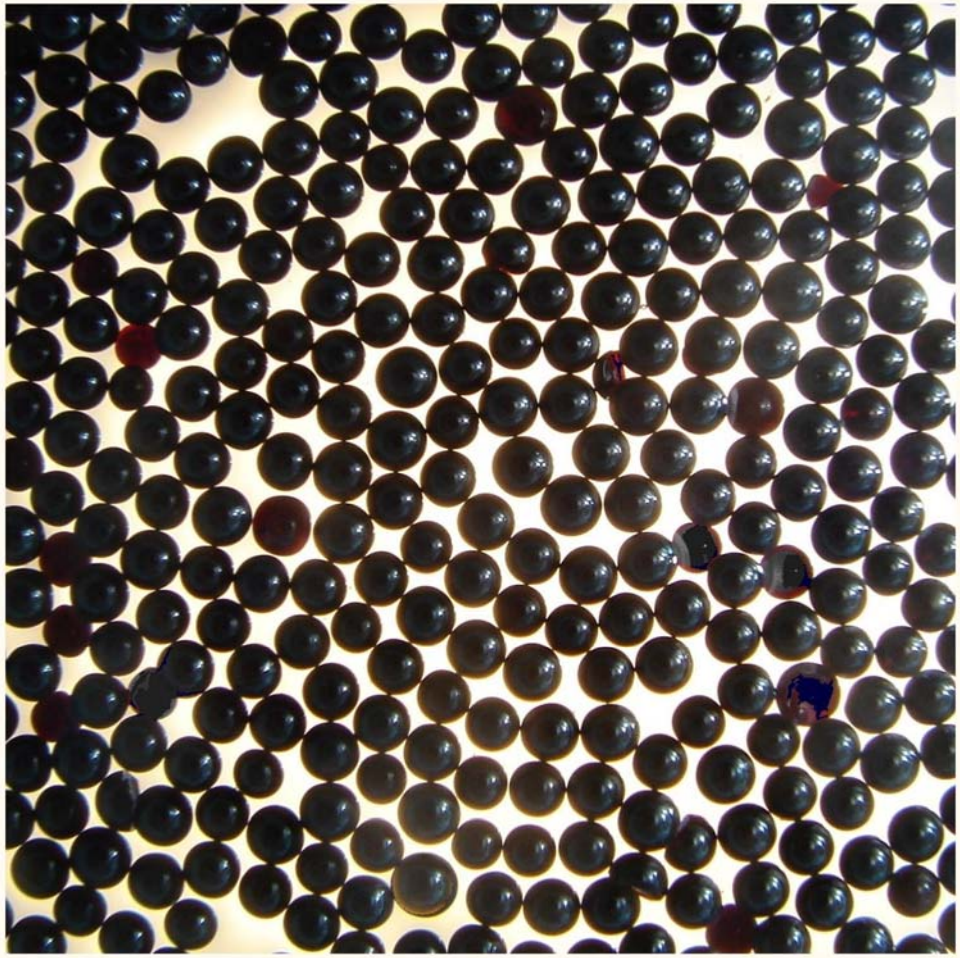
ASM-10 HP
A True Hybrid
Ion Exchanger/Adsorbent

Peter Meyers

ResinTech, Inc.

ResinTech ASM-10 HP

(Bead size 16 x 50 mesh)



