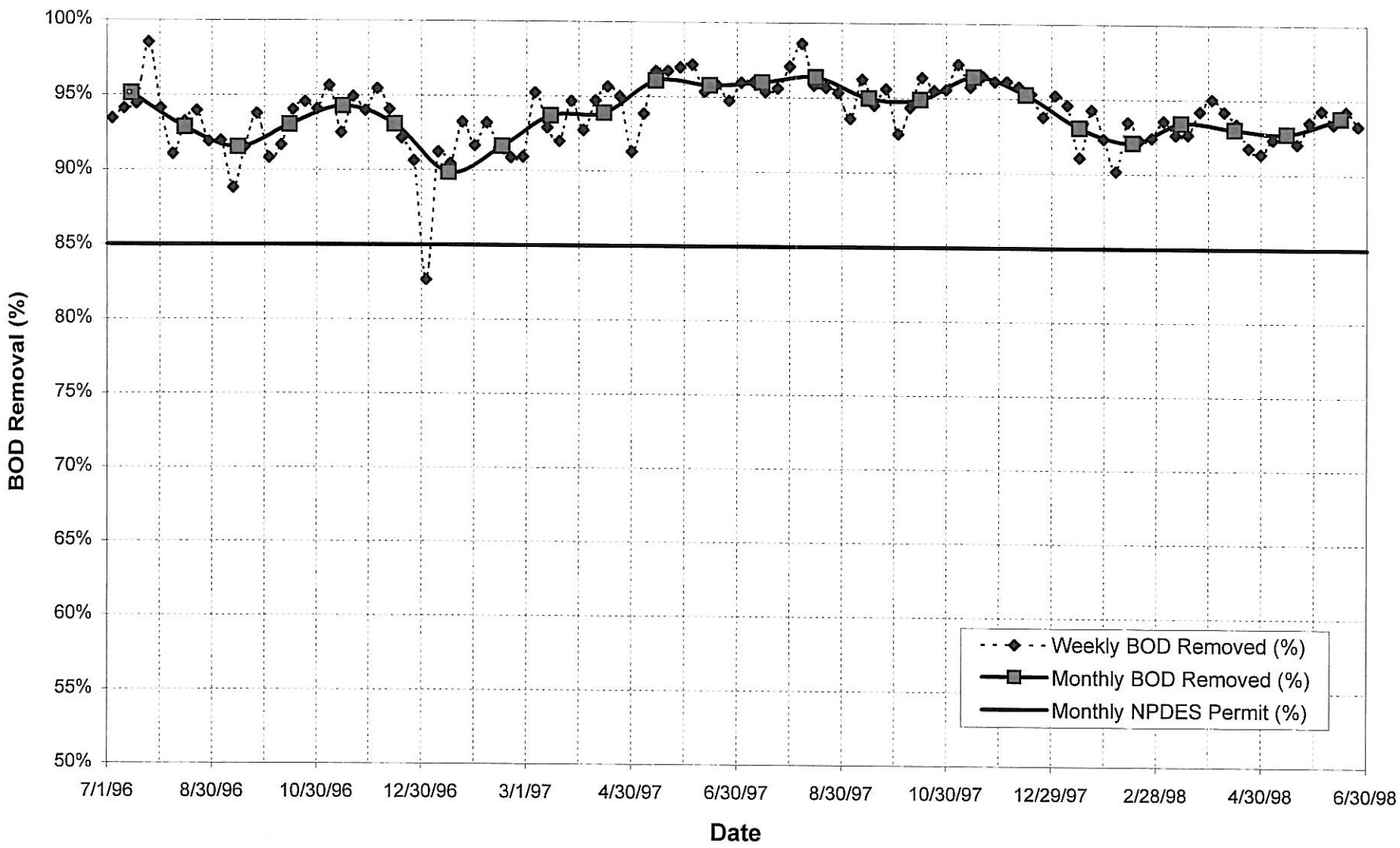

Figure IV-17. BOD Removal Efficiency (%) vs. Time.

