APPENDIX C-5
SUMMARY OF NONRADIOLOGICAL MONITORING

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Nonradiological emissions and plant effluents are controlled and permitted under New York State and U.S. EPA regulations. Airborne emissions arise from ten sources, all of which are permitted by the New York State Department of Environmental Conservation. These release points include two natural gas-fired boilers, two nitric acid tank vents, an office paper waste incinerator, a glass-melter off-gas system and a cement storage silo vent. The melter off-gas system is currently being tested and operated under a permit to construct. These permits are identified and described in Table C-5.1. Although there are periodic New York State inspections of the air emission points, routine sampling and analysis of nonradiological emissions from these points are not required. Discharges from these points are well below the levels requiring monitoring under the state permit system.

Liquid discharges are regulated under the State Pollution Discharge Elimination System (SPDES). The outfalls and monitoring requirements for the permit are presented in Table C-5.2. The locations of the monitoring points are shown in Figure C-5.1.

The results of the SPDES nonradiological monitoring are presented in Figures C-5.2 through C-5.31. These data indicate that, overall, project effluents were within permit limits during 1988. However, the WVDP reported a total of 24 noncompliance episodes. These are summarized in Table C-5.3 and are described in the following paragraphs.

Outfall 007, the mixing basin for sanitary and utility waste waters, experienced 14 noncompliance episodes. Of the 14 excursions, 12 were for pH and two for solids (one suspended and one settleable). The pH excursions were all, without exception, the result of several waste streams that had not been neutralized before entering the equalization basin. Once this situation was confirmed, an acid addition system was placed in line to automatically control the pH of the combined waste streams. The acid addition system coupled with the planned addition of a constant pH monitor, planned for installation in 1989, will eliminate the pH excursions at this outfall.

The remaining two excursions at outfall 007 were for solids. These excursions were caused by an upset in the Sewage Treatment Plant (STP) during which excess solids were discharged from the STP clarifier into the STP effluent stream. The excess sludge was subsequently pumped out and sent off site for disposal.

Throughout the year a substantial amount of time and effort was put into the equalization basin system. The system itself was updated, including draining the basin and cleaning the liner of sludge, placing the bottom drain into service as originally intended, and installing an aeration pump in the basin. Personnel training was improved by qualifying STP operators according to NYSDEC guidance.

Outfall 001, the batch discharge from the LLWTF, experienced only two excursions. The first was for pH and occurred during the initial hours of a batch discharge. When a prequalification analysis indicated that the effluent was within permit limits, the discharge was started. However, a sample collected several hours later indicated pH was beyond the allowable range. The discharge was terminated, the pH was adjusted, and the discharge was restarted and completed without further incident.

The second excursion at outfall 001 was for total suspended solids which exceeded the permit limit for daily average but did not exceed the daily maximum. The cause of this excursion was a resuspension of sediments in