Comparison of Two Arsenic Selective Medias

Iron Externally Coated onto Bead

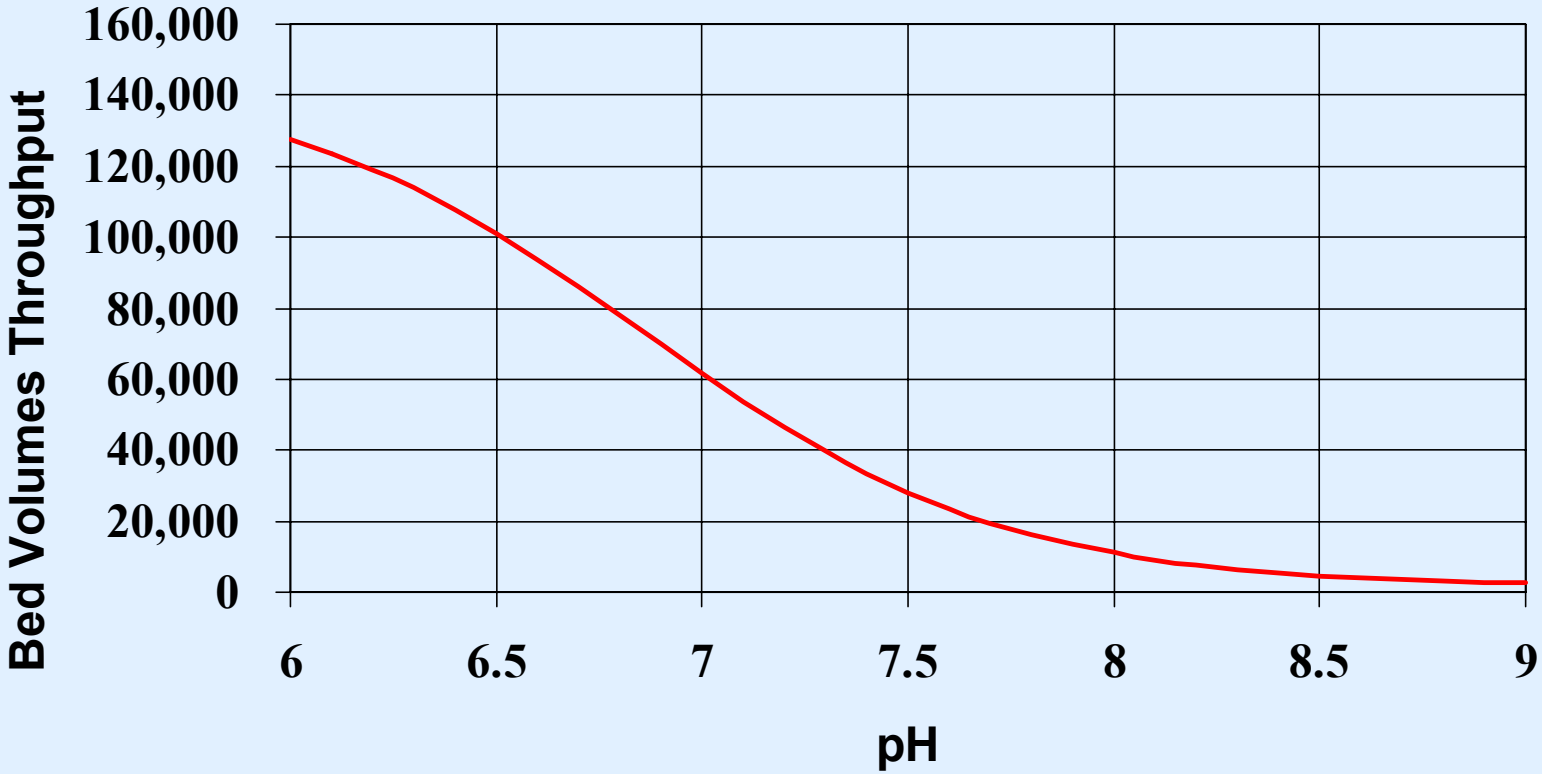
Sample taken from commercial source

Iron Internally Dispersed into Bead

ResinTech ASM-10 HP

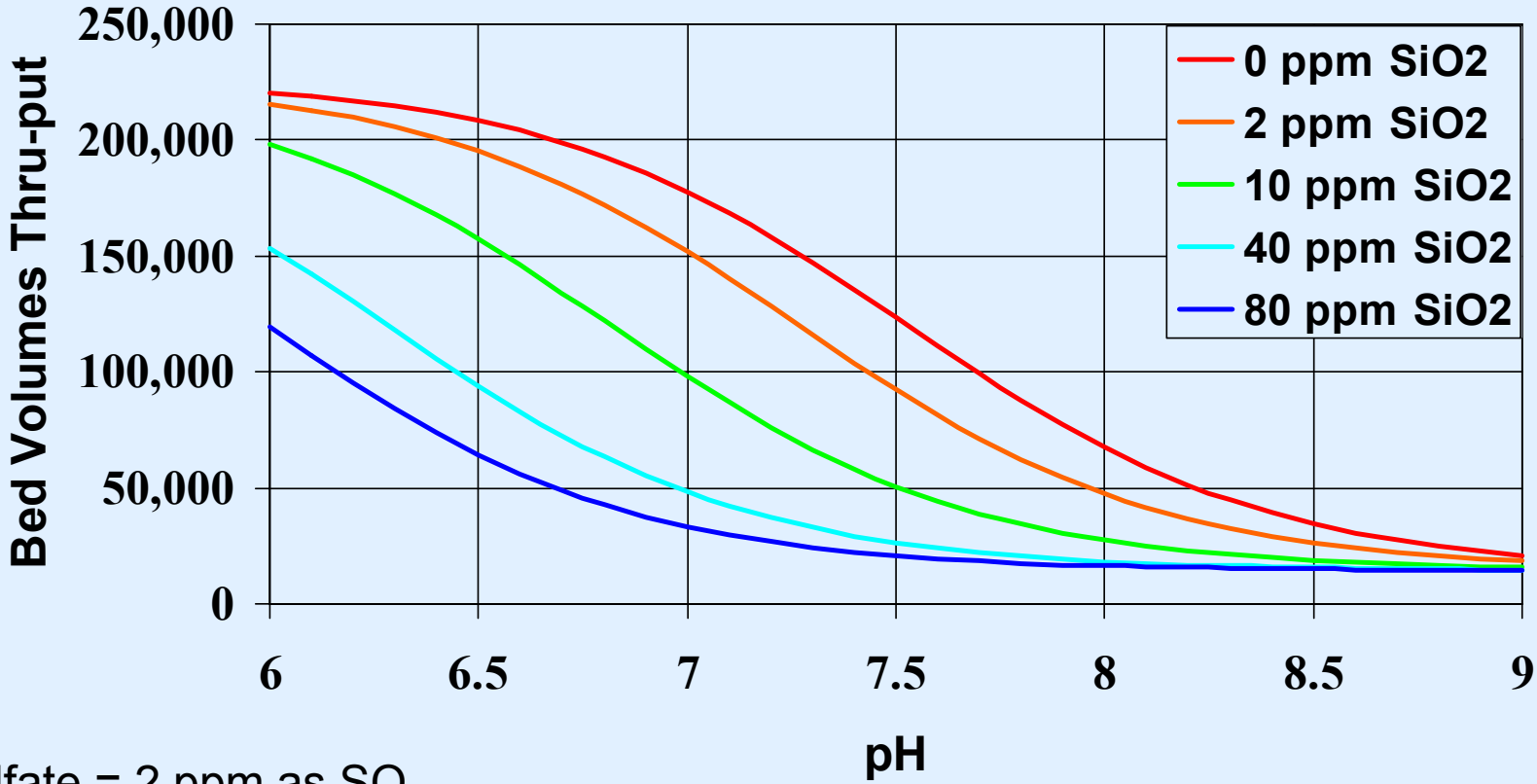
Pictures taken 5 minutes after the medias' immersed in water

ASM-10 HP
pH Effect on Throughput



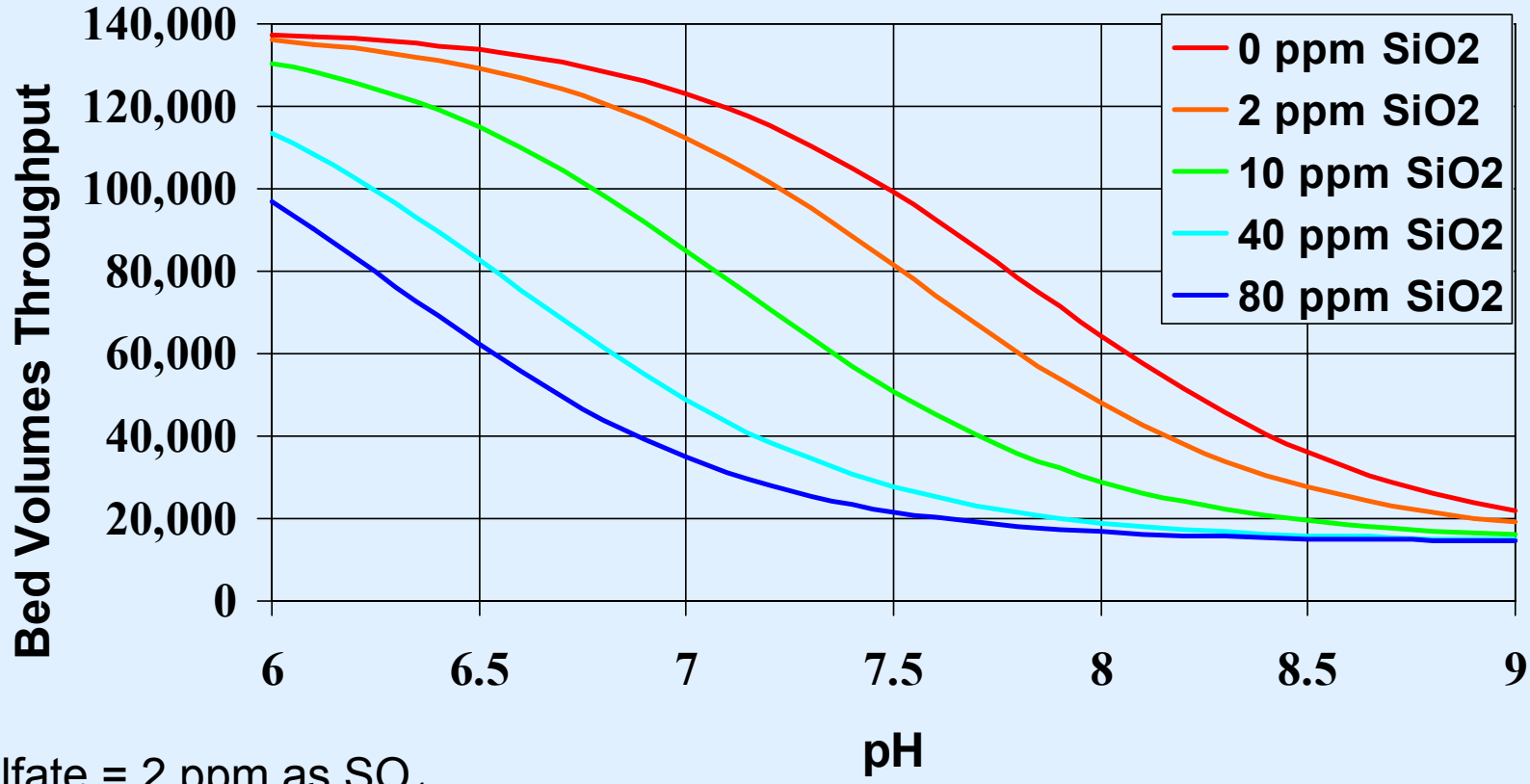
NSF Challenge water (20 ppm SiO_2, 50 ppb As^{+5})
Flow rate 1.2 BV/min

