



Water Technology for the Future



Who is HydroGlobe

- Water Pollution Control Technologies
 - Sole licensee of Stevens Institute of Technology
- Heavy Metals/Arsenic Removal
 - Drinking Water
 - Contaminated Groundwater
 - Process Water
- Nickel, Chromium, Selenium, Copper, Lead, Depleted Uranium, Vanadium, Selenium, Mercury, Cadmium, etc

Products HYDROGLOBE



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

Samples are being evaluated at the major consumer companies and in testing at municipalities.

Product manufacturing in place.

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.

Two systems are currently in operation in the U.S.

OEM's in place to manufacture.



HYDROGLOBE

MetSorb™

- Revolutionary new adsorbent
- Nanocrystalline Titanium Dioxide
- Effective for Arsenic (III and V), Chromium VI, Lead, Copper, Mercury, Zinc
- Available in powder, granular, or as part of an equipment system (ZeroMet™)

HYDROGLOBE

EASE OF OPERATION

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



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

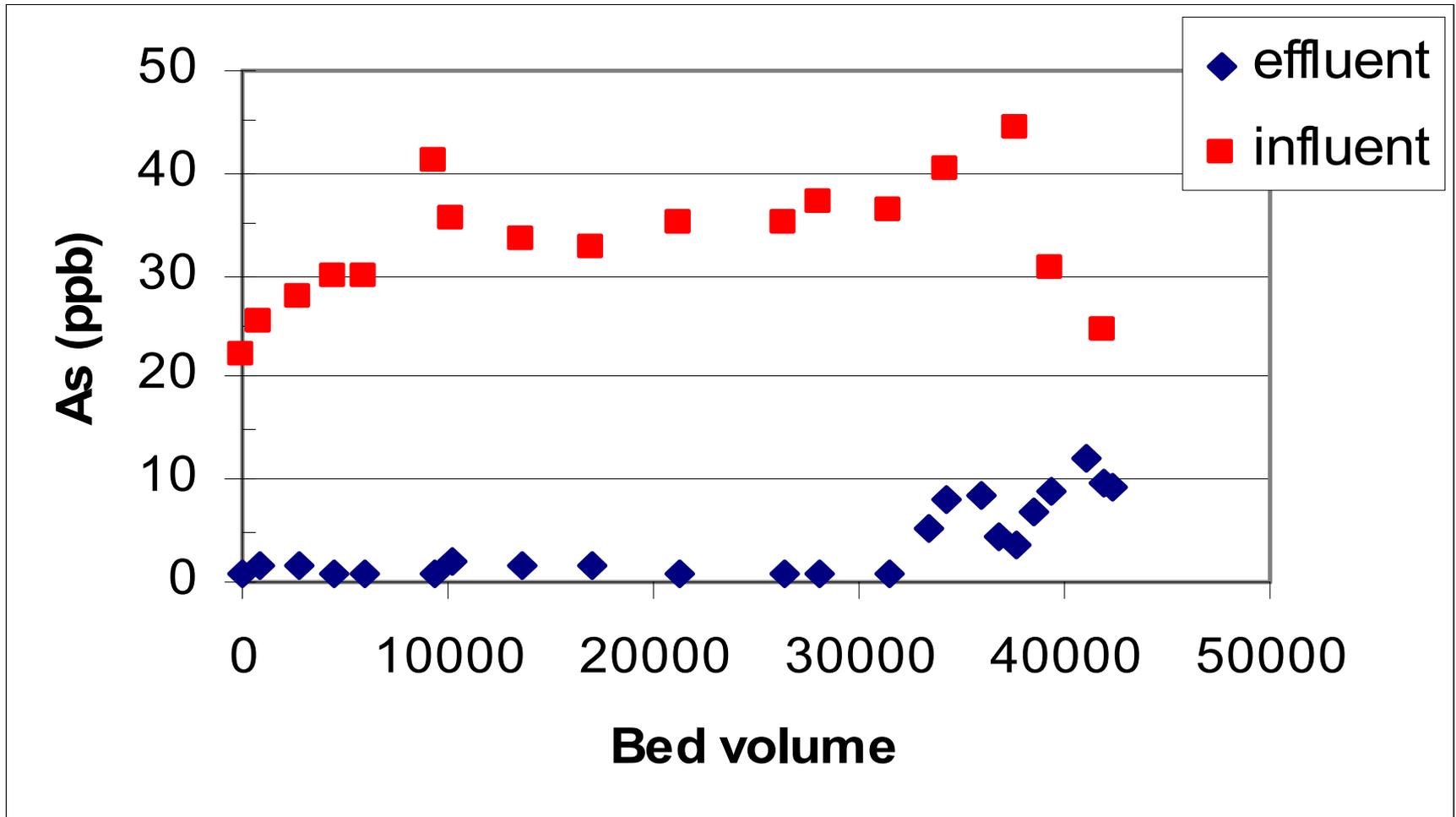
1. **Test conditions were 0.1 % MetSorb™ in the test solution, for 1 hour**