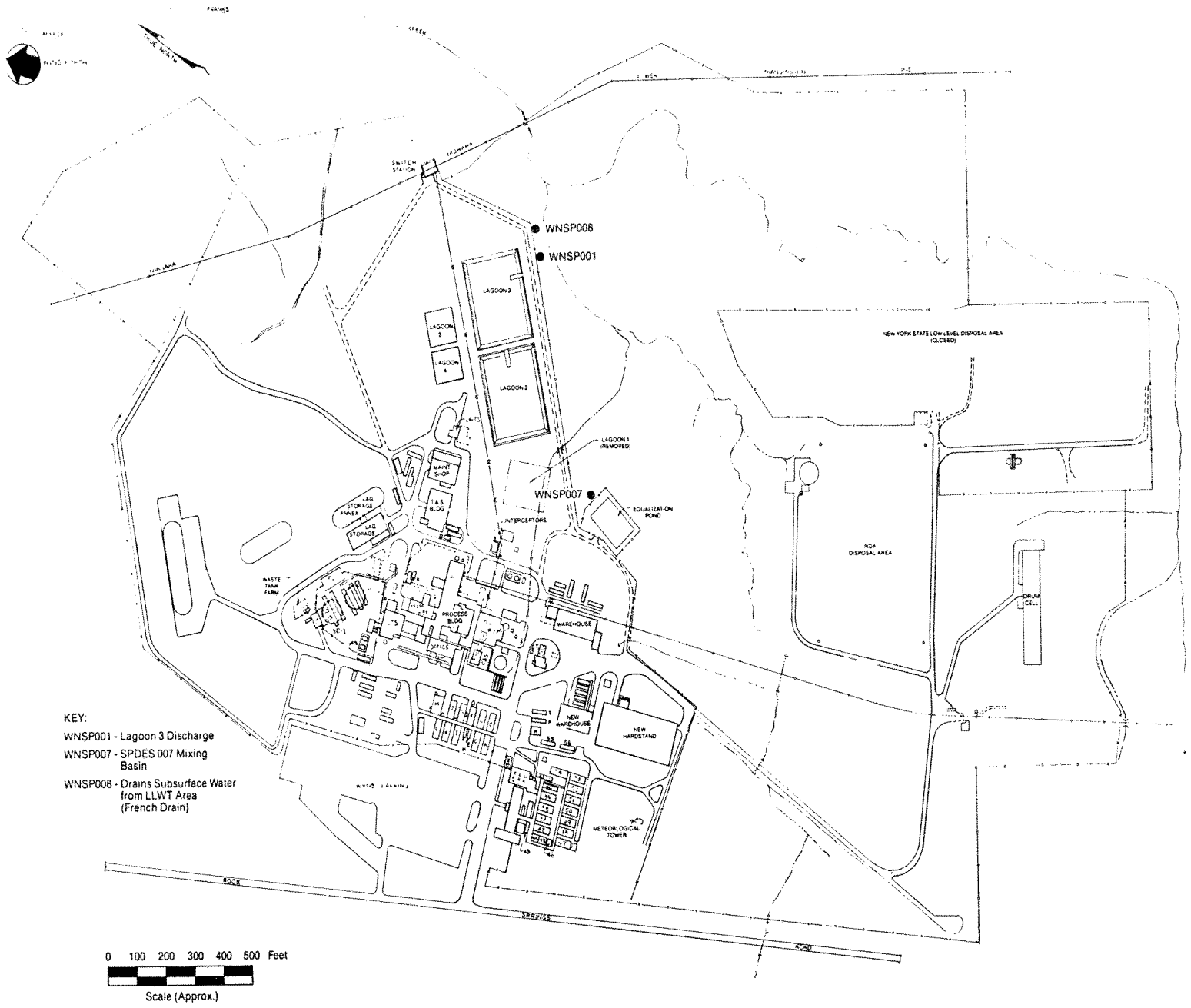

Figure C-5.1. Location of SPDES Monitoring Points.

the lagoon water from the sparging action used to maintain pH limits.

The remaining eight noncompliance episodes were for the sum totals of outfalls 001, 007, and 008, which is effluent from the french drain on the perimeter of the low-level waste treatment facility storage lagoons. Six of the excursions were for total iron. The calculated iron concentration exceeded the daily maximum of 0.31 mg/L allowed in the permit. These excursions can be attributed to the natural variability of iron in the Project's raw water supply, which is used as a background iron concentration and subsequently subtracted from the Project's effluents.

The remaining two excursions were for BOD-5 that exceeded the permit limit of 5.0 mg/L. Both incidents were a result of the proliferation of algae in the equalization basin (outfall 007). The problem was identified and an SOP was developed to control the time effluent remains in the basin, thereby reducing the time and opportunity for an algae bloom to flourish.

These noncompliance episodes are summarized in Table C-5.3. The environmental impacts associated with these episodes are negligible because of their general small magnitude, short duration, and the naural dilution between the discharge point and Cattaraugus Creek (the nearest point of public access).

TABLE C-5.1
WEST VALLEY DEMONSTRATION PROJECT ENVIRONMENTAL PERMITS

Permit #	Issued by	Expiration Date	Type of Permit
042200-0114-00002 WC	NYSDEC	6/89	Certificate to operate air contamination source -boiler
042200-0114-00003 WC	NYSDEC	6/89	Certificate to operate air contamination source -boiler
042200-0114-00004 WR	NYSDEC	6/89	Certificate to operate air contamination source -in-cinerator**
042200-0114-00010 WI	NYSDEC	6/89	Certificate to operate air contamination source Low Level Waste Treatment Facility Nitric Acid Storage Tank
042200-0114-014D1 WI	NYSDEC	6/89	Certificate to operate air contamination source Nitric Acid Bulk Storage Tank
042200-0114-CSS01	NYSDEC	6/89	Certificate to Operate Cement Storage Silo Ventilation System
042200-0114-015F-1	NYSDEC	6/86*	Permit to Construct Vitrification Off-Gas System
042200-0114-CTS01	NYSDEC	3/90	Permit to construct CTS cold chemical makeup system***
042200-0114-CTS02	NYSDEC	3/90	Permit to construct CTS cold chemical makeