RAPID ASSESSMENT OF HOUSEHOLD LEVEL ARSENIC REMOVAL TECHNOLOGIES - BANGLADESH

ADDENDUM TO FINAL REPORT

BREAK THROUGH RESULTS FOLLOWING SECOND MONTH'S TESTING

This addendum should be seen as a replacement for the results presented in Sections 3.68 to 3.74 of the Phase II Report for this project and page 10 of the Executive Summary (both DFID, March, 2001). The Phase II report presented the results from one month's testing. This addendum presents the results after the second month's testing.

Break through

After two months of constant use of the technologies, one technology had started to show signs of break through. This was the Alcan, where arsenic concentrations in treated waters were beginning to increase to above the Bangladesh Guideline Standard of 0.05 mg/L (see Figure Ad.1). None of the other technologies showed signs of breakthrough, although the DPHE/Danida 2 bucket system had failed to achieve the Bangladesh Guideline Standard throughout the test period.

Break through for the Alcan was achieved after approximately 80,000 litres of water had passed through the system. Break through enables a full cost for water from each technology to be calculated as a cost per litre of water. The Alcan is the only technology where this can now be done:

- at an initial cost of Tk. 25,000 (US$500) the cost per litre of water would be Tk. 0.31 (i.e. Tk. 1 would buy three litres of water).
- at the replacement cost of Tk. 15,000 (US$300) the cost per litre of water would be Tk. 0.19 (i.e. Tk. 1 would buy over five litres of water).

A full comparative cost analysis per litre of water supplied cannot be completed until break through has been achieved for all technologies.

Flow rates

Flow rates were largely unchanged from the first month's testing (see Table Ad.1). Most changes seen were a slight increase in flow rate. However, the Sono did show a significant decrease in flow rate over the testing period. This was due to the development of a hard pan at the top of the first kolshi. This needs frequent breaking once it has formed to maintain the flow.

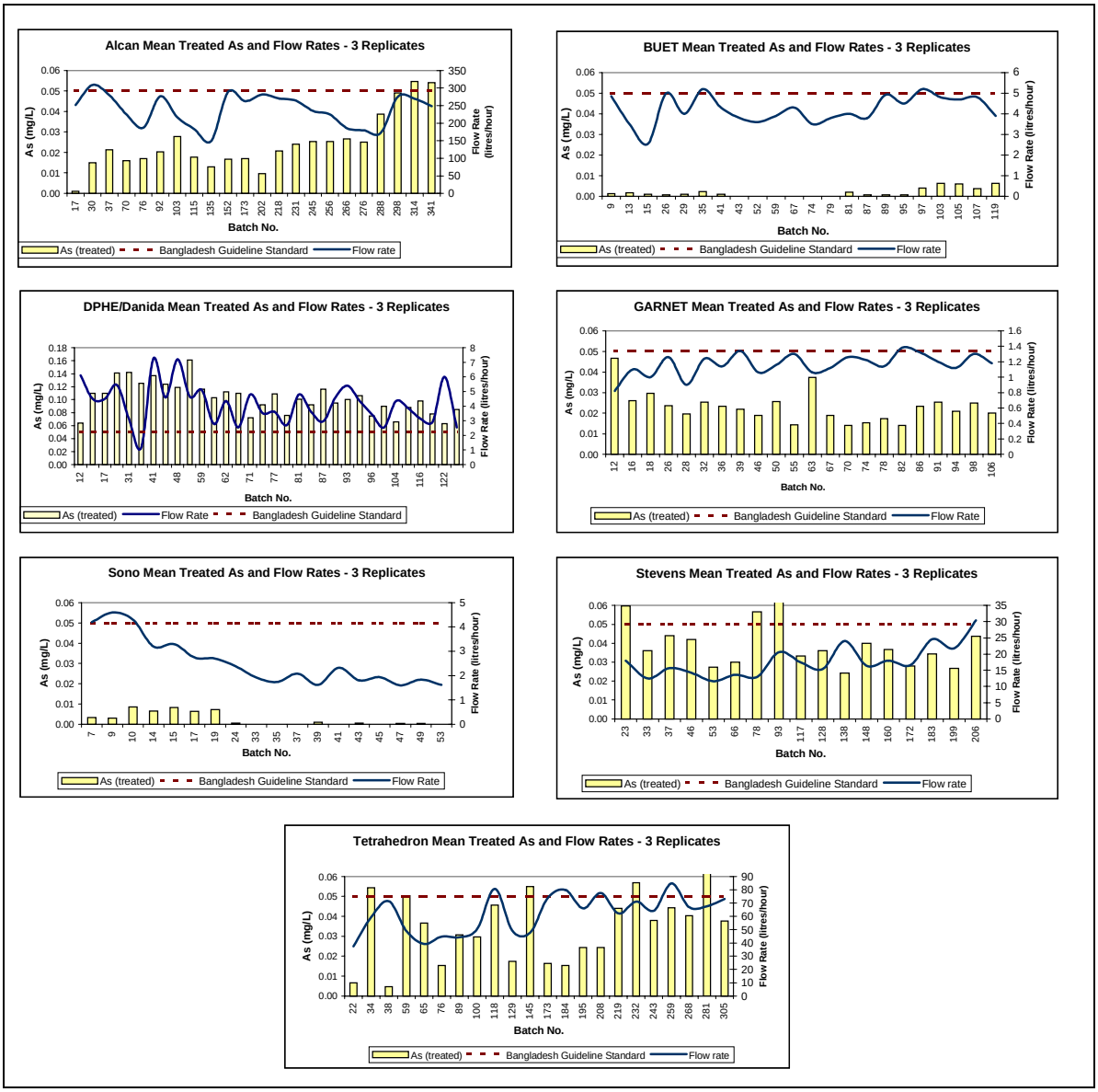

Figure Ad.1: Break Through Testing and Flow Rate Results

Table Ad.1: Flow Rates and Volumes put through Technologies during Break through Testing

Technology	Mean Flow Rate (L/hr)	Mean Volume in 12 hour period (L)	Total Volume of Water put through during Testing (L)	Mean Daily Volume put through in 60 Days Break Through Testing (L)
Alcan	244	2,928	87,500	1,458
BUET	4.3	52	1,936	32
DPHE/Danida	4.3	52	2,740	46
GARNET	1.2	14	545	9
Sono	2.8	34	1,536	26
Stevens	17.6	211	4,140	69
Tetrahedron	60	720	10,990	183