ASM-10 HP
Effect of pH and Silica



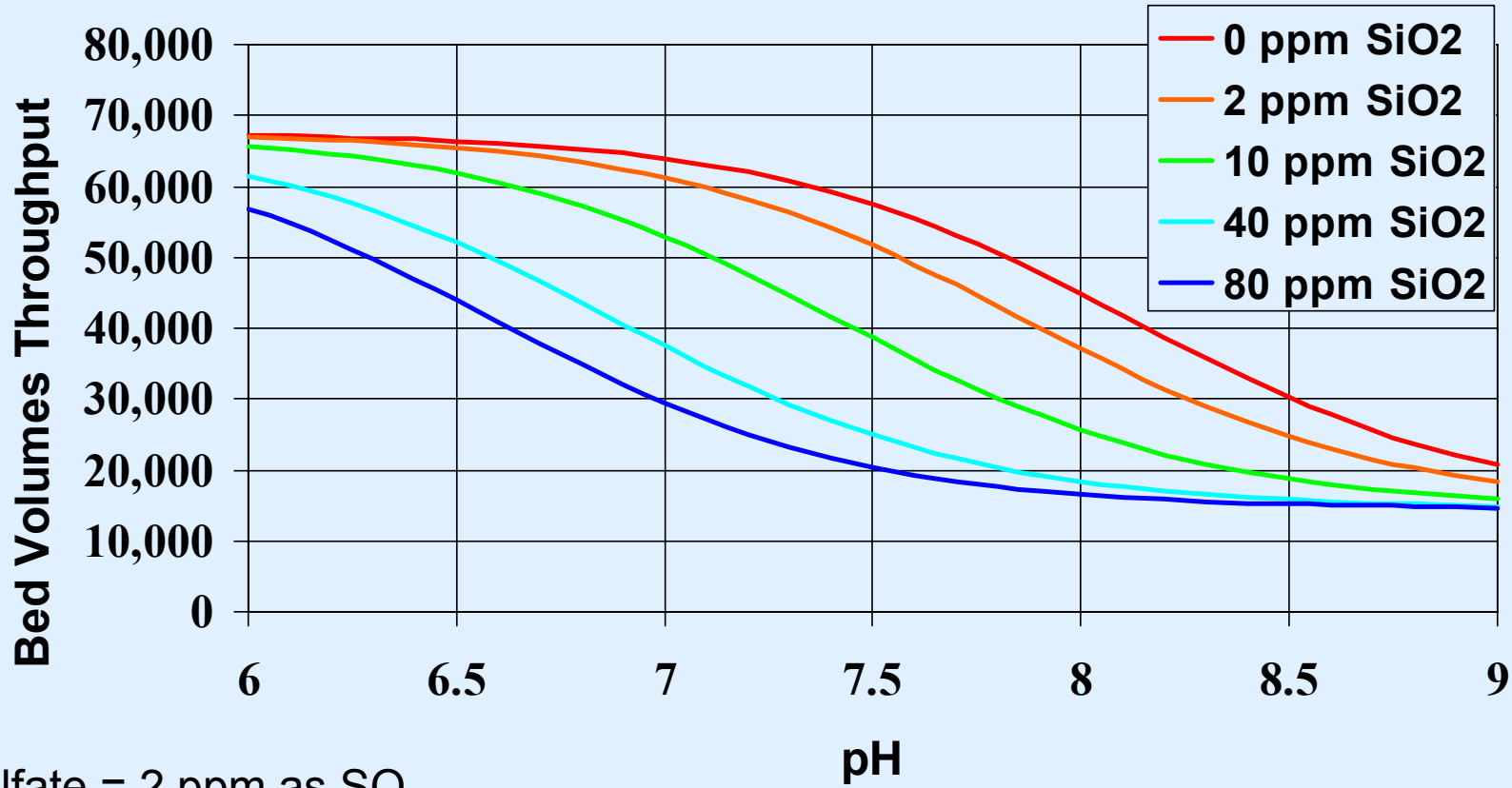
Sulfate = 2 ppm as SO_4
Arsenic = 25 ppb as As^{+5}
Nitrate = 2 ppm as NO_3
Chloride = 64 ppm as Cl
Bicarbonate = 50 ppm as HCO_3