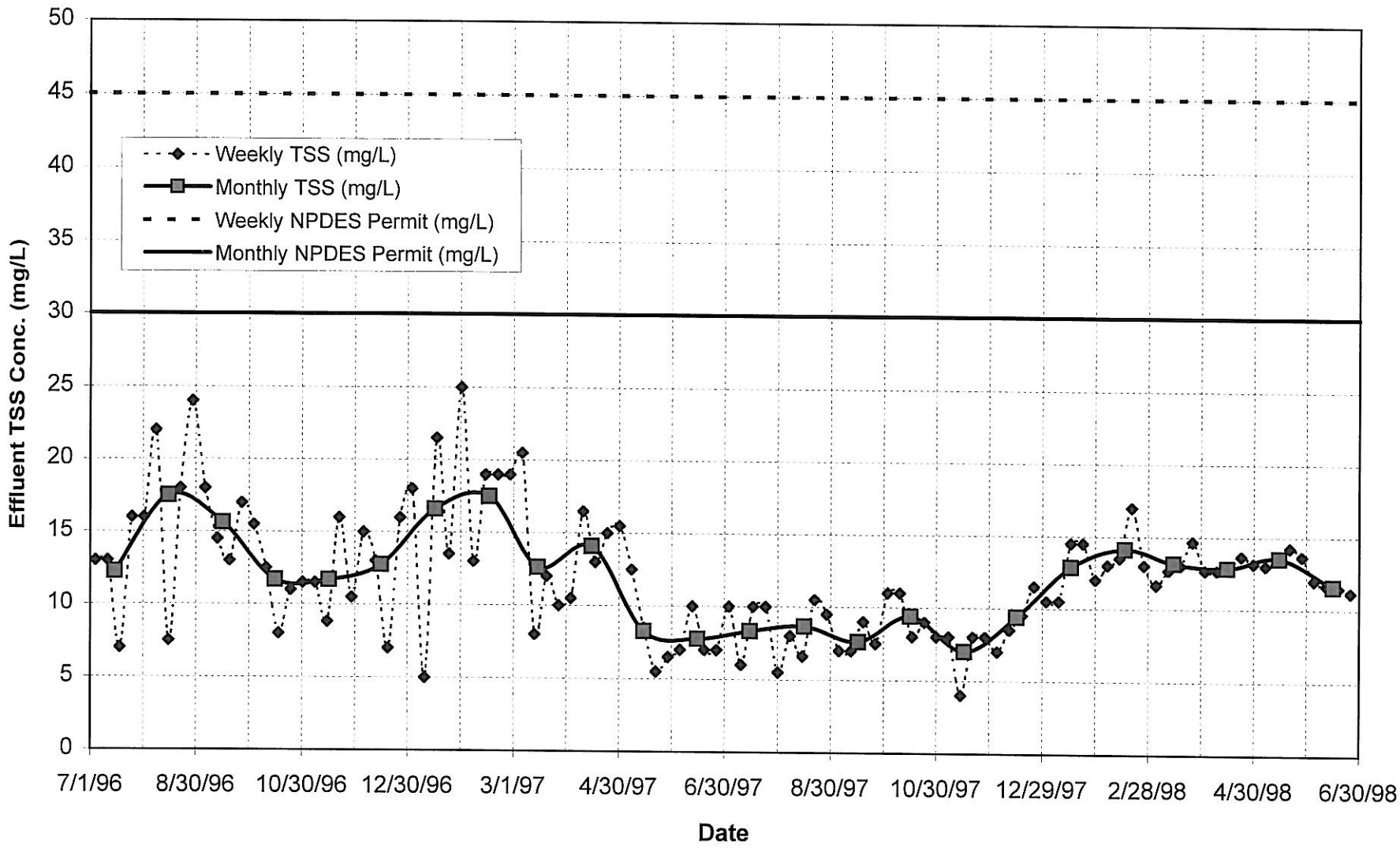

Figure IV-18. Effluent TSS Concentration (mg/L) vs. Time.

Figure IV-19: Effluent TSS discharged (lbs/day) vs. time shows that the WWTP consistently met the NPDES Permit limits.

Figure IV-20: TSS removal efficiency (%) vs. time shows that TSS removal has consistently met secondary treatment standards (NPDES Permit limit of 85%). There is a sharp decrease in removal efficiency in November, 1996. This decrease is attributed to first flush rains which resulted in flooding conditions in December, 1996 through March, 1997.

