

# Pilot - Case Study

## Loma Linda, CA - 1500 gpm

NXT-2<sup>®</sup>  
Arsenic Removal Media

### Problem:

Current iron-based media not providing expected life and bed volumes (BV)

### Process:

CDM performed an independent pilot evaluation utilizing 3 alternate medias and the current iron-based media as a benchmark to measure improvement.

### Goal:

To process 40,000 bed volumes (BV) prior to breakthrough for all the medias tested.

### Results:

NXT-2 is the only media which did not breakthrough prior to the conclusion of the pilot test. All other medias had broken through at less than 30,000 BV. NXT-2 had treated 30,425 BV at the time the pilot was taken off-line and effluent As was approximately 5ppb. It is estimated by EP Minerals that based on the trial results the NXT-2 would have reached breakthrough around 58,000 BV and exceeded the pilot goal.

### Conclusions:

NXT-2 outperformed all competitive medias by a factor of two or more due to its high capacity for arsenic adsorption (See graph on reverse). NXT-2 also provided the best resistance against arsenic spiking due to loss of pH control. Loss of pH control reduces the ability of all medias to adsorb arsenic as was seen during the trial. For example, on Feb. 18, 2008 the ArsenX<sup>NP</sup> column had an effluent arsenic value that exceeded the influent value. It was concluded that NXT-2 provided the most economic treatment with the highest degree of system safety against pH upset.

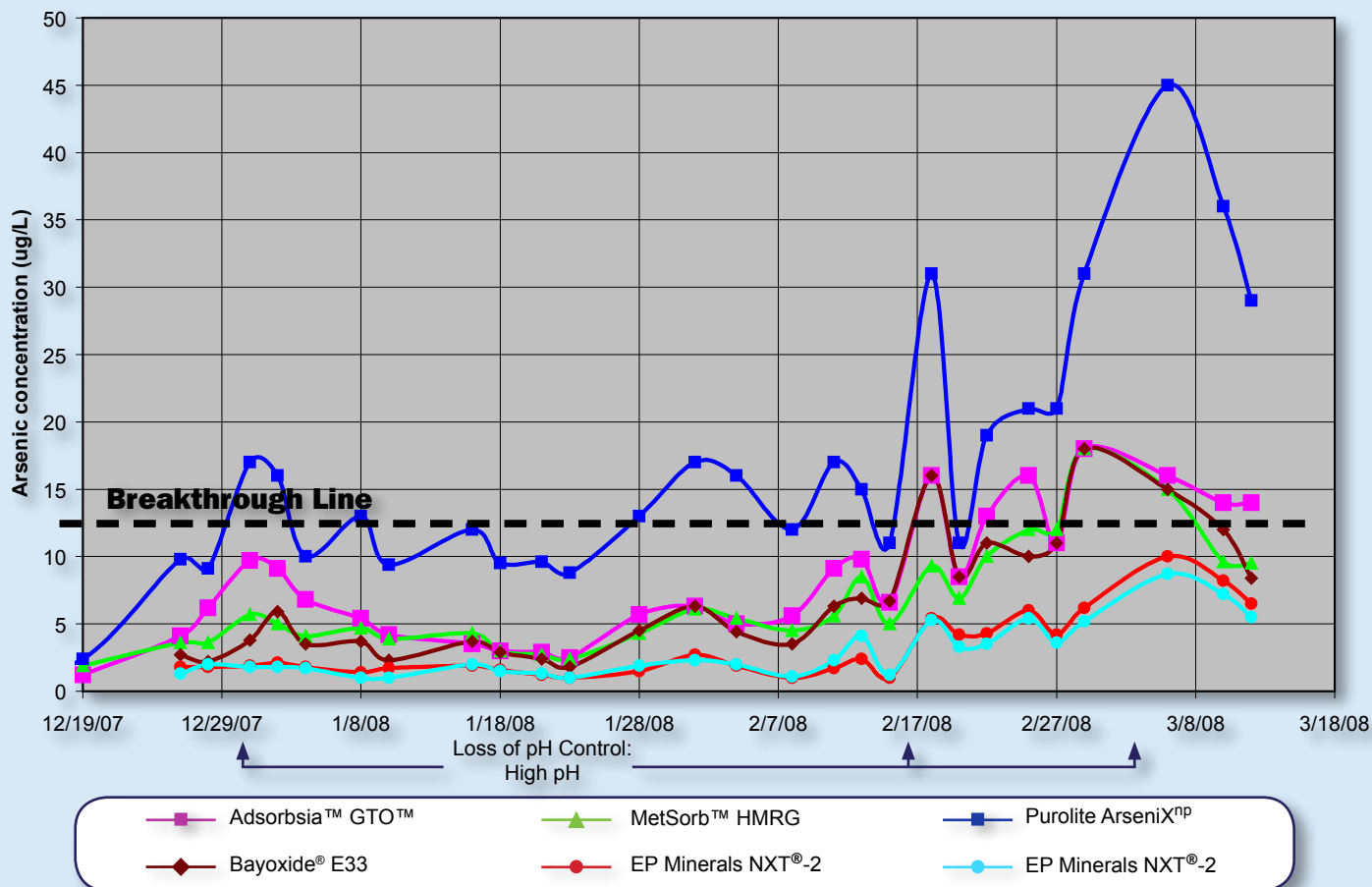
| Parameter        | Concentration (mg/l) | Parameter        | Concentration (mg/l) | Parameter | Concentration (mg/l) |
|------------------|----------------------|------------------|----------------------|-----------|----------------------|
| <b>Arsenic</b>   | <b>0.021</b>         | Silica           | 13                   | Copper    | <0.050               |
| Total Alkalinity | 100                  | TDS              | 230                  | Iron      | <0.01                |
| Bicarbonate      | 120                  | Orthophosphate   | 0.012                | Magnesium | <0.5                 |
| Carbonate        | <1.0                 | Total Phosphorus | <0.010               | Manganese | <0.005               |
| Chloride         | 5.6                  | Nitrate          | <1.0                 | Vanadium  | 0.068                |
| Fluoride         | 1.1                  | Sodium           | 65                   | Potassium | 0.63                 |
| Sulfate          | 26                   | Calcium          | 2.6                  |           |                      |

Note: Source water chlorinated and pH adjusted from 9.1 to 8.05 w/CO<sub>2</sub>

**Ep Minerals**<sup>®</sup>  
A U.S. SILICA COMPANY



## Arsenic Treatment Pilot Test



**Pilot Stand**  
**Vessels 1 - 3 @ 0.25 gpm**



**Pilot Stand**  
**Vessels 4 - 6 @ 0.25 gpm**