ASM-10 HP
Effect of pH and Silica



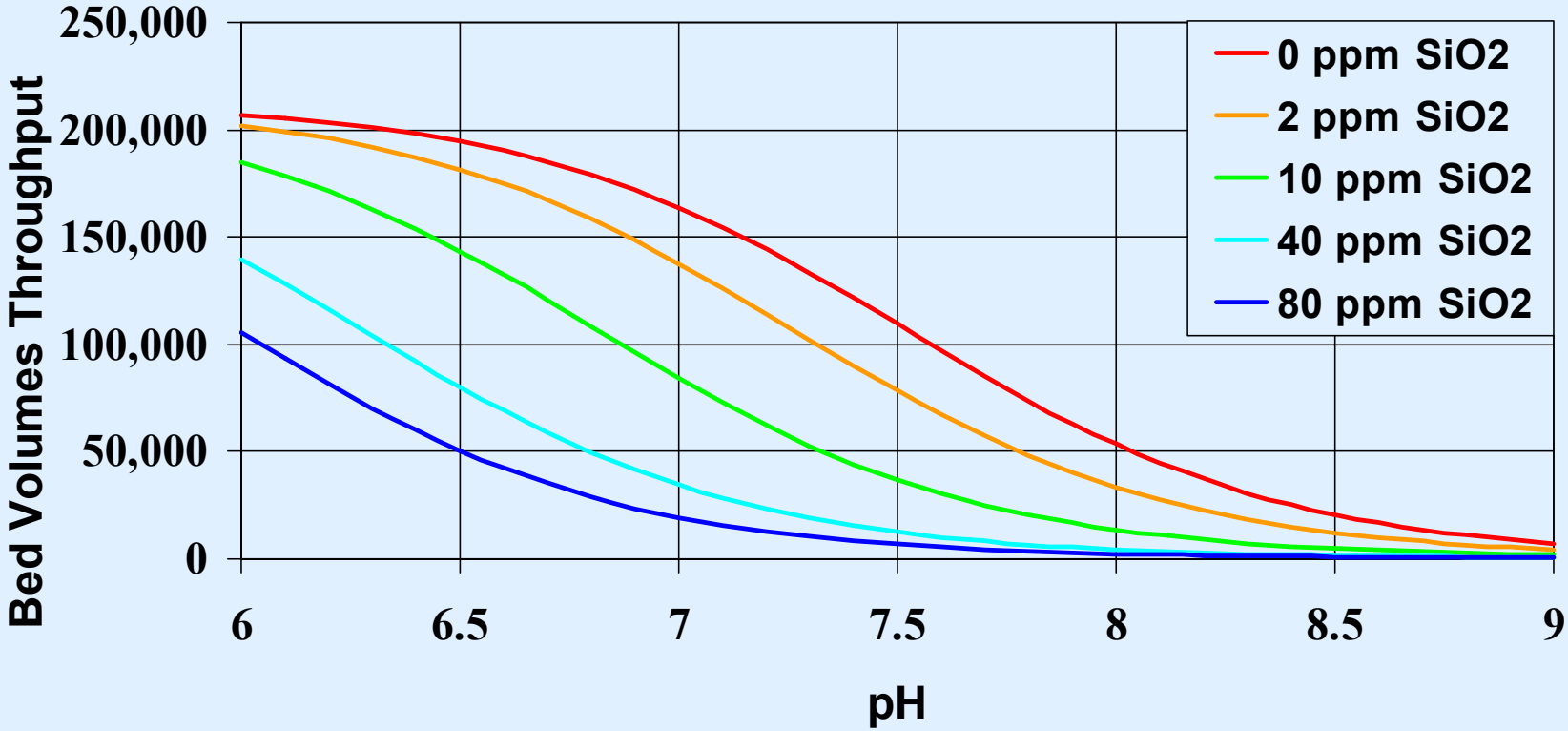
Sulfate = 2 ppm as SO_4
Arsenic = 50 ppb as As^{+5}
Nitrate = 2 ppm as NO_3
Chloride = 64 ppm as Cl
Bicarbonate = 50 ppm as HCO_3

ASM-10 HP
Effect of pH and Silica



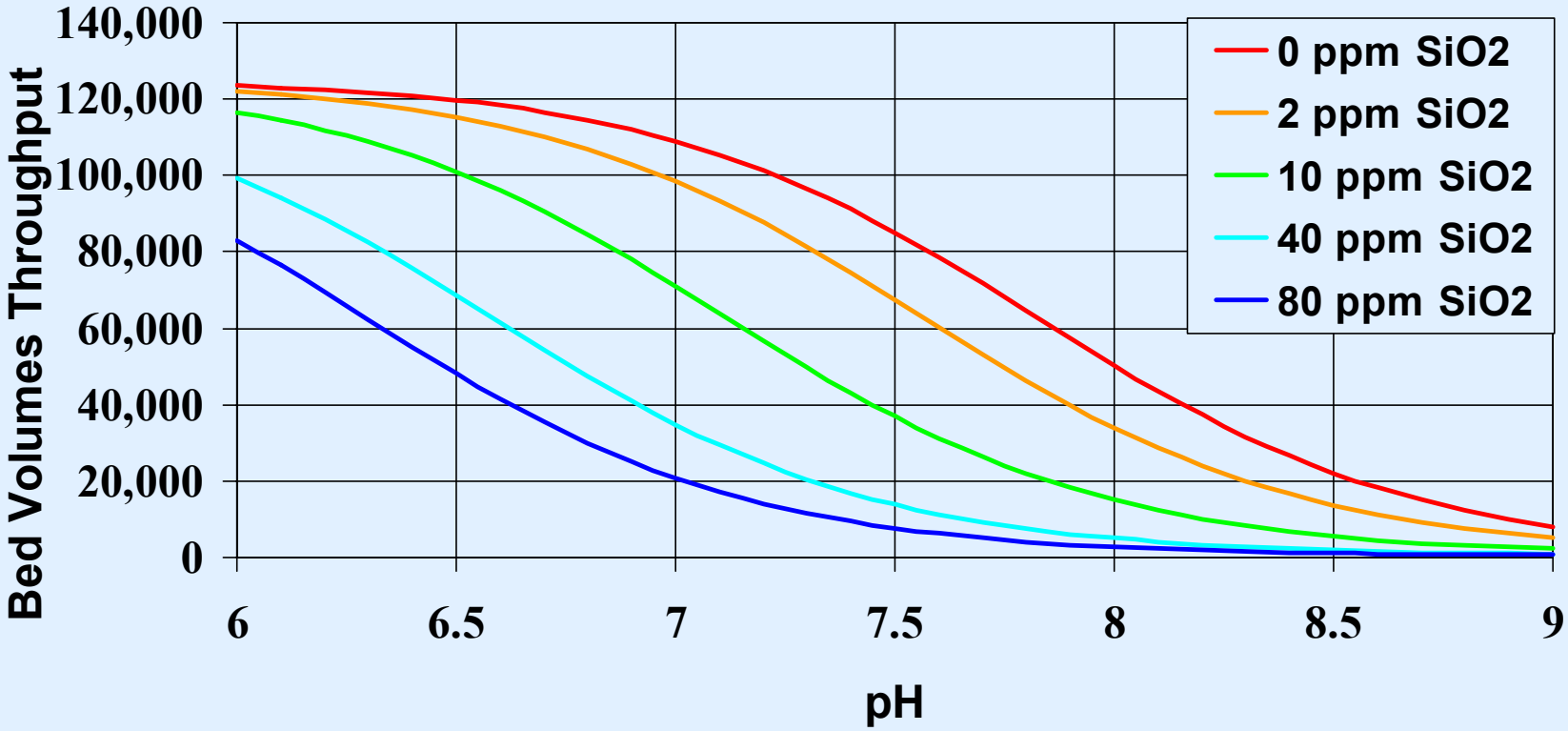
Sulfate = 2 ppm as SO_4
Arsenic = 100 ppb as As^{+5}
Nitrate = 2 ppm as NO_3
Chloride = 64 ppm as Cl
Bicarbonate = 50 ppm as HCO_3

ASM-10 HP
Effect of pH and Silica



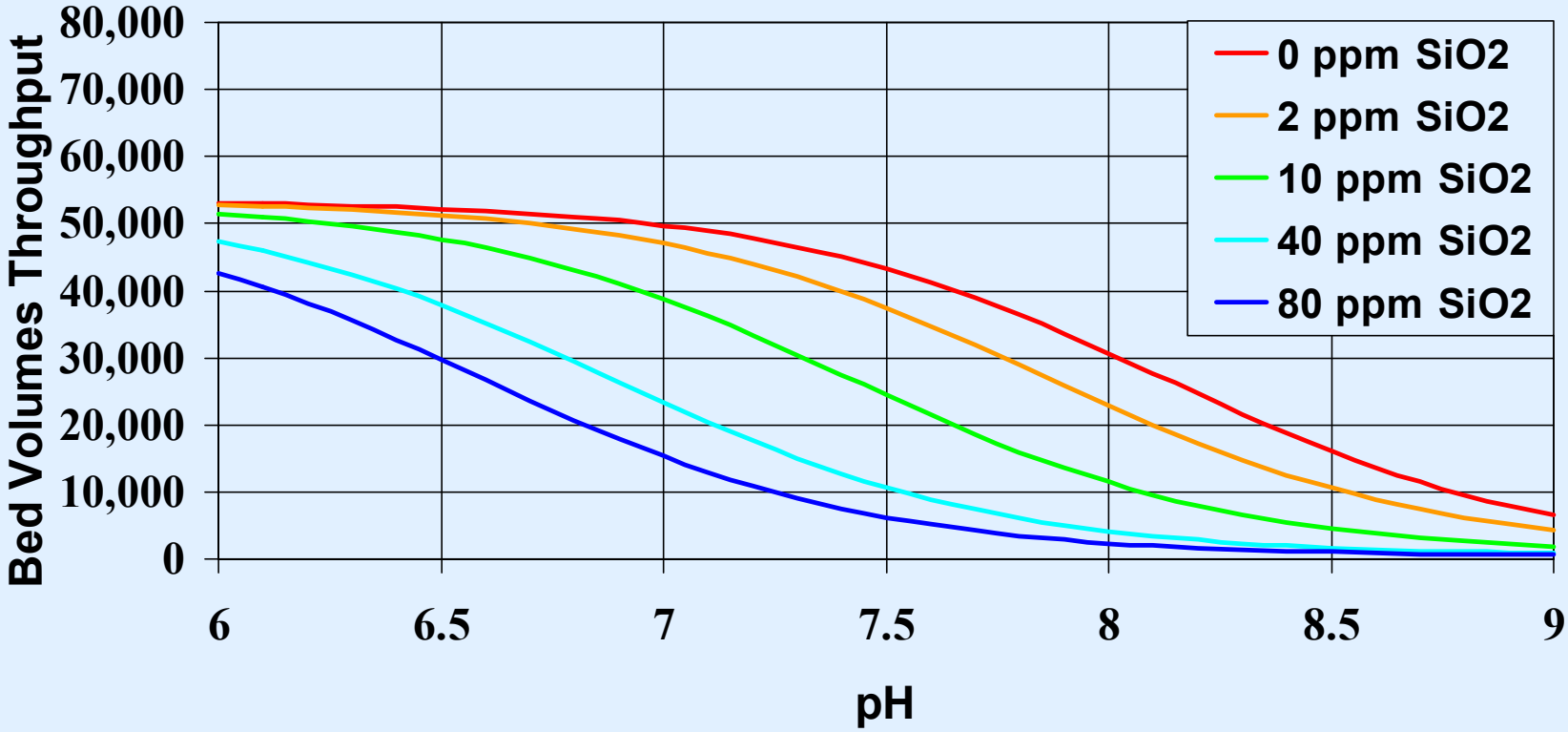
Sulfate = 200 ppm as SO_4
Arsenic = 25 ppb as As^{+5}
Nitrate = 2 ppm as NO_3
Chloride = 64 ppm as Cl
Bicarbonate = 50 ppm as HCO_3

ASM-10 HP
Effect of pH and Silica



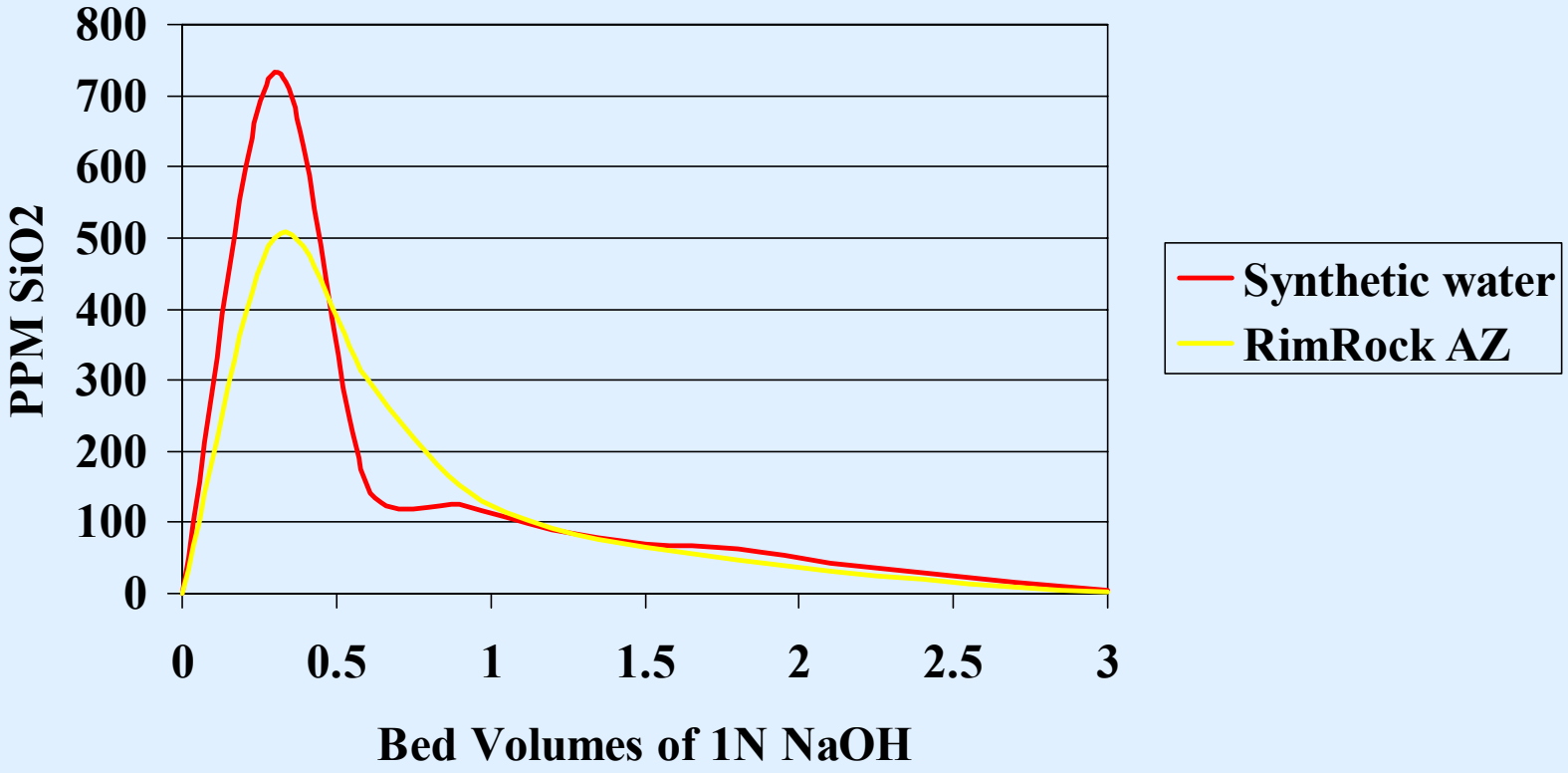
Sulfate = 200 ppm as SO_4
Arsenic = 50 ppb as As^{+5}
Nitrate = 2 ppm as NO_3
Chloride = 64 ppm as Cl
Bicarbonate = 50 ppm as HCO_3