Figure IV-21: Effluent pH vs. time shows that pH consistently meets the NPDES criteria of being between 6 and 9. pH appears to stay relatively stable throughout the year.

Figure IV-22: Effluent chlorine concentration (mg/L) vs. time shows a relatively high chlorine residual concentration is maintained in WWTP effluent. Water quality analysis based upon mixing zones show that there is not sufficient dilution in the receiving water to prevent violations in Lewis River water quality with these high chlorine concentrations during existing plant flow conditions. If the SBC alternative is selected to provide future treatment, then a pilot study for using ultraviolet (UV) disinfection unit with the existing WWTP should be implemented to evaluate the effectiveness of UV disinfection with Woodland's RBC/SBC biological treatment units. Adding UV disinfection will enable the WWTP to meet chlorine water quality criteria by providing zero chlorine residual discharge. Should the pilot study show negative results, a dechlorination system should be installed (see Section III for water quality discussion and Section VI for costs). If the SBR alternative is selected to provide future treatment, then a pilot study is not required.

Figure IV-23: Effluent fecal coliform concentrations (#/100 mL) vs. time shows the monthly and weekly geomeans of fecal coliform during the period of record. Based on this graph, there were no NPDES Permit violations for the period of record. In general, it appears that fecal coliforms have an inverse relationship with chlorine residual, as would be expected. Based on this last figure, the high levels of chlorine are necessary to maintain low fecal coliform concentrations in the effluent.