HYDROGLOBE

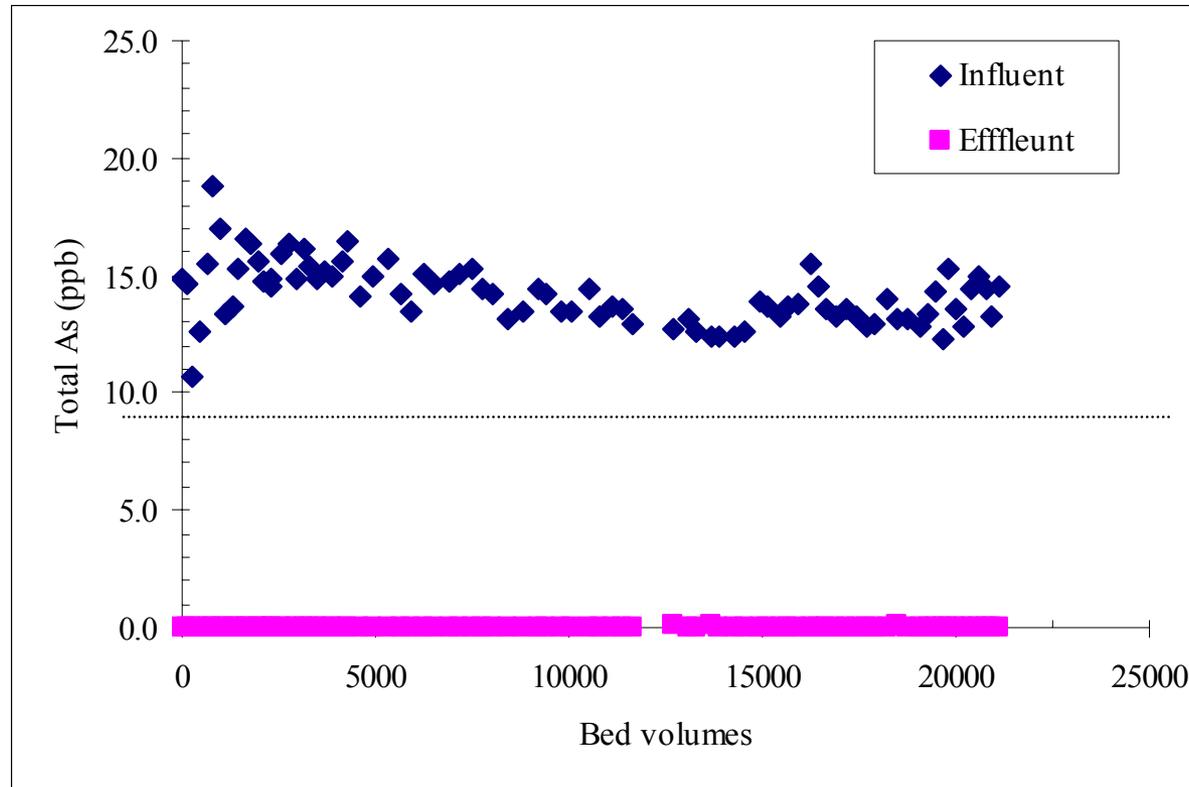
ZeroMet filter



MetSorb™ at Hopewell

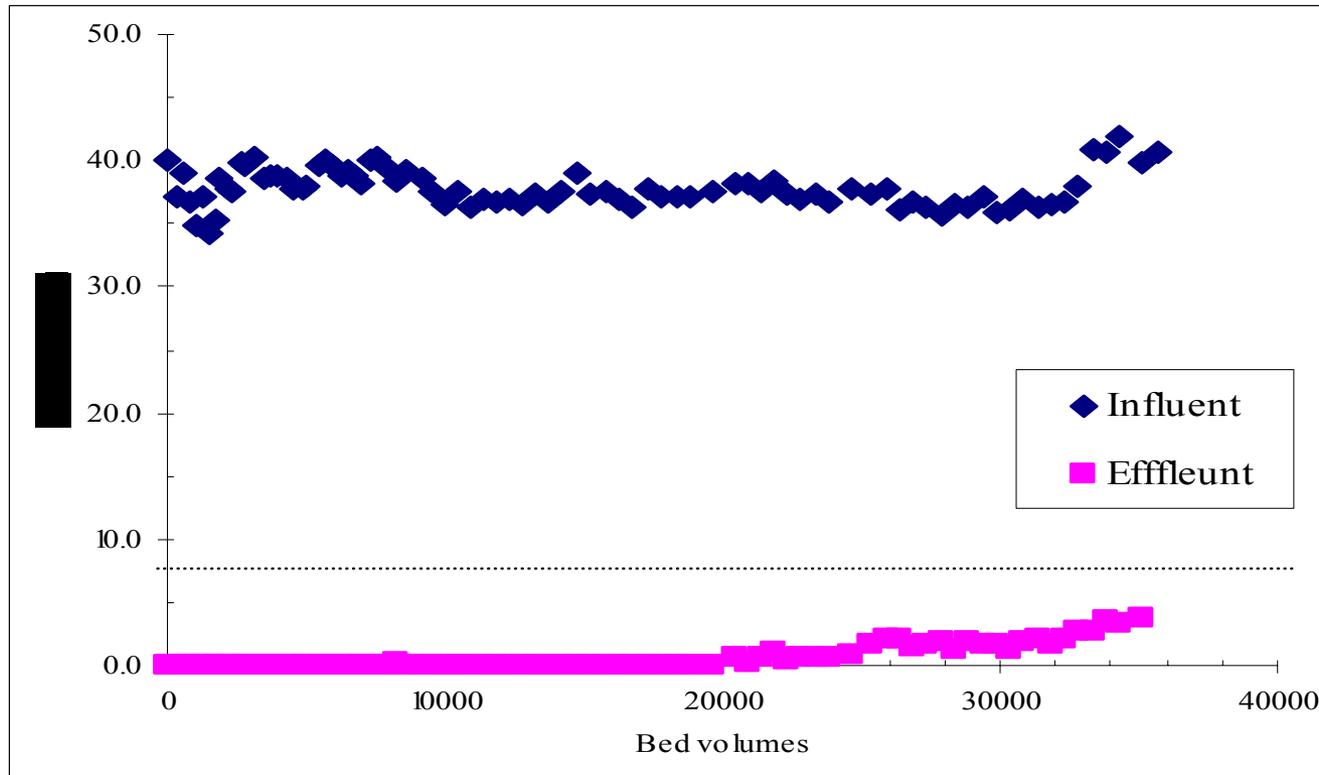