ASM-10 HP
Effect of pH and Silica

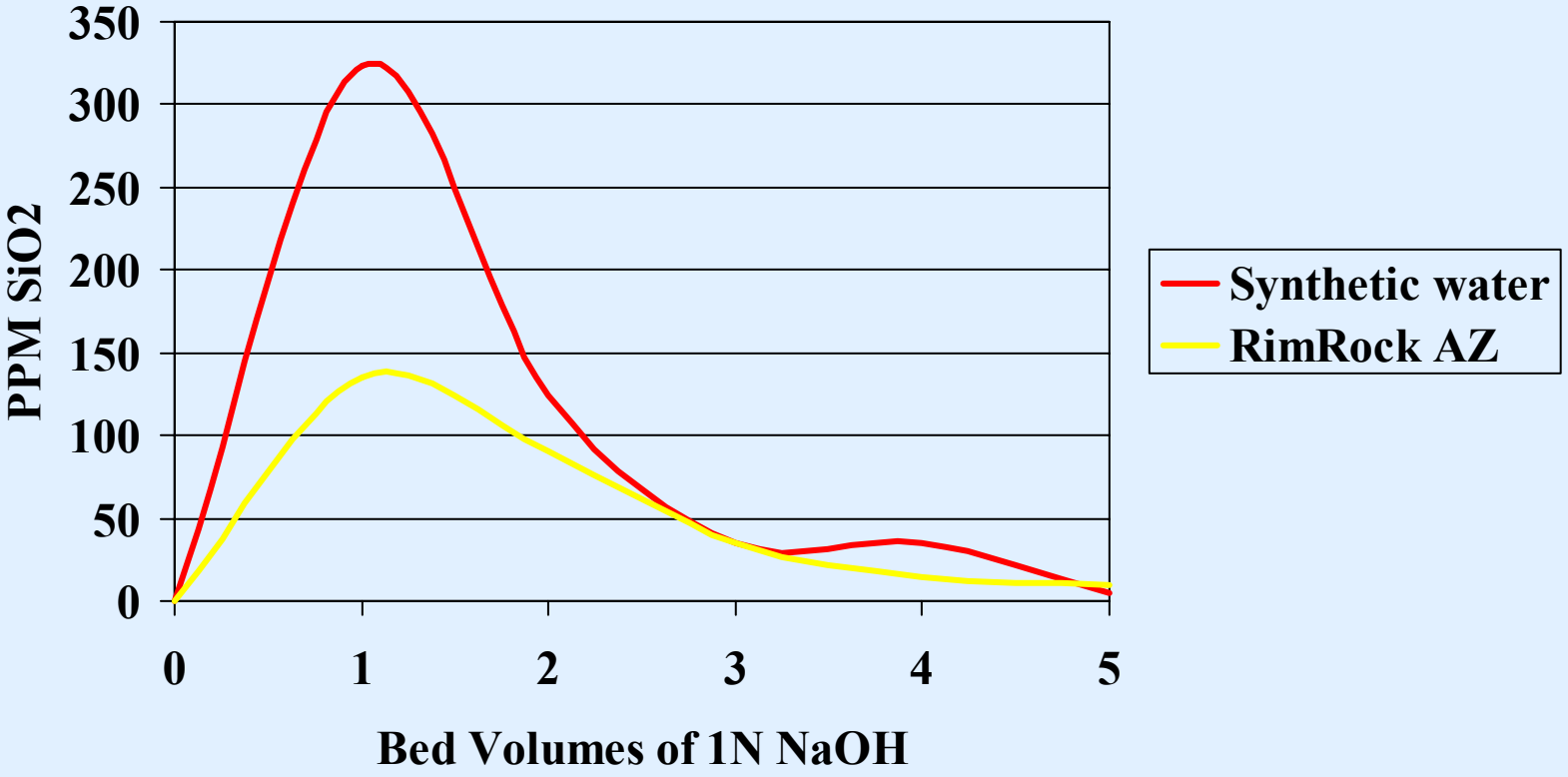


Sulfate = 200 ppm as SO_4
Arsenic = 100 ppb as As^{+5}
Nitrate = 2 ppm as NO_3
Chloride = 64 ppm as Cl
Bicarbonate = 50 ppm as HCO_3

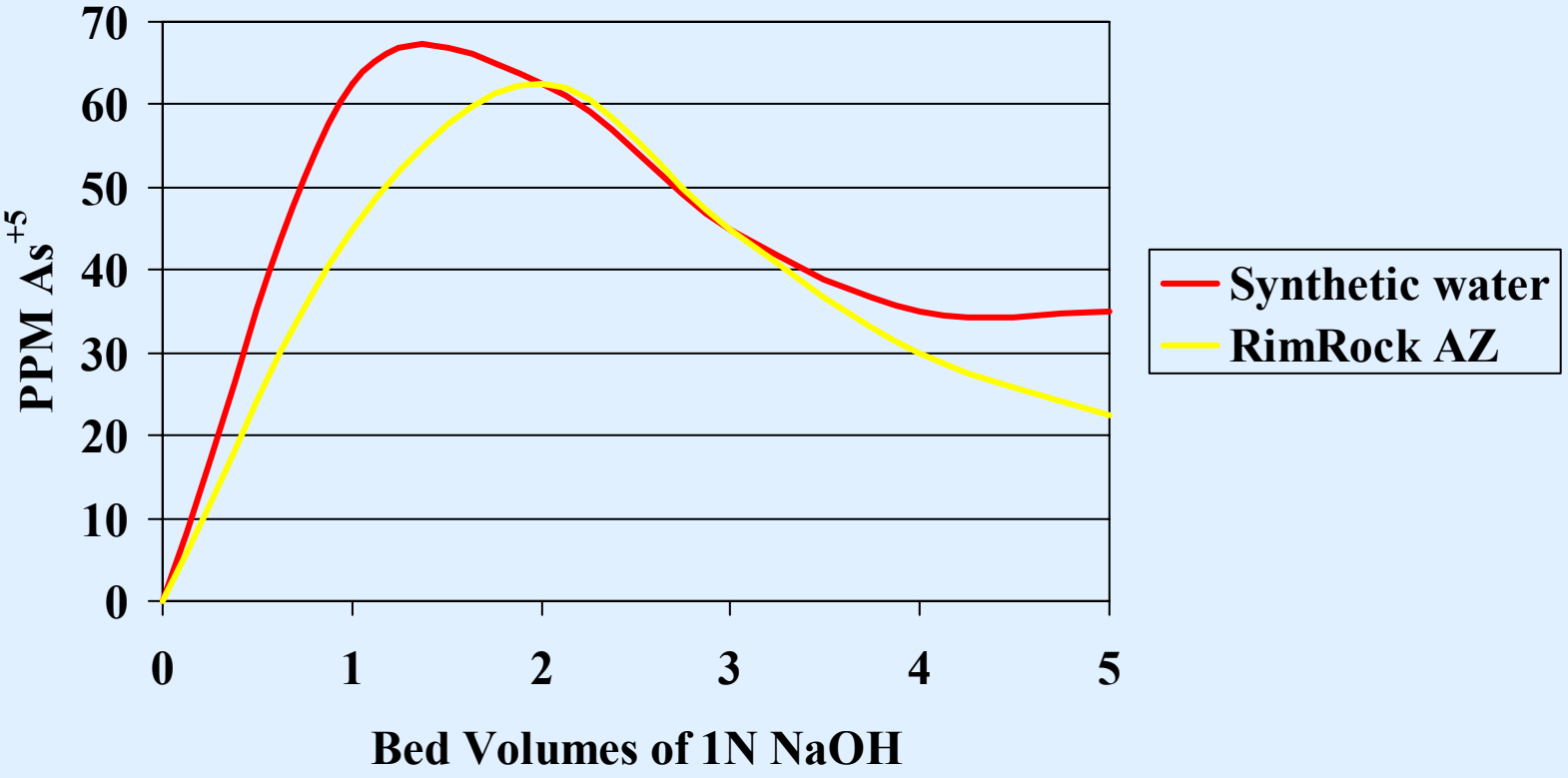
Silica Elution from ASM-10 HP First Regeneration