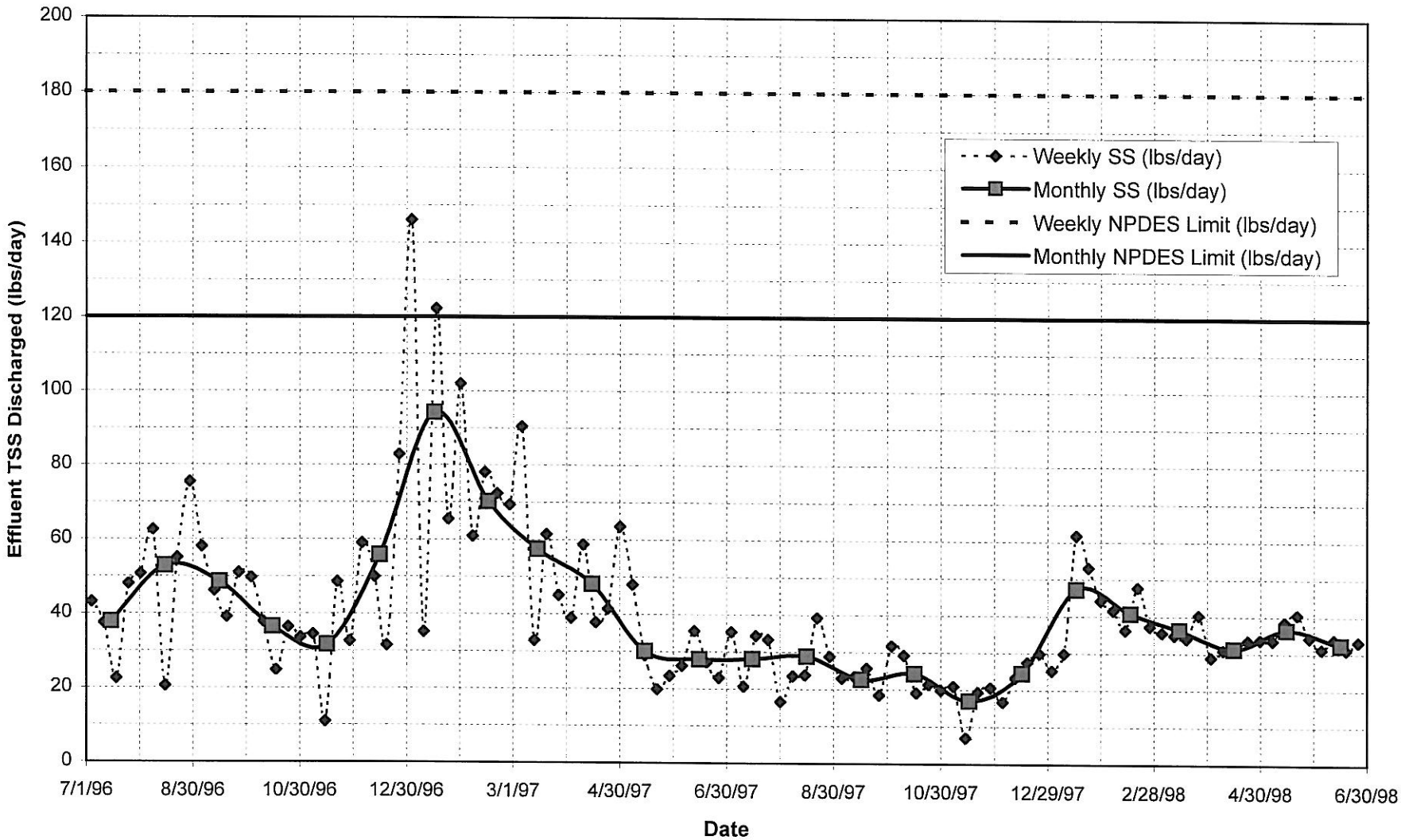

Figure IV-19. Effluent TSS Discharged (lbs/day) vs. Time.

