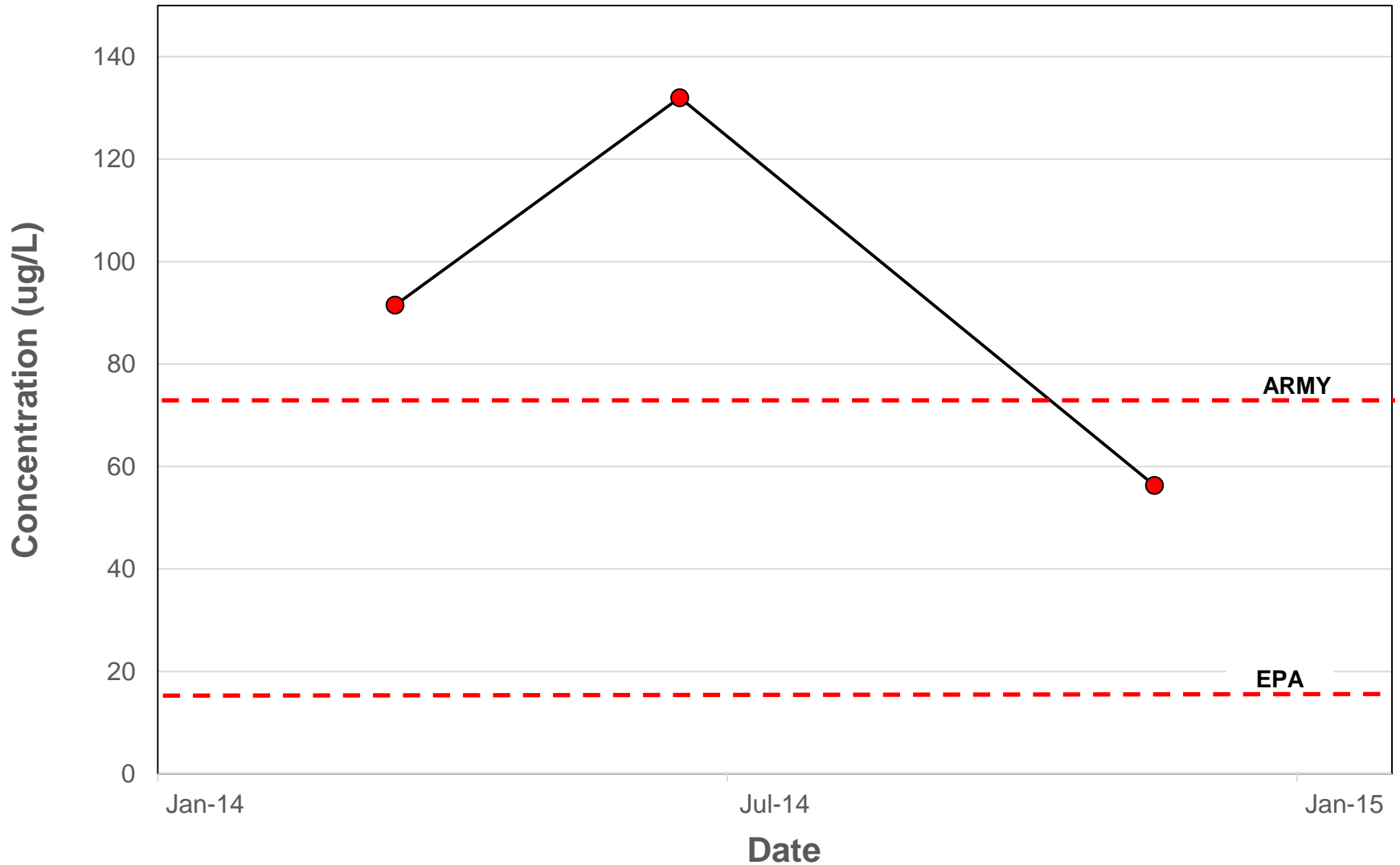
end

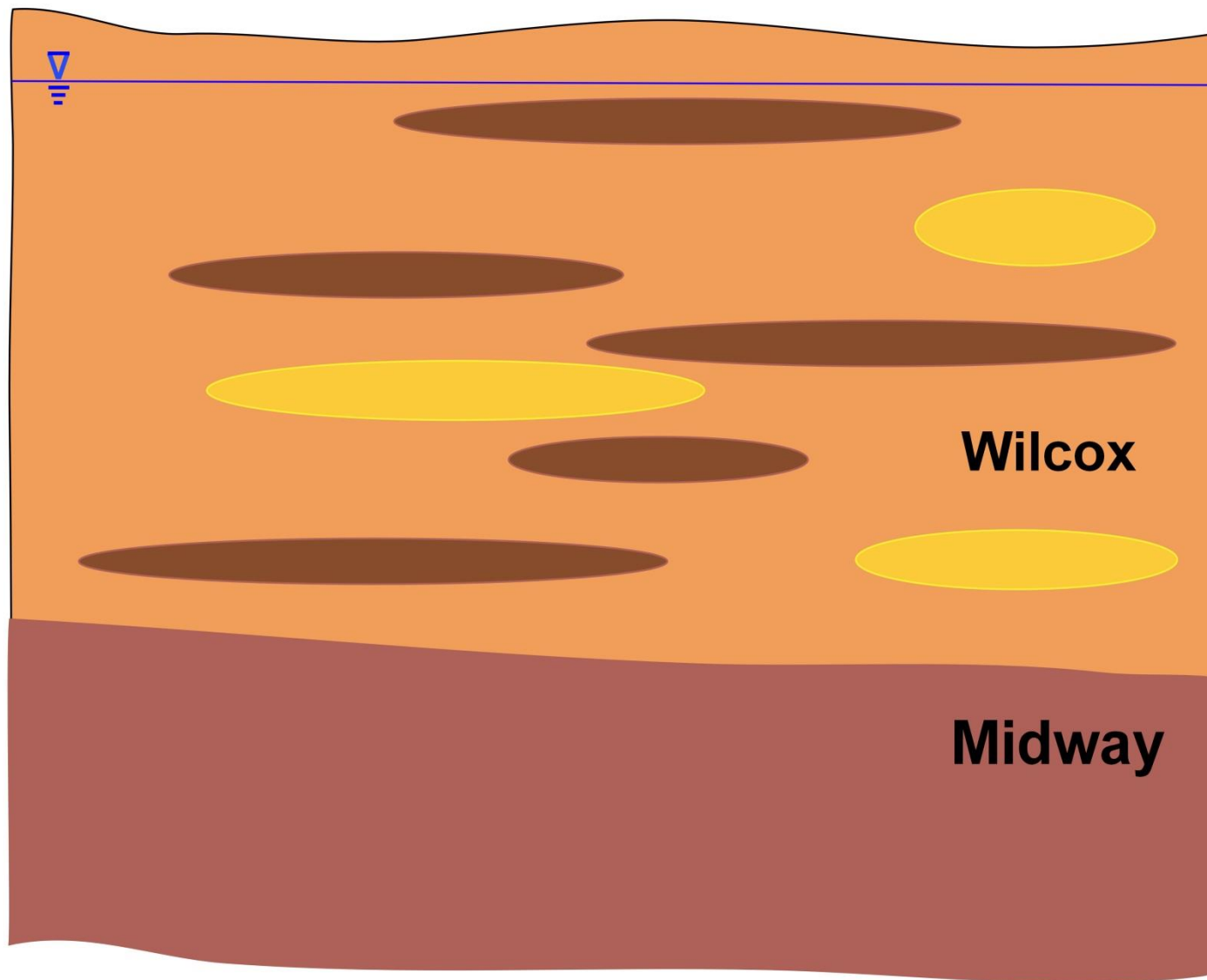
Other Slides

Perchlorate Concentrations at Site 50 Wells 50WW02 and 50WW08



Perchlorate Concentrations at Site 50 Well 50WW08





200 -
300 ft

Wilcox

Midway