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HYDROGLOBE

NMHEC
11/2/2005

Presented by
John Schroeder

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Who is HydroGlobe

- Water Pollution Control Technologies
  - Sole licensee of Stevens Institute of Technology- 2001
- Heavy Metals/Arsenic Removal
  - Drinking Water
  - Contaminated Groundwater
- Nickel, Selenium, Copper, Lead, Depleted Uranium, Vanadium, Selenium, Mercury, Cadmium, etc
- Purchased by Graver Technologies LLC 2004

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MetSorb™ filtration media removes arsenic AND lead with 2 to 4 times the capacity of the best competitor.

ActivMet™ and **FerriMet™** systems combine proven filtration chemistry with novel inventions and applications to achieve up to 99% reduction of arsenic and heavy metals at a greater than 40% cost reduction over current products in the municipal market.

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MetSorb™

- Patented absorbent
- Nanocrystalline Titanium Dioxide
- Effective for Arsenic (III and V), Antimony, Uranium, Lead, Mercury
- Available in powder or granular form)

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EASE OF OPERATION

- Standard filter designs
  - Simple automated operation
- Once through use
- Infrequent backwash, minimal waste water
- No hazardous waste generated

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MetSorb™ Batch Test Data

Metal	Initial concentration	Final concentration
As V	50 ppm	19-21 ppm
As III	50 ppm	12 ppm
Cadmium	1,000 ppb	24 ppb
Lead	1,000 ppb	18 ppb
Copper	500 ppb	5 ppb
Mercury	500 ppb	26 ppb
Zinc	500 ppb	12 ppb

1. **Test conditions were 0.1 % MetSorb™ in the test solution, for 1 hour**

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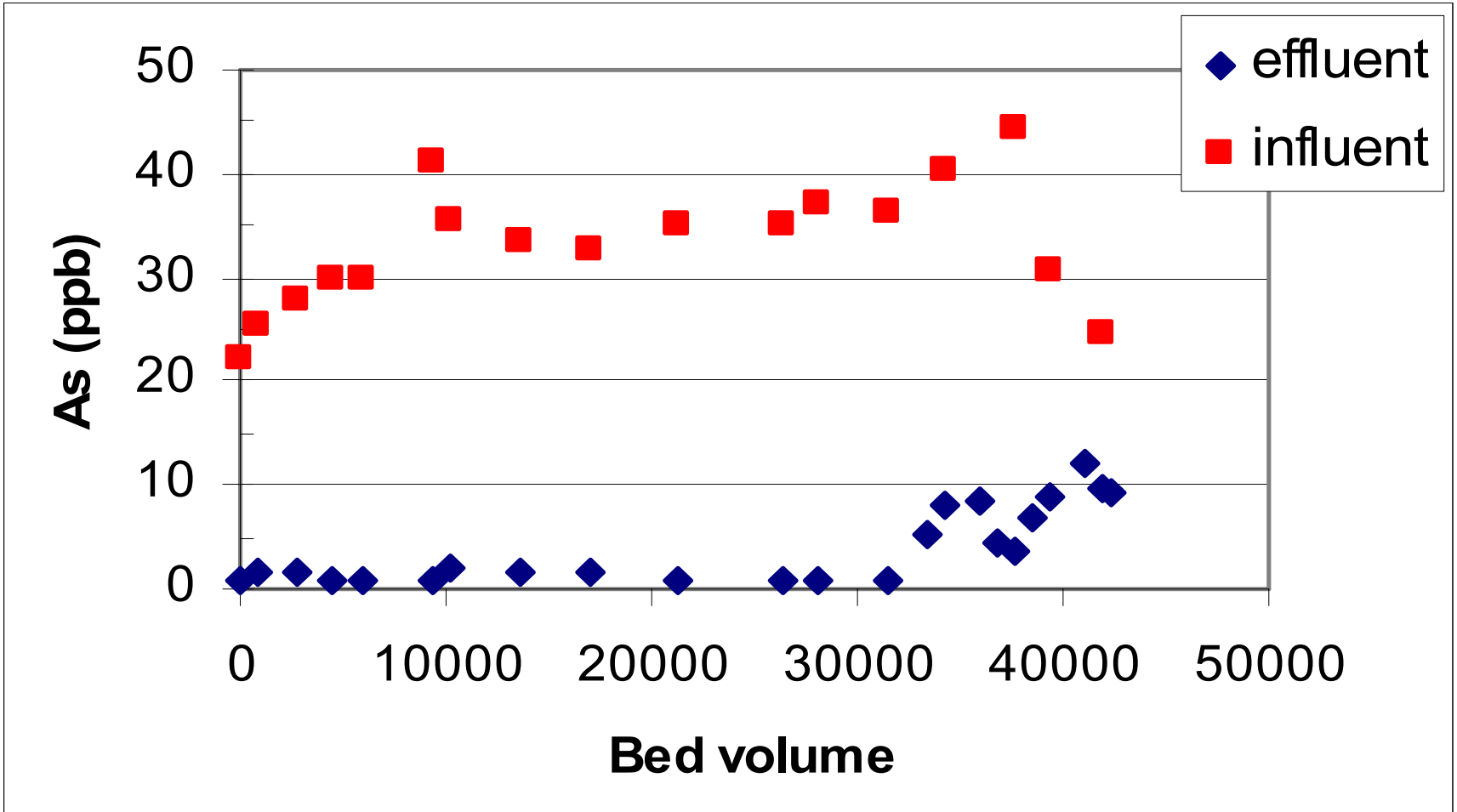
MetSorb™ at Hopewell