MetSorb at Hopewell- Home 1



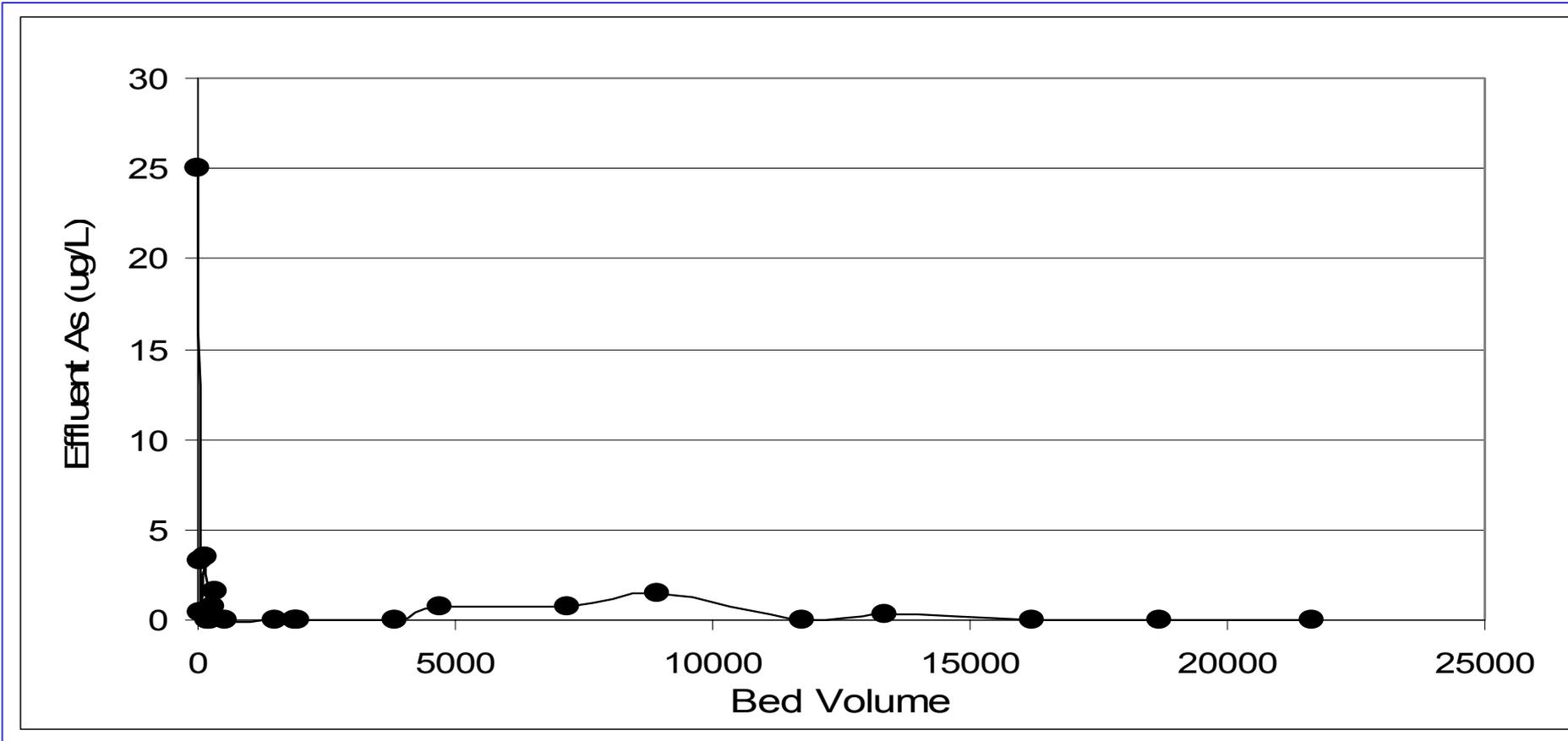
Intermittent Operation (30min. on/30 min. off) with EBCT of 1 minute