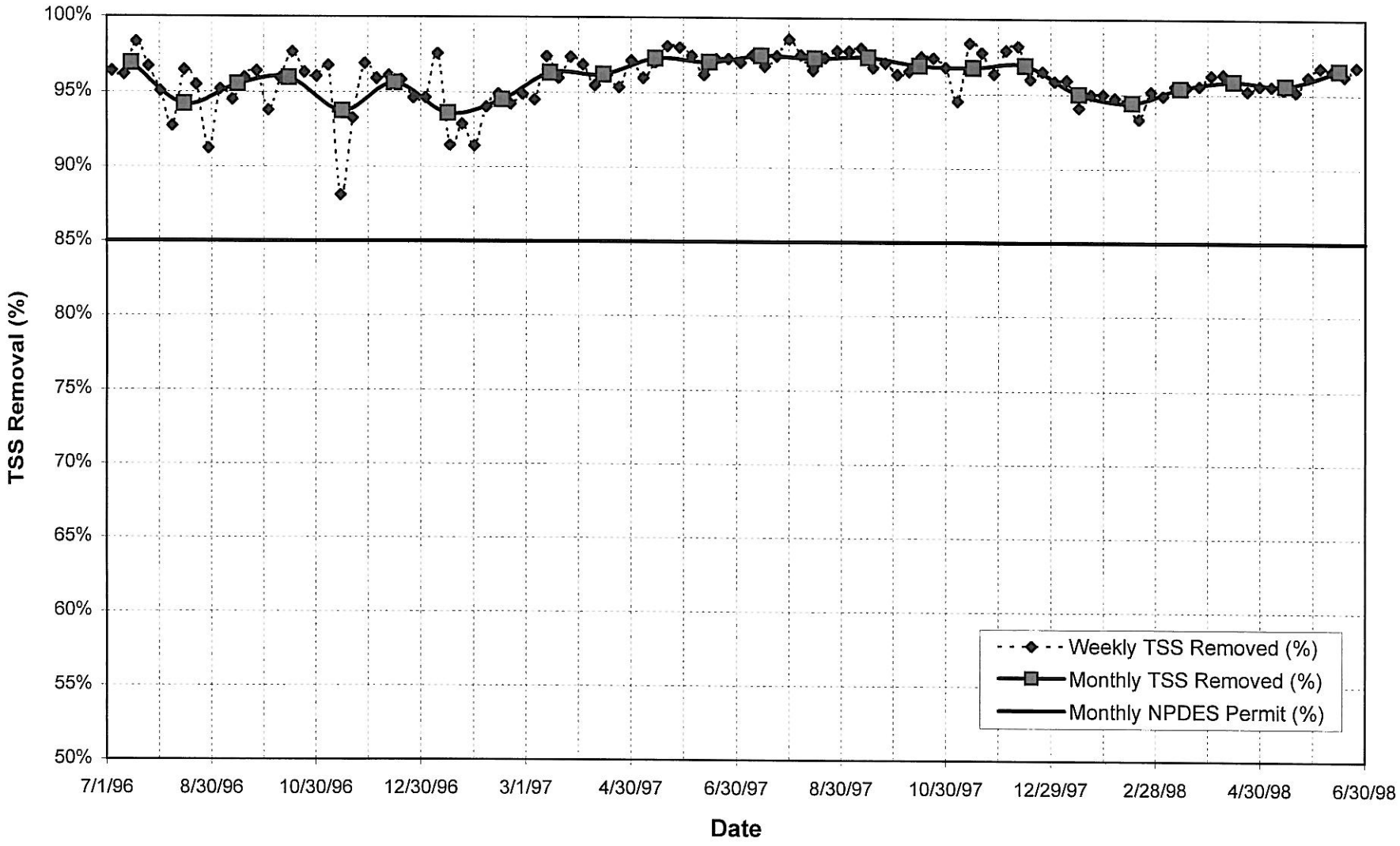

Figure IV-20. TSS Removal Efficiency (%) vs. Time.

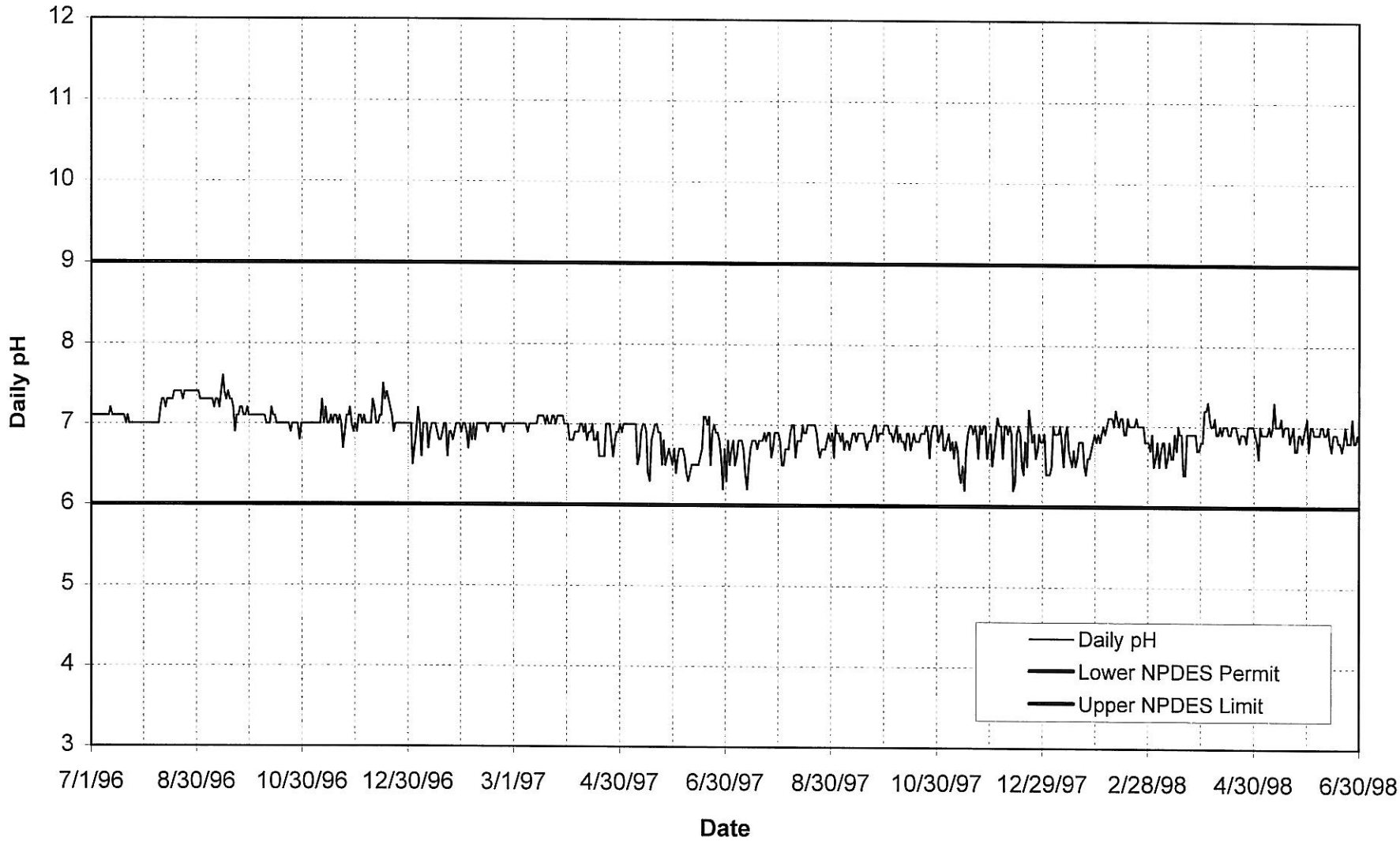

Figure IV-21. Effluent pH vs. Time.

