

Abstract - The Parker Virus Study

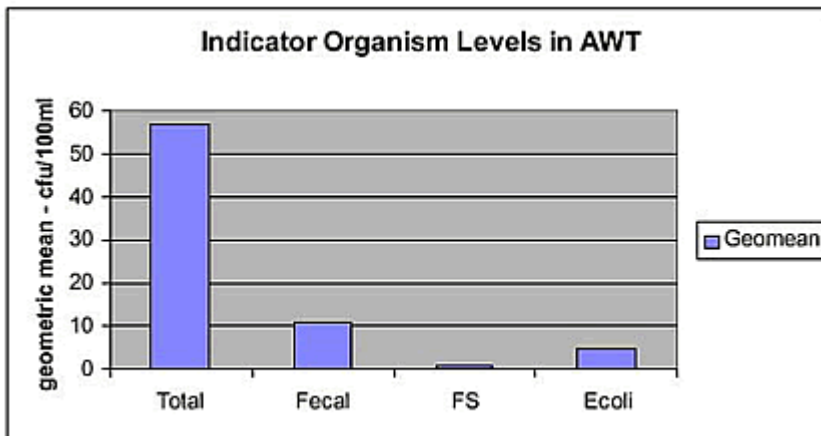
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Study Sponsor: Parker Water and Sanitation District

The Parker Water and Sanitation District operates an advanced wastewater treatment facility (AWT) that discharges AWT effluent to Cherry Creek. Treatment includes biological nutrient removal (BNR), followed by chemical addition, adsorption clarifiers, mixed media filtration, and UV disinfection. The primary purpose of the chemical addition (alum and polymer) and filtration is to reduce total phosphorous to below 100 µg/L (Micrograms per liter) to protect water quality and recreational uses in Cherry Creek Reservoir.

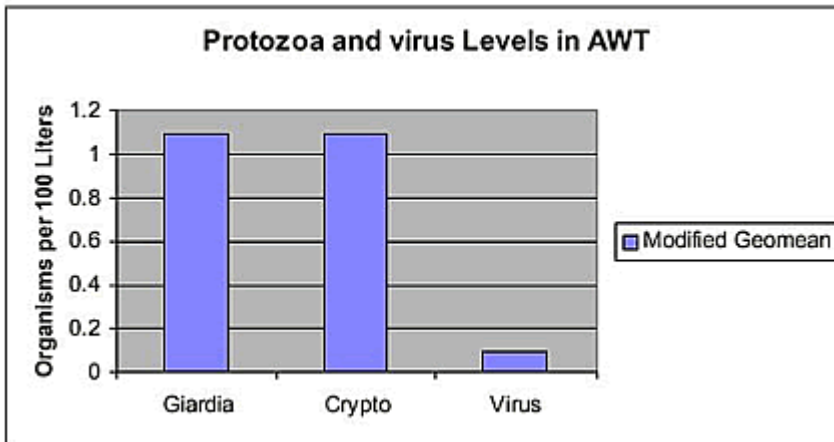
The Parker Virus Project was a twelve-month study of four bacterial indicator organisms, enteric viruses, two protozoans, Giardia and Cryptosporidium at two sites on Cherry Creek and from the AWT facility. Samples were taken at approximately one-month intervals over a twelve-month period to provide medium to long-term information on AWT performance and to characterize Cherry Creek microbial levels over a wide range of temperature regimes and flow conditions. The virus and protozoan testing was performed using the ICR (Information Collection Rule) methodology from the drinking water program.

Results:

The AWT process consistently achieved low levels of all indicator organisms.

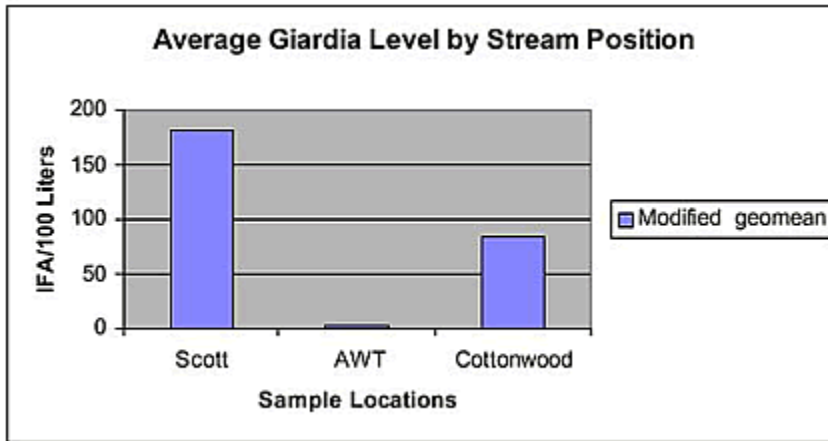


For comparison, the AWT fecal coliform value, 11 cfu/100ml, and the E. coli value, 5 cfu/100ml are much lower than the Colorado Stream Standards for Primary contact Recreation of 200 cfu/100ml for fecal coliform and 137 cfu/100ml for e. coli.

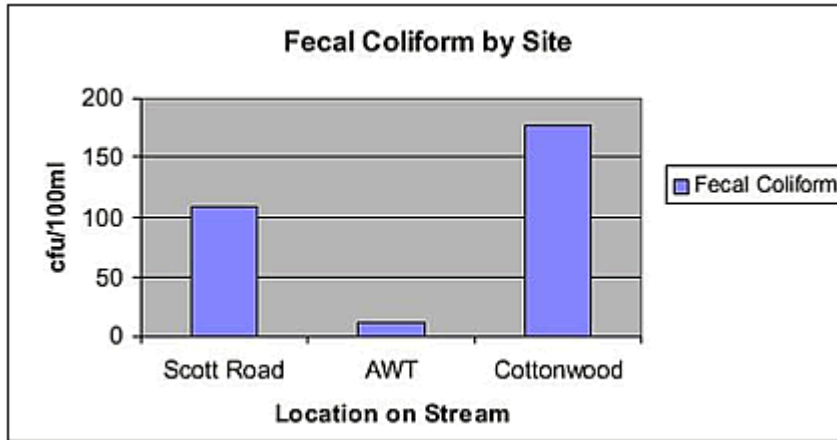


No Giardia or Cyptosporidium organisms were detected in the AWT. The actual values are less than the 1.2 cfu/100L indicated. Viruses were detected in 1 out of 12 samples. In that sample, 1 virus was detected in 260 gallons of water.

The AWT process consistently achieved substantially lower levels of all organisms studied than either of the sample locations on Cherry Creek. (Scott Road and Cottonwood Road)



Scott Road is the upstream sample point. No Giardia organisms were recovered during the study in the AWT samples. The detection limit was 1 – 5 organisms per 100 liters (26 gallons)



The Colorado stream standard for Primary Contact Recreation (including swimming) is 200 cfu/100ml. The AWT is 10 – 15 times lower than the Cherry Creek samples, but the samples from Cherry Creek still met stream standards.

The full text of the executive summary of the virus study has a great deal more information on the details of the study and available soon on the web site.