MetSorb in Hopewell- Home 2



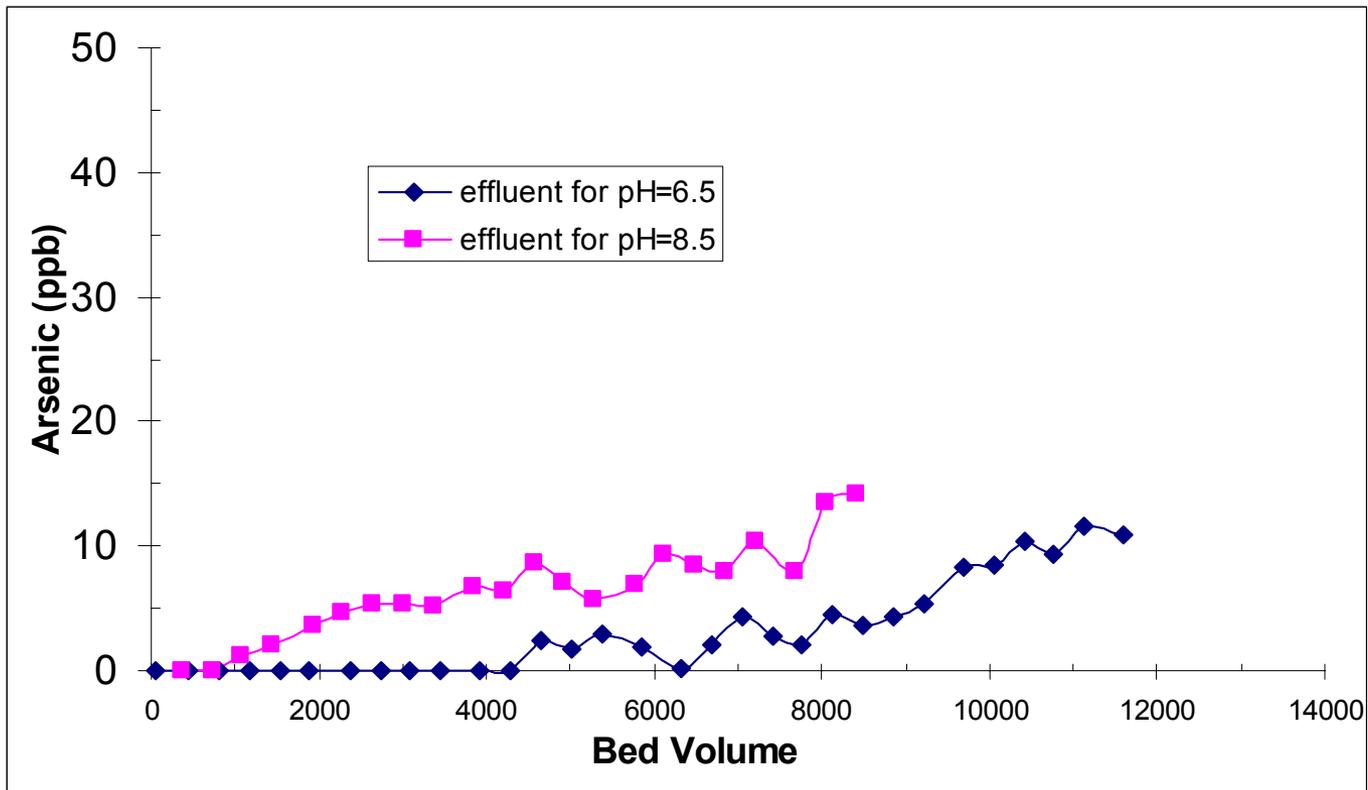
Continuous flow at 3 minutes EBCT

Hawthorne Army Depot- Nevada



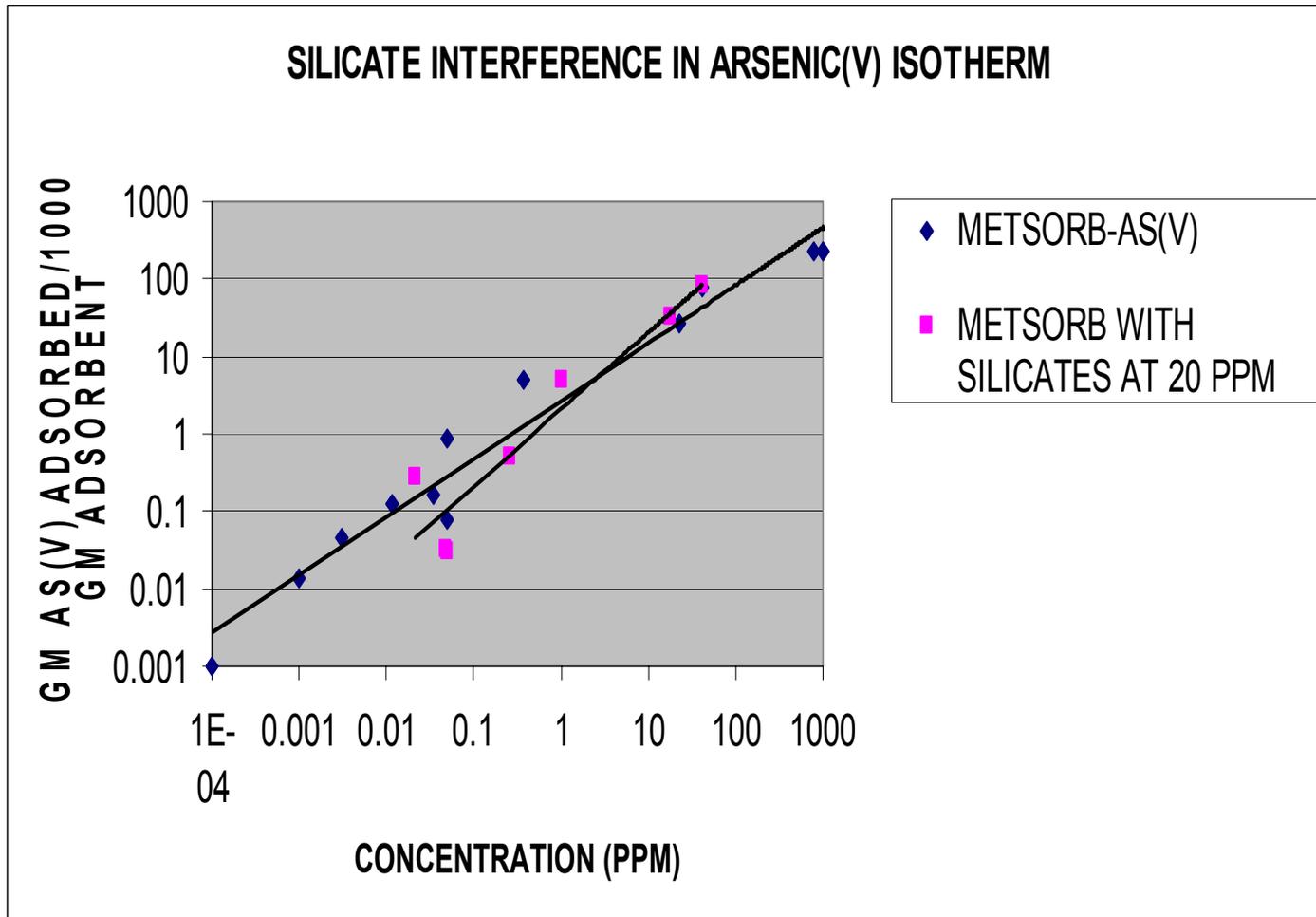
EBCT= 3minutes, flow at 1L/min and bed volume = 3L. [As] initial = 25ug/L.