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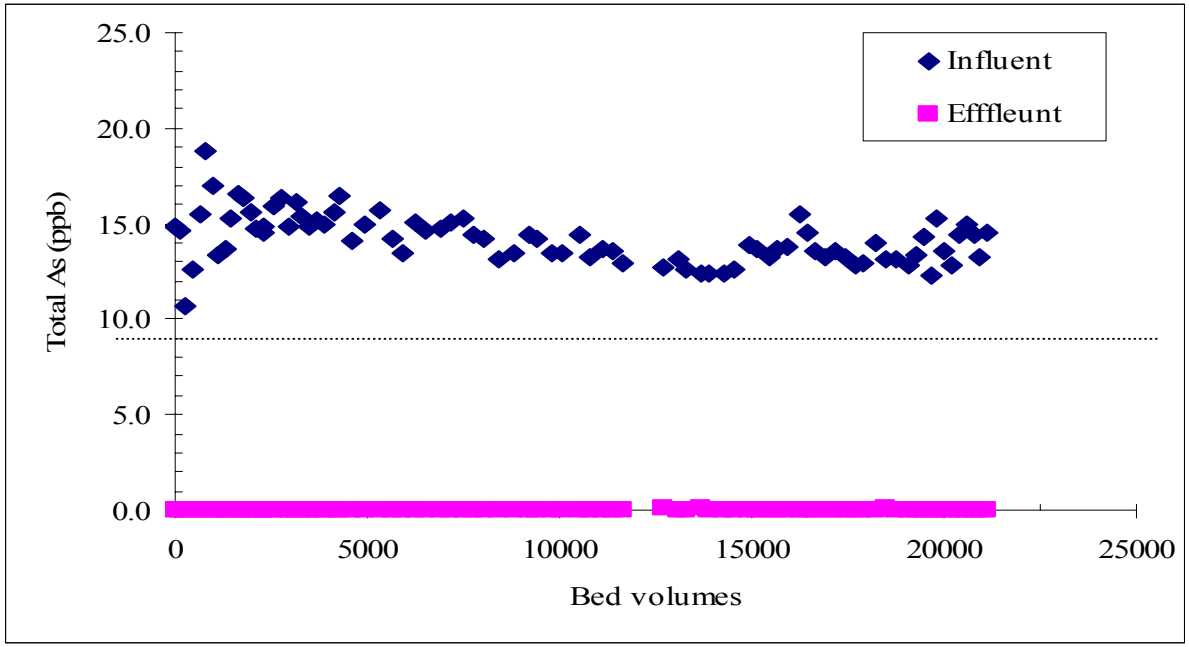
MetSorb at Hopewell- Home 1