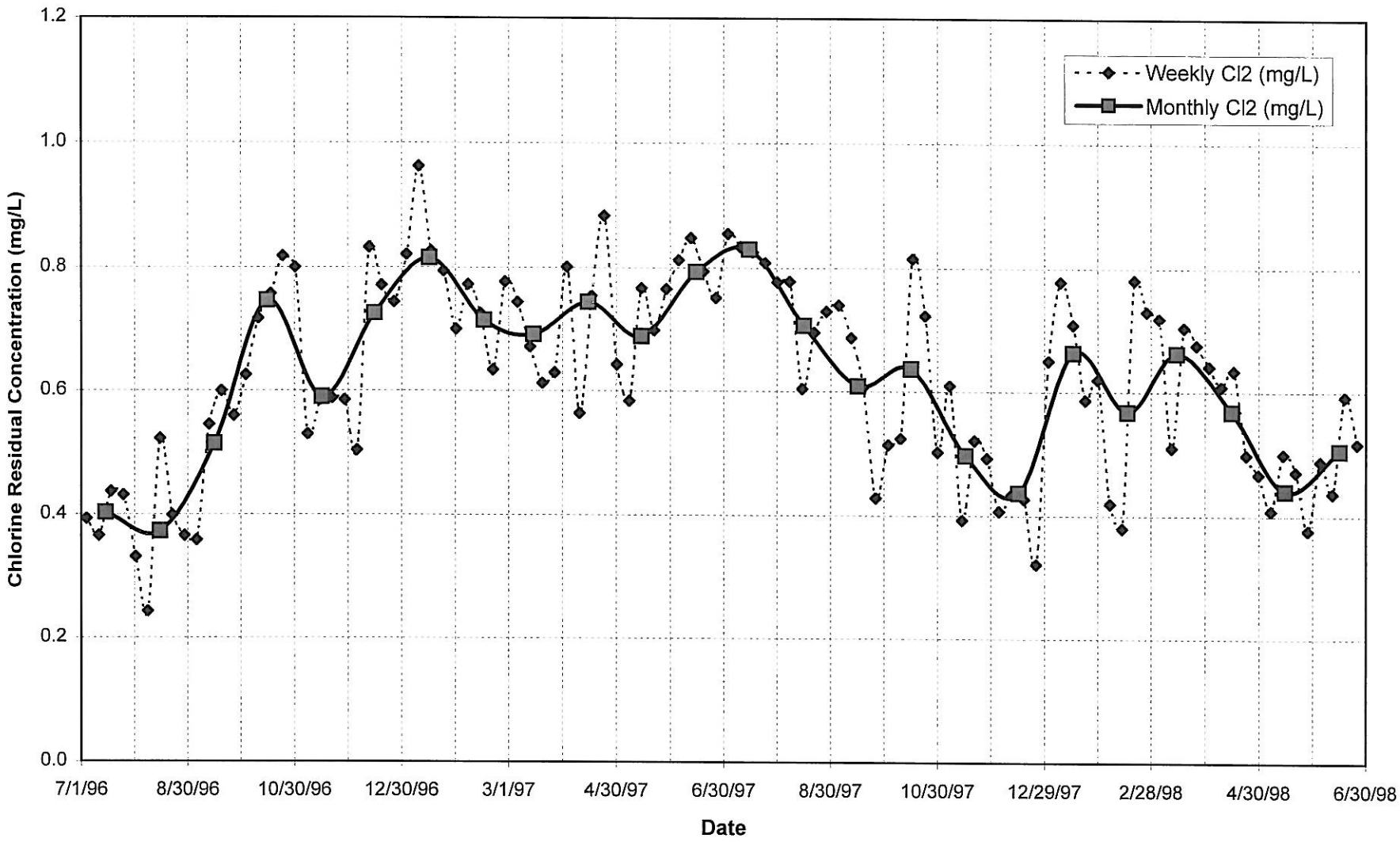

Figure IV-22. Effluent Chlorine Residual Concentration (mg/L) vs. Time.