MetSorb NSF 53 testing

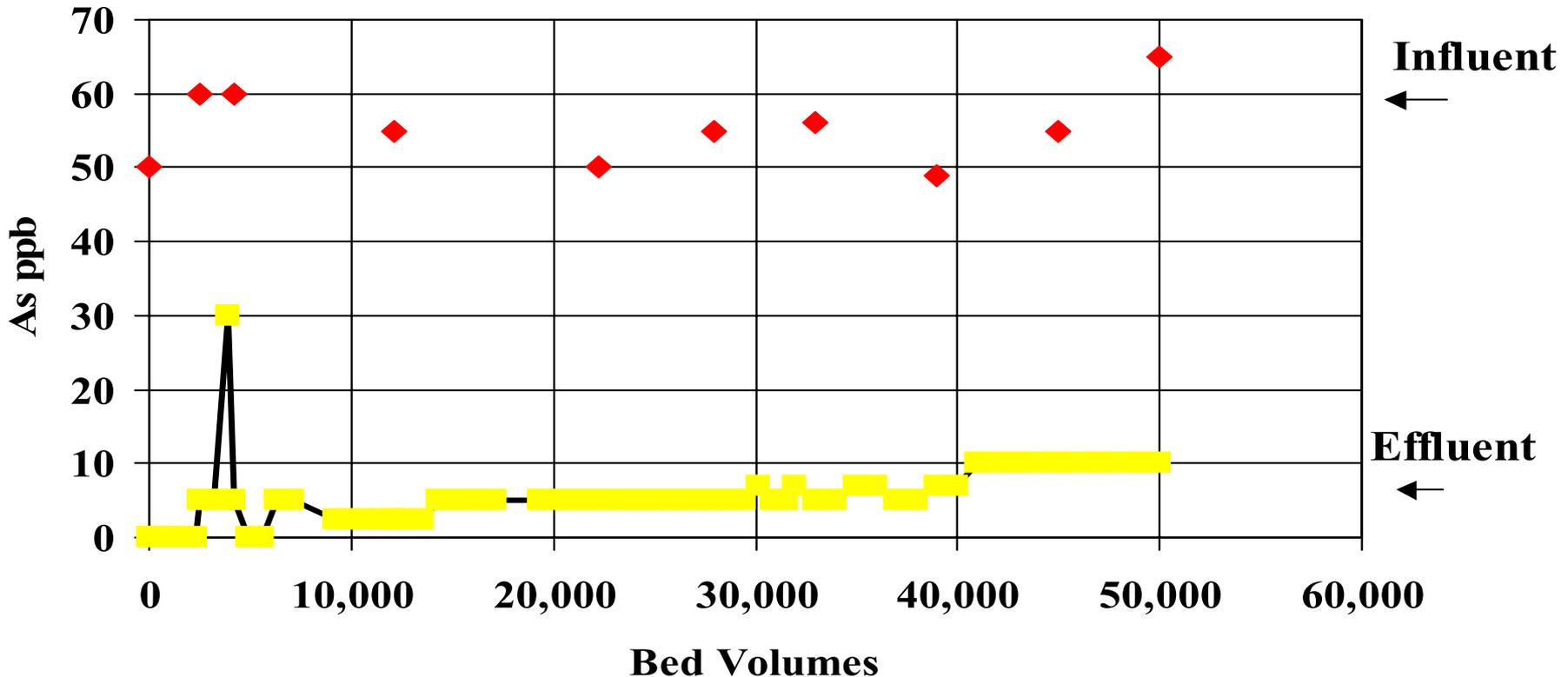


Testing has been done at the conditions of the draft NSF Standard 53 for Arsenic at 30 seconds EBCT,