Intermittent Operation (30min. on/30 min. off) with EBCT of 1 minute

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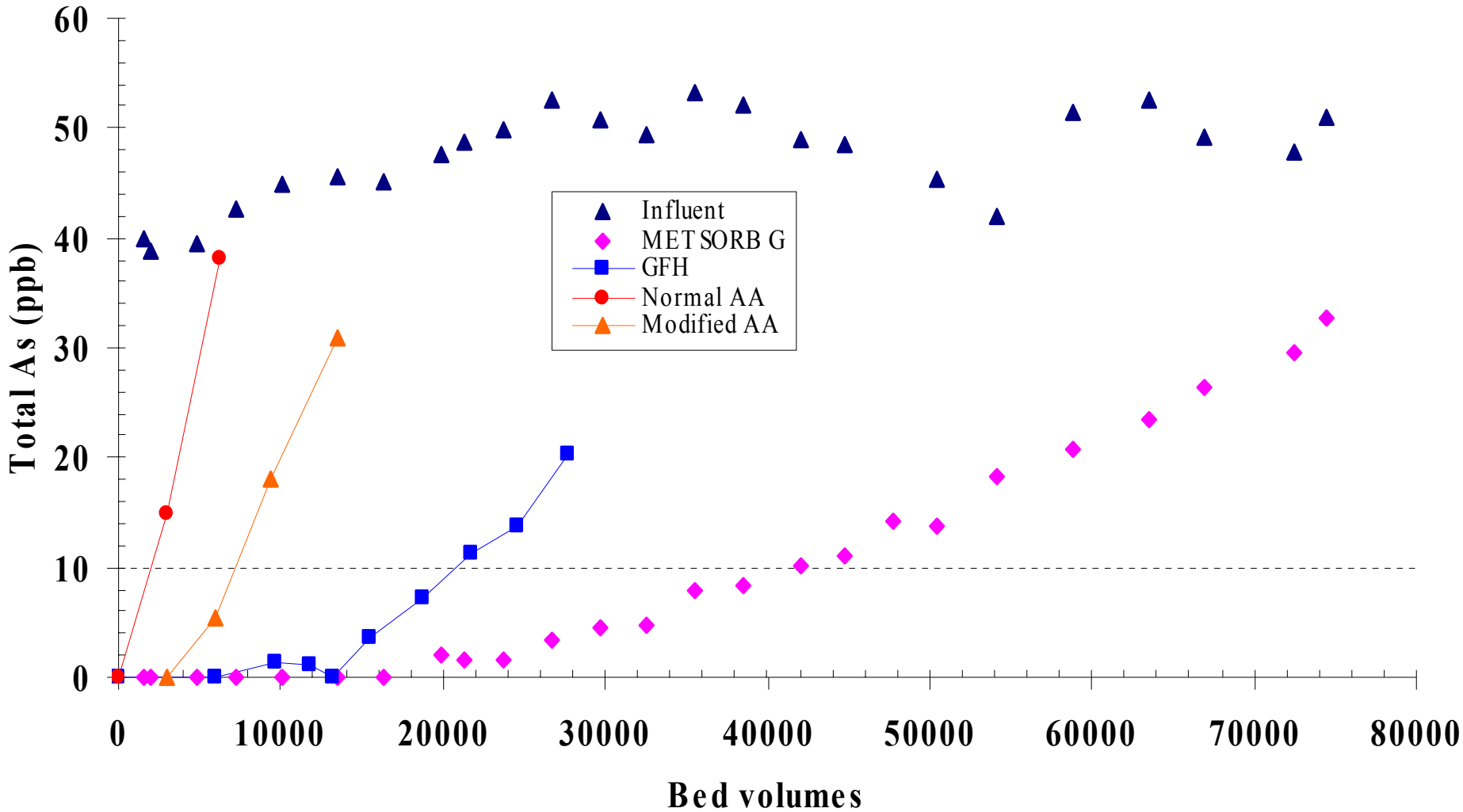
Performance of Various adsorptive media



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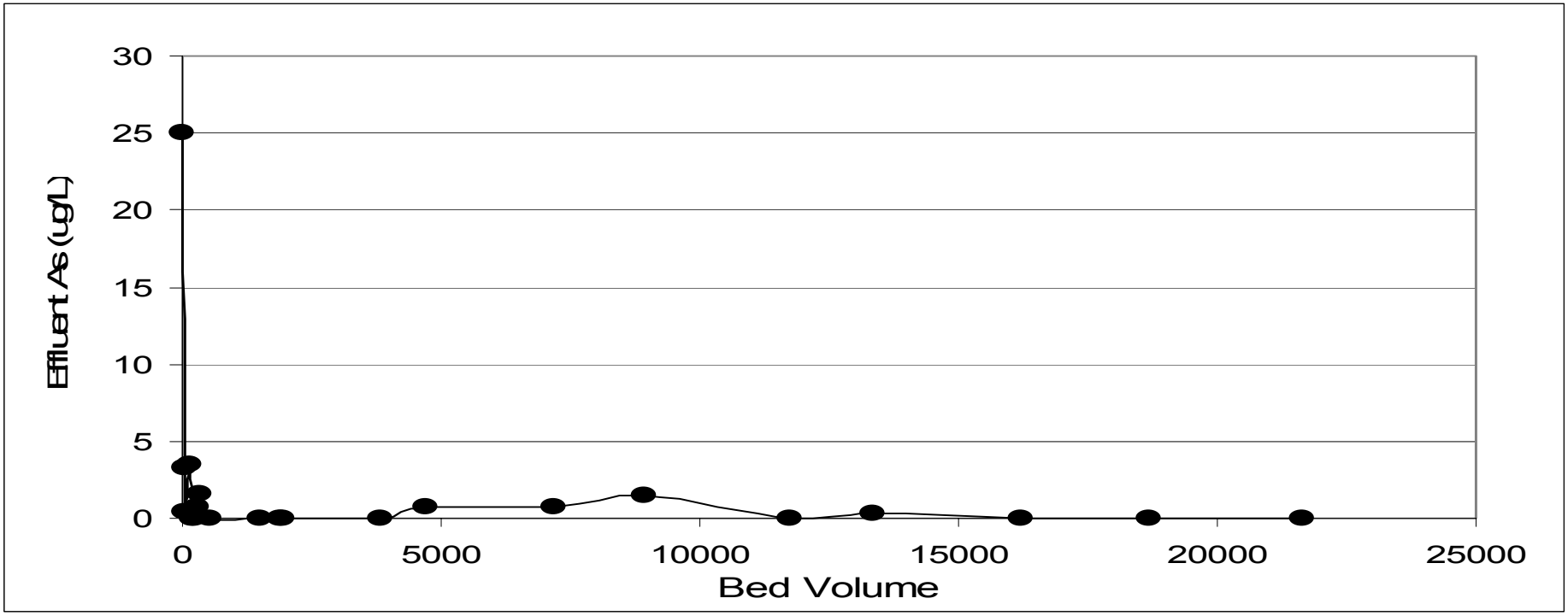
Hawthorne Army Depot- Nevada