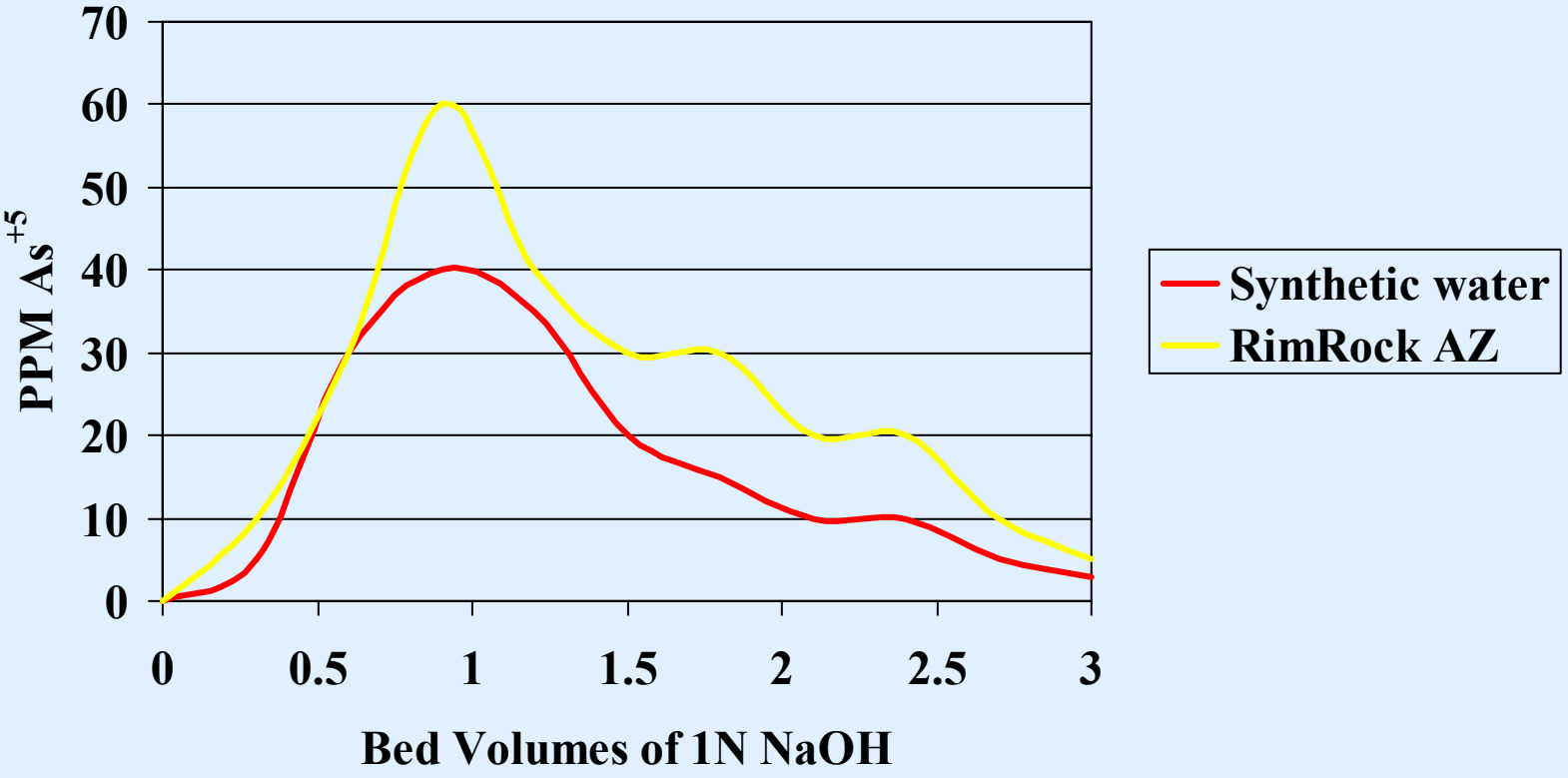
Silica Elution from ASM-10 HP Second Regeneration



Arsenic Elution from ASM-10 HP Second Regeneration



Arsenic Elution from ASM-10 HP First Regeneration

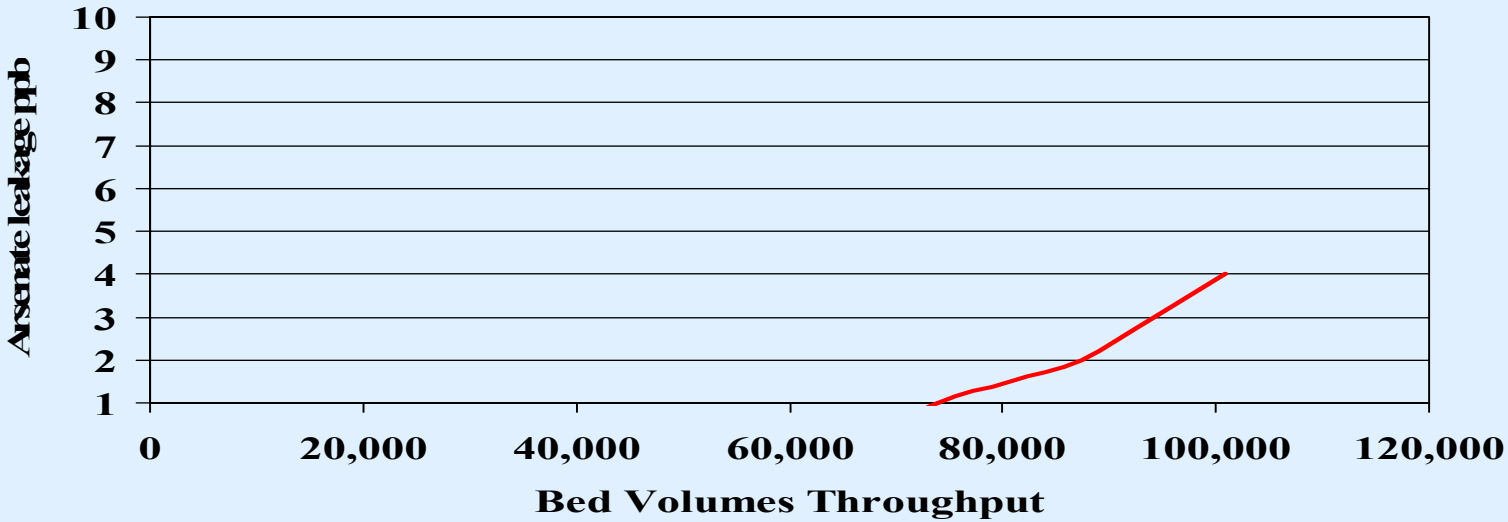


Quantitative Analysis of Resins
Before and After Regeneration

	RimRock Before Regen	RimRock After Regen	Synthetic Before Regen	Synthetic After Regen
Silica mg/Kg	5,600	21.0	8,300	22.0
Arsenic mg/Kg	792	0.8	901	0.8