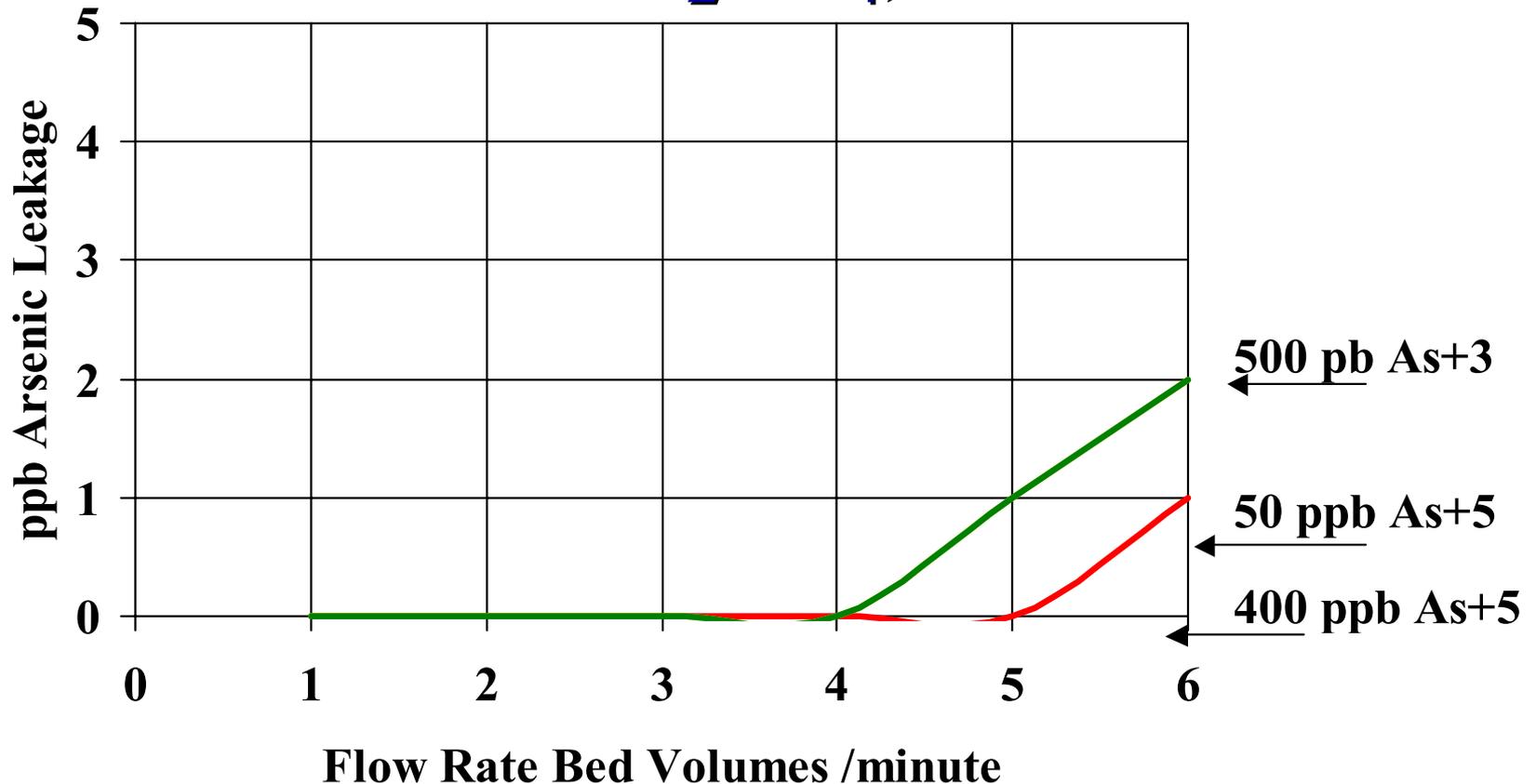
MetSorb- Silicate Interference



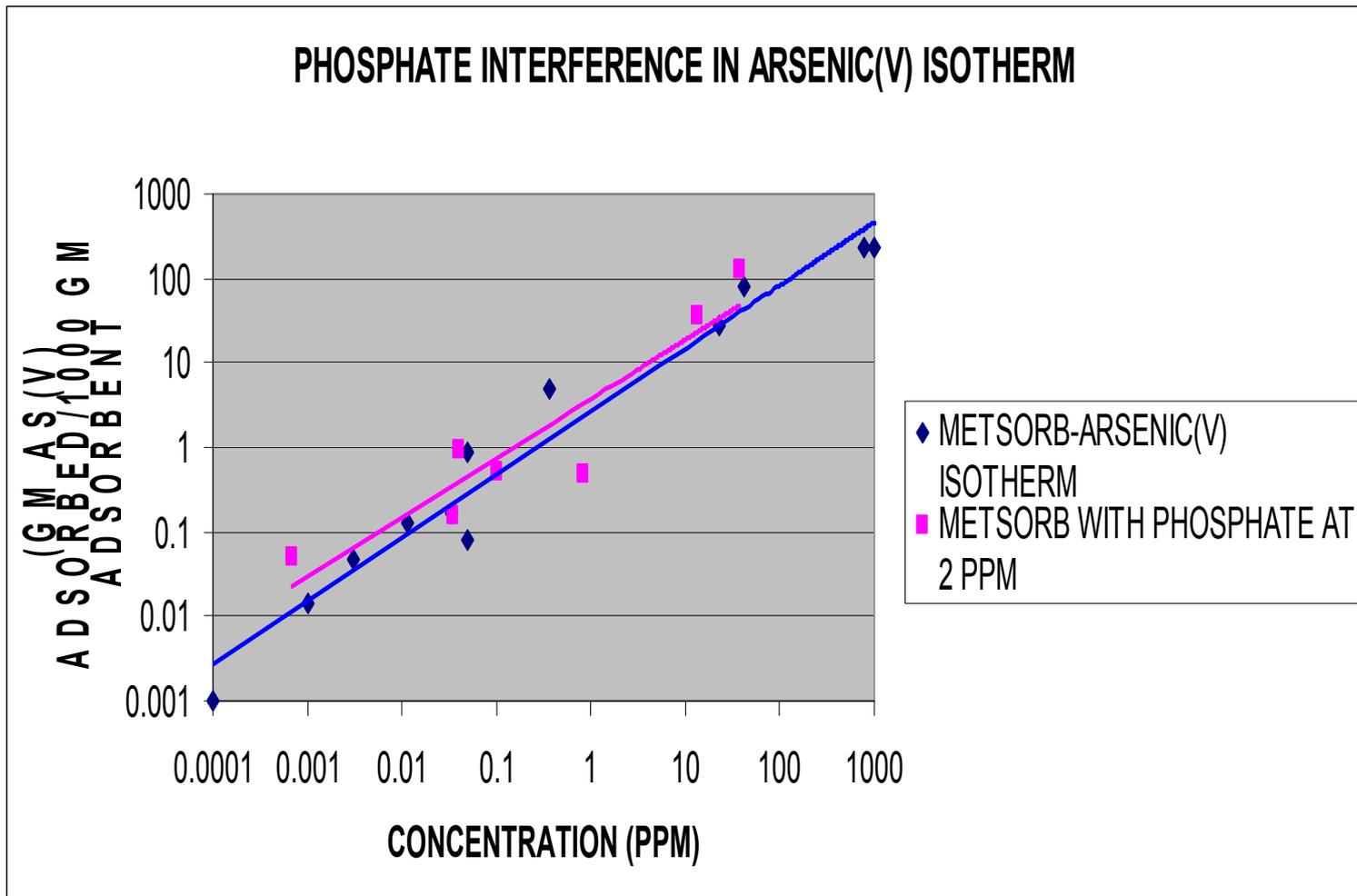
As⁺⁵ Removal by Titanium Oxide Media (100 ppm Na₂SO₄)



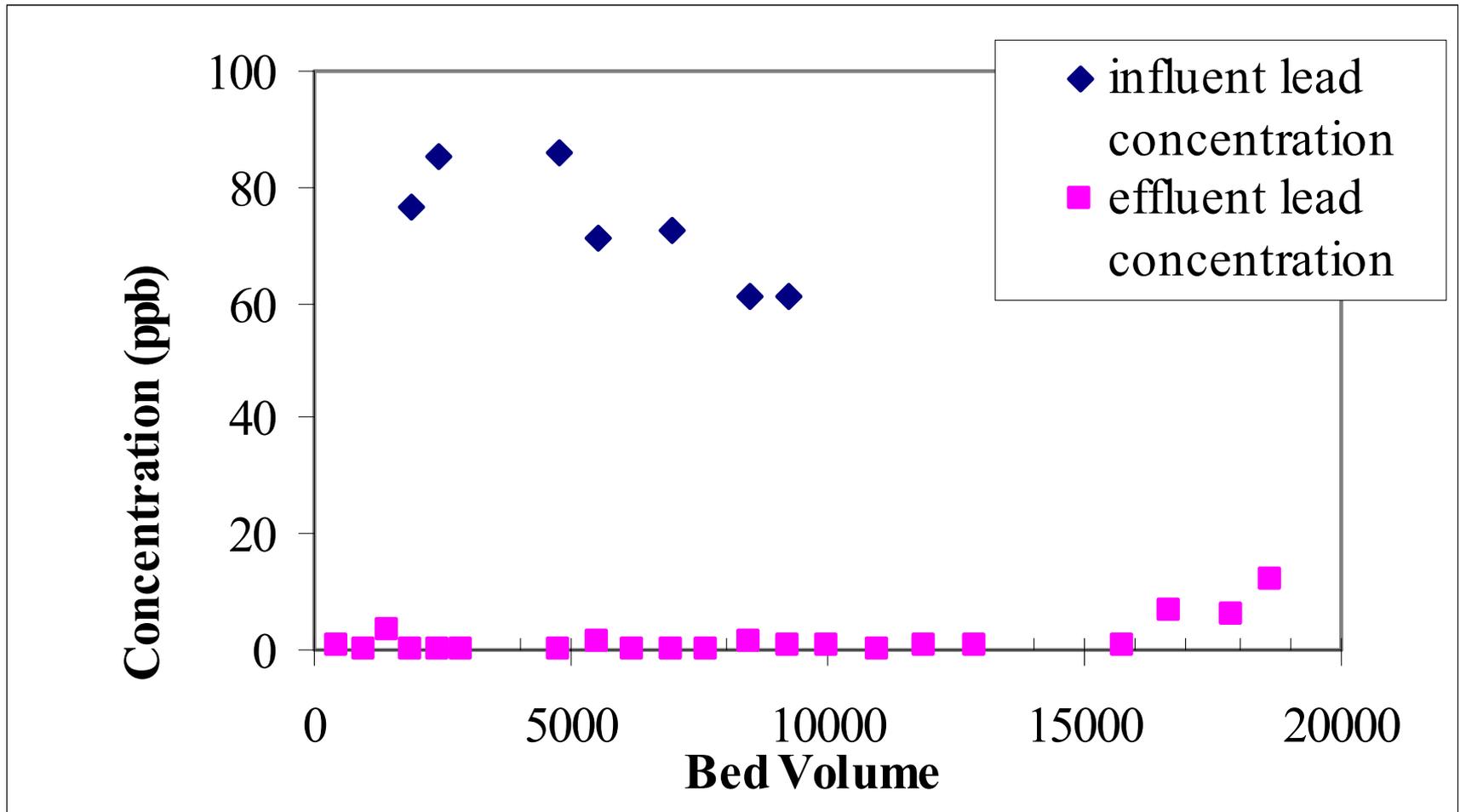
Flow Sensitivity Tests for by Titanium Oxide Media (100 ppm Na_2SO_4)



MetSorb- Phosphate Interference



MetSorb™ and Lead





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
- Markets targeted from POU to Municipal



MetSorb™ Adsorptive Capacities

Metal	Capacity- g metal/ 1,000 g MetSorb™
As (III)	230
As (V)	235
Pb	150



Water Technology for the Future

FerriMet™

ActivMet™

MetSorb™