



impregnated with lead acetate solution and into an absorber tube containing SDDC dissolved in pyridine forming red complex, which is measured spectrophotometrically at wavelength of 535 nm.

4.3.2 RSM Filter with Activated Alumina Technology

A crack was visible on the cover of the upper chamber of one of the units and the valve below the iron removal candle to which the sachet of activated alumina is connected in the lower chamber was found to be broken. This must have occurred during transit from Kolkata to Nagpur. Hence, the studies were carried out using another unit which was found to be intact and in good condition. The upper chamber of the unit was filled with 10 litres of synthetic water with arsenite concentration of 131 ppb followed by 637 ppb of arsenic. The filtered water was collected at 0, 2, 4, 6 and 24 hours interval. The filtered water from the outlet was found to be milky when collected at 0 and 2 hours, which is evident from the values of turbidity as may be seen from **Table 1**. The residual arsenite concentration was found to be above the BIS as well as the WHO guideline value for arsenic in drinking water even after 24 hrs for initial arsenite concentration of 131 ppb and 637 ppb. However, concentration of iron (except in the filtered water collected at 0 hour) and sulphate were found to be within the permissible limit prescribed by the BIS. After 48 hours of run the alumina sachet was found to be blocked. Further runs were carried out using aluminium sachet from another unit. However, for initial arsenite concentration of 154 ppb, concentration of arsenic in filtered water collected at regular intervals up to 24 hrs was found to be above the permissible limit given by WHO and BIS. The sachet was back-washed for 12 hrs and after repeated runs for initial arsenic concentrations of 144ppb, 112 ppb, and 154 ppb the residual concentration of arsenite was found to be slightly reduced to 19.2 ppb, 31.3 ppb and 33.3 ppb respectively after 24 hrs.; though more than the BIS and WHO guideline value for arsenic.

A fresh activated alumina sachet was procured from the Rural Sanitary Mart through UNICEF, Kolkata for want of obtaining desired removal for arsenic using the RSM filter. The upper chamber of the unit was filled with 10 litres of synthetic water with arsenite concentrations of 125 ppb, 507 ppb, 1240 ppb, 2064 ppb followed by 3057 ppb of arsenic. The filtered water was collected at 0, 2, 4 and 24 hours interval. The