Performance of ASM-10 HP

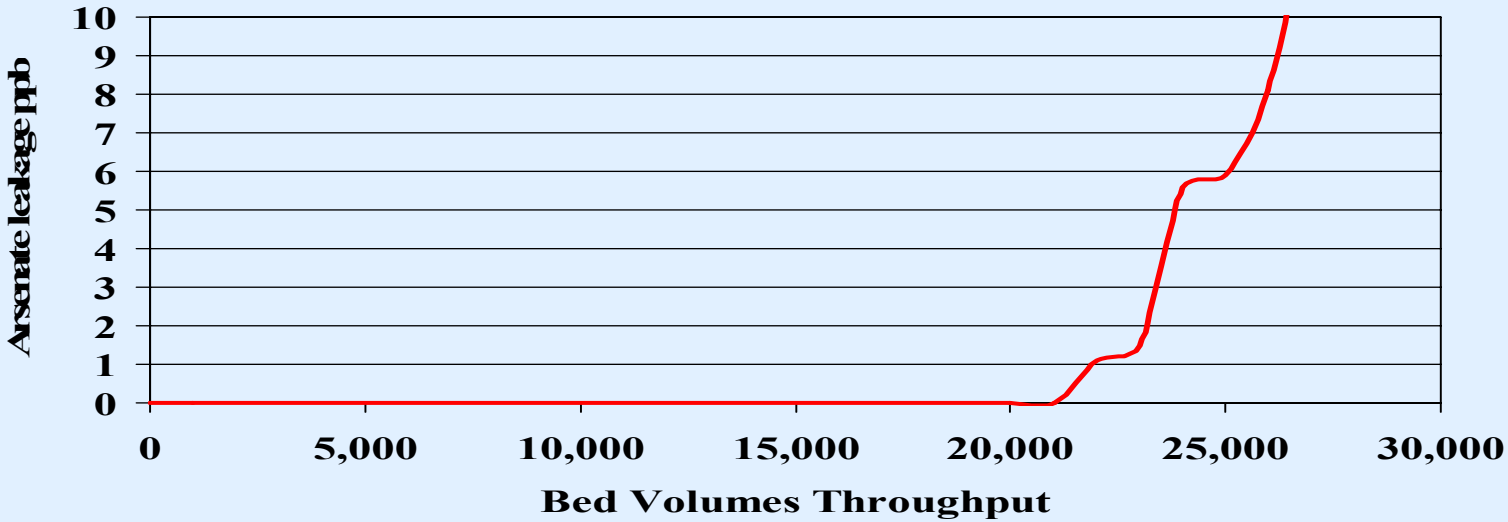
on a challenging water in Southern Florida



pH = 5.5
Sulfate= 5 ppm as SO_4
Sulfide = 300 ppb as S^{-2}
Arsenic = 45 ppb as As^{+5}
Manganese = 60 ppb as Mn
Iron = 2 ppm as Fe
Silica = 15 ppm as SiO_2
Flow rate = 0.33 BV/min

Performance of ASM-10 HP

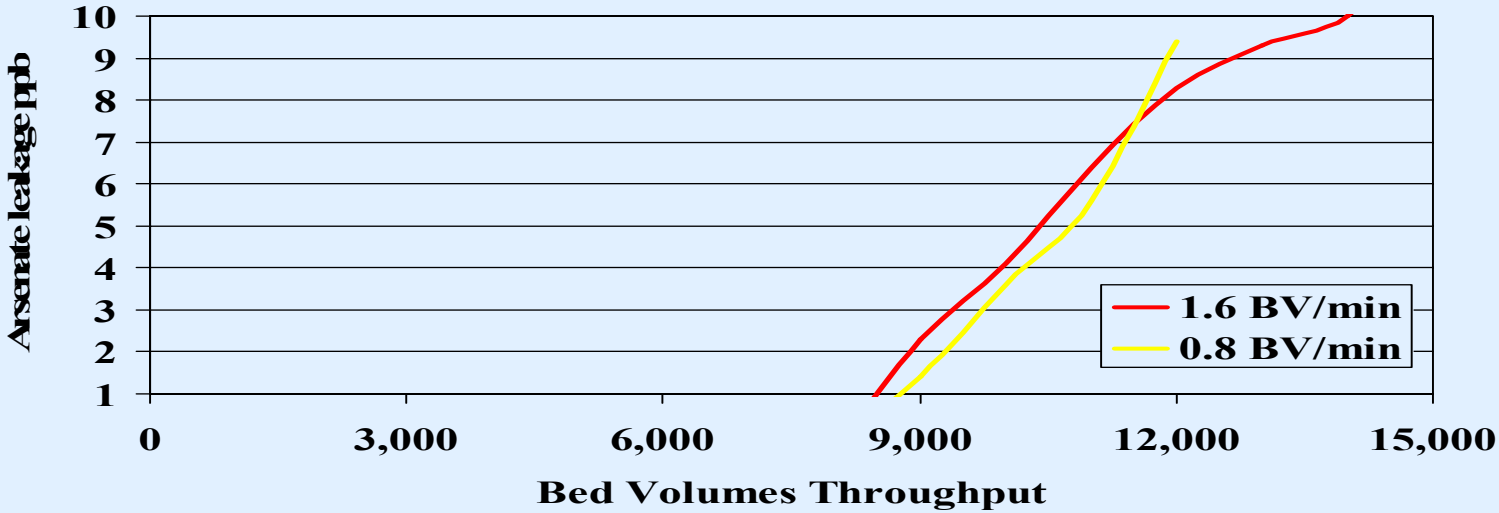
RimRock AZ Pilot plant



pH = 5.5
Sulfate= 5 ppm as SO_4
Sulfide = 300 ppb as S^{-2}
Arsenic = 45 ppb as As^{+5}
Manganese = 60 ppb as Mn
Iron = 2 ppm as Fe
Silica = 10 ppm as SiO_2
Flow rate = 0..8 BV/min

Performance of ASM-10 HP

Coachella Valley CA Pilot plant



pH = 8.9
Sulfate= 31 ppm as SO_4
Chloride = 9 ppm as Cl
Arsenic = 14 ppb as As^{+5}
Vanadium = 36 ppb as Mn
bicarbonate = 91 ppm as HCO_3
Silica = 15 ppm as SiO_2

NSF High pH Challenge

pH 8.3, SiO_2 20 ppm, As 50 ppb as As^{+5},
flow 0.8 BV/min