EBCT= 3minutes, flow at 1L/min and bed volume = 3L. [As] initial = 25µg/L.

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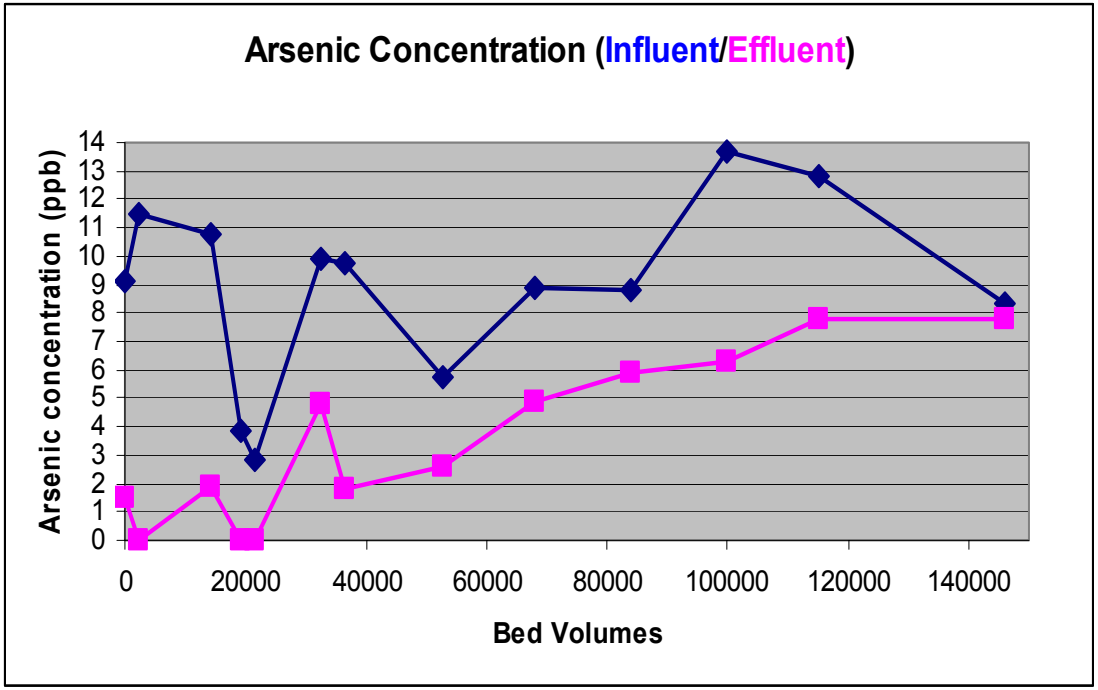
Flemington NJ



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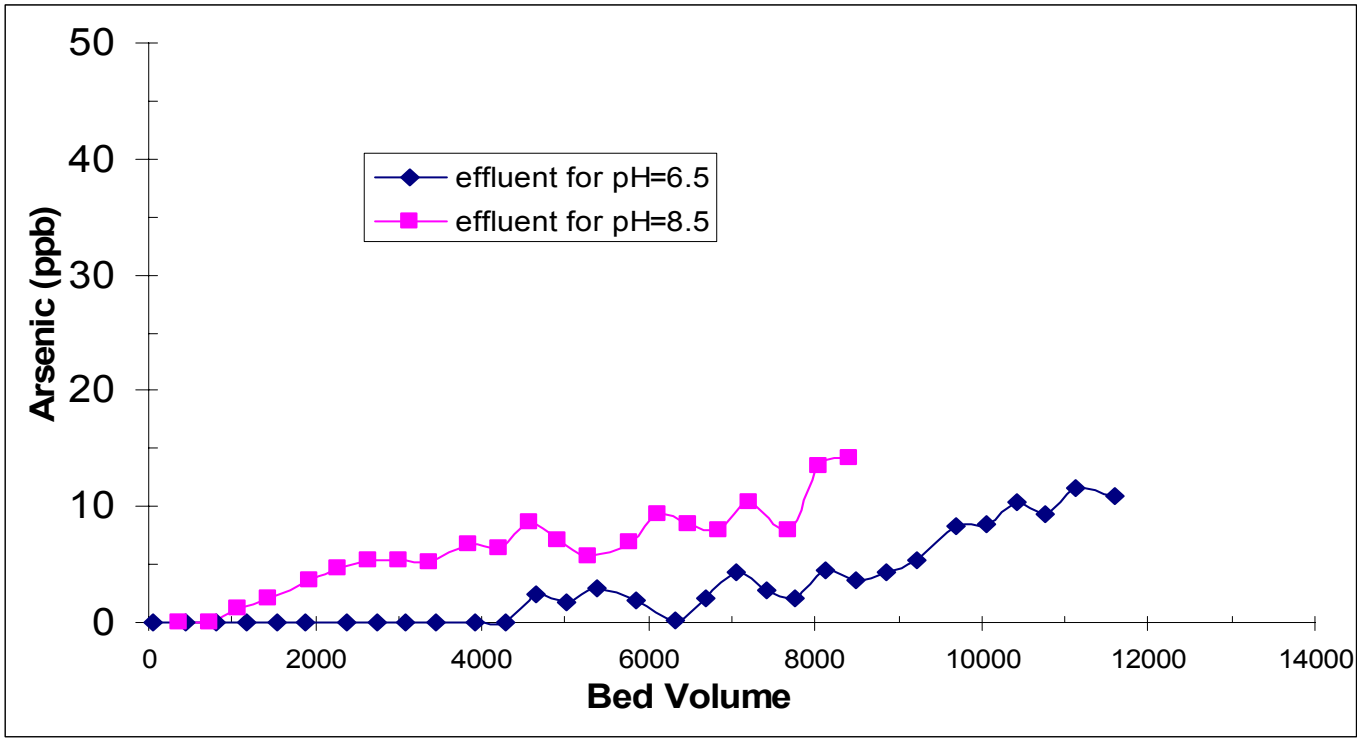
MetSorb NSF 53 testing



Testing has been done at the conditions of the draft NSF Standard 53 for Arsenic at 30 seconds EBCT,

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Cartridge work

- 650 ml. Cartridge
- 20 seconds EBCT
- -16 + 60 mesh
- NSF 53 water
- Arsenic V, pH 6.5, 2000 gallons
- Arsenic V, pH 8.5, 600 gallons
- Arsenic III, pH 6.5, 600 gallons