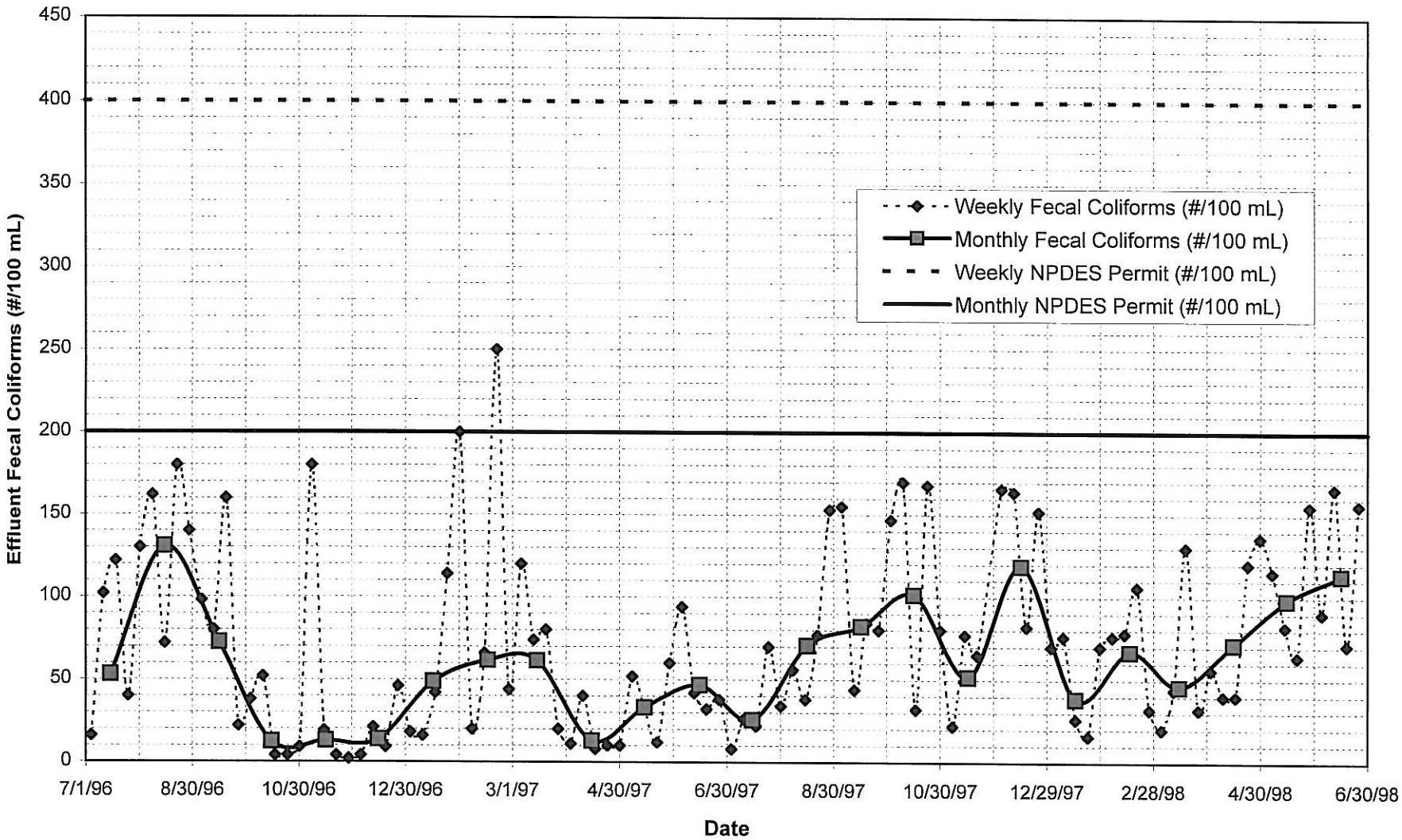

Figure IV-23. Effluent Fecal Coliform Concentration (#/100 mL) vs. Time.