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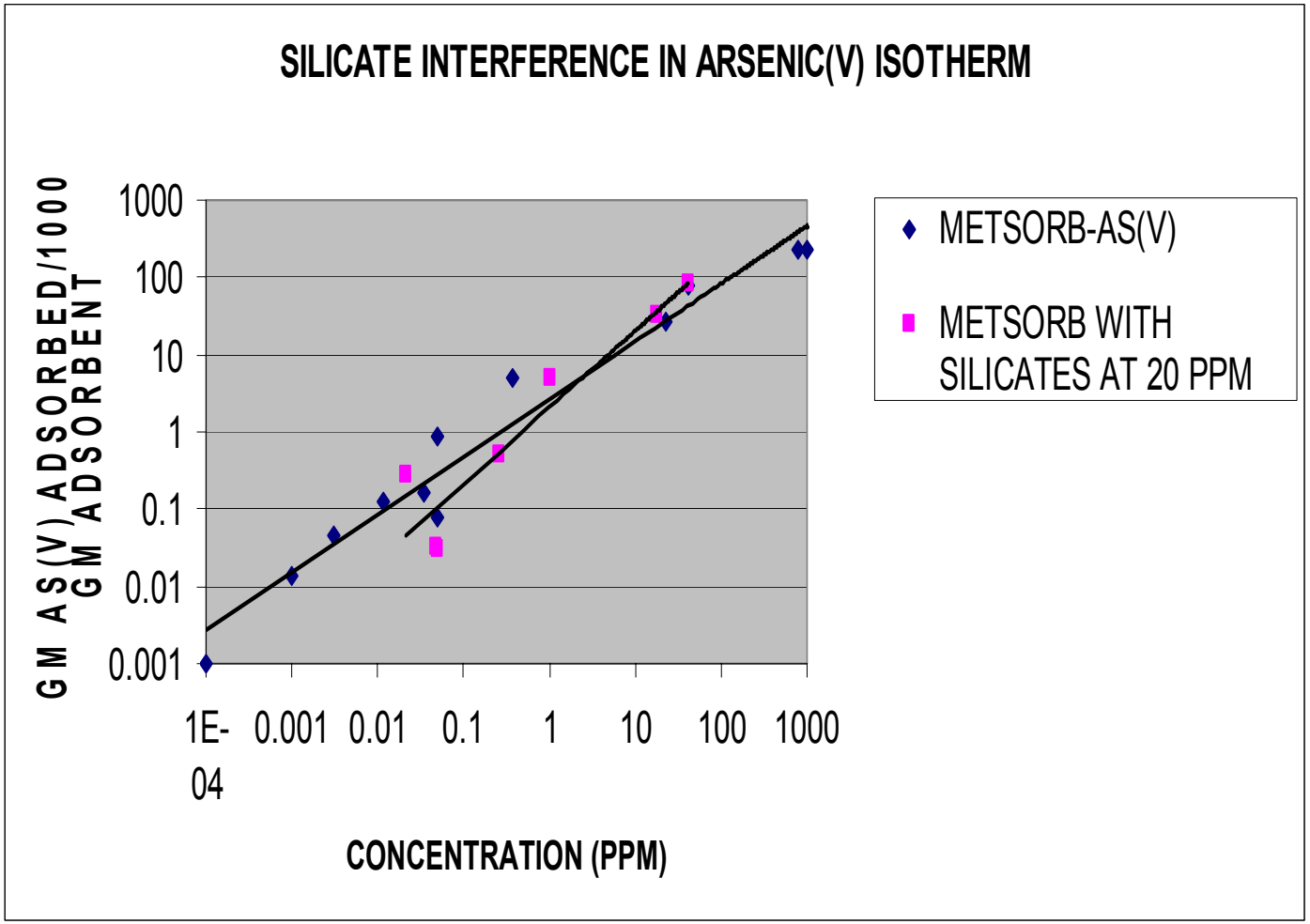
MetSorb- Silicate Interference



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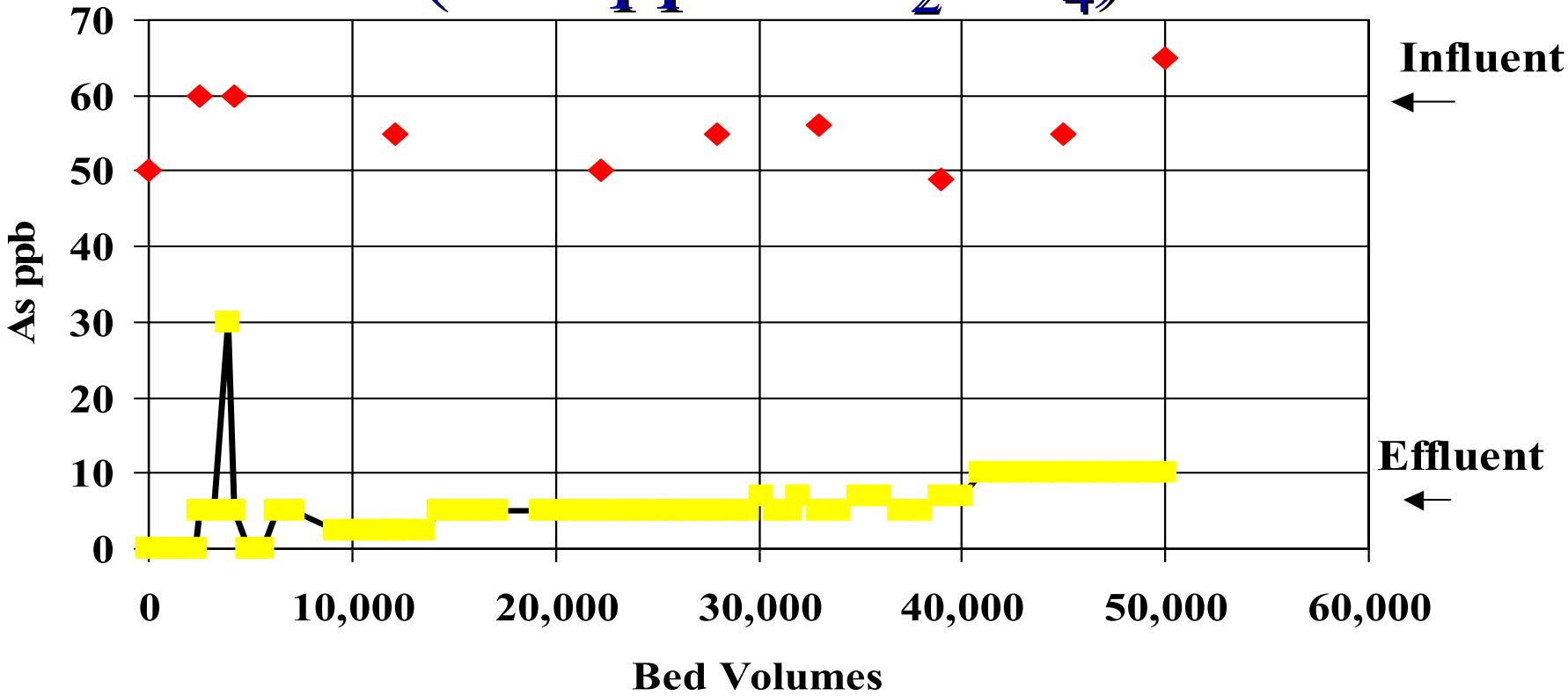
As $^{+5}$ Removal by MetSorb Media (100 ppm Na_2SO_4)



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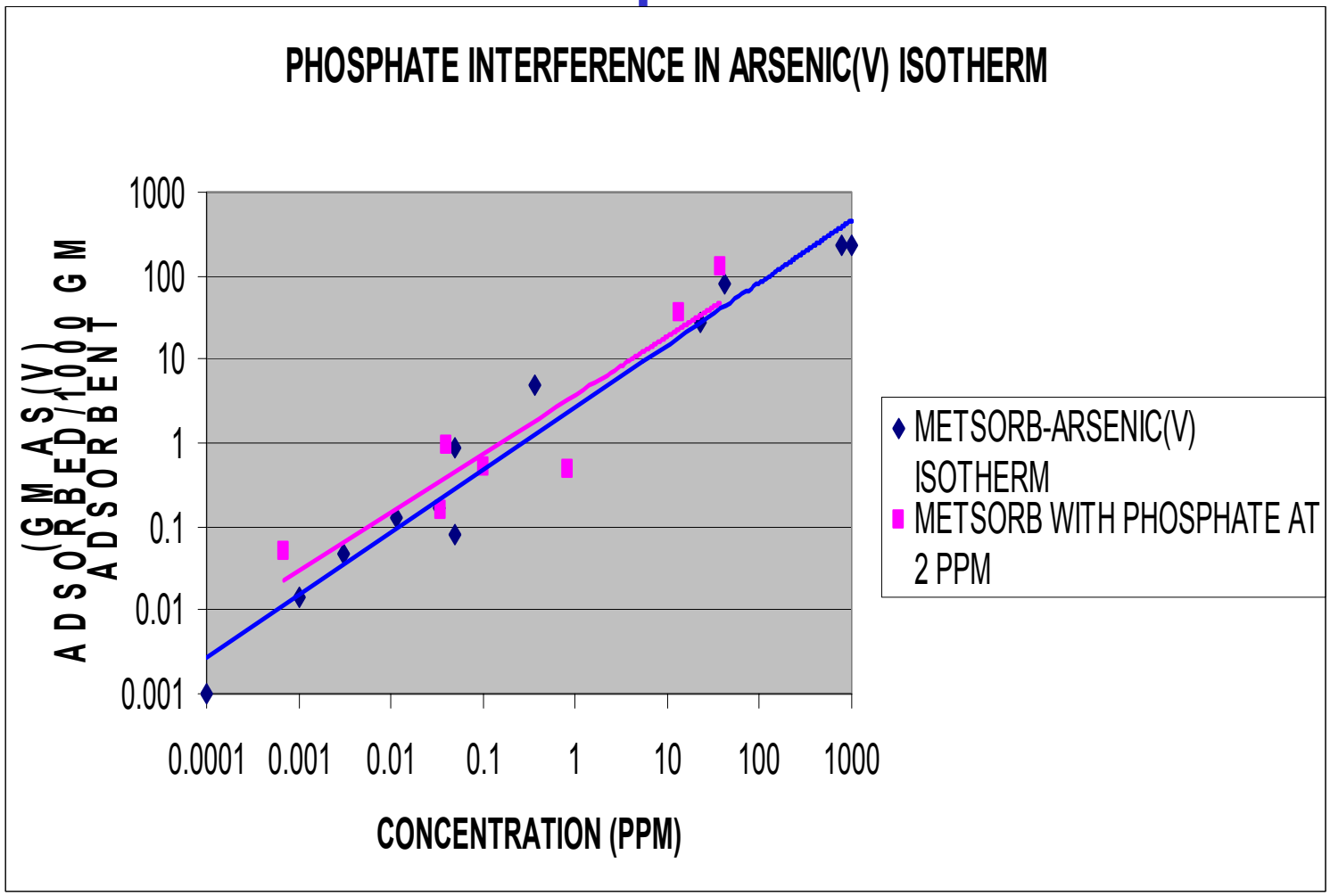
MetSorb- Phosphate Interference



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Other Issues

- Cost
  - Depends on inlet arsenic concentration and effluent requirement
  - Range of $0.10-0.50 per thousand gallons
- Waste Disposal
  - TCLP nonhazardous by three orders of magnitude; passes CA WET
- Markets targeted from POU to Municipal

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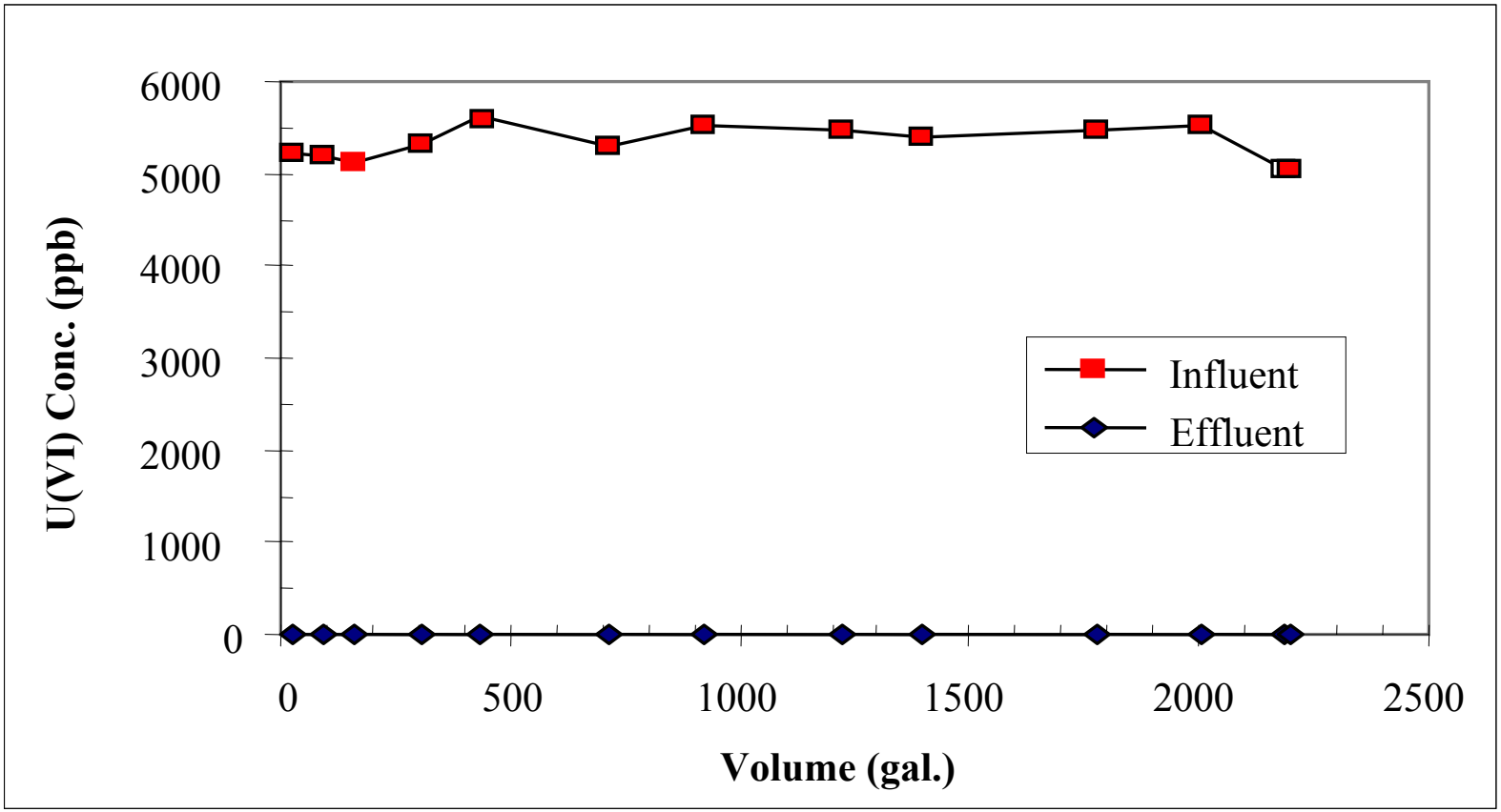
MetSorb™ With Depleted Uranium- Aberdeen Proving Grounds



DU concentration in the contaminated and filtered water.

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HydroGlobe Division

-Acquired in December 2004 from Stevens Institute of Technology

Mission Statement

"To provide specialty and high value media for contaminant reduction in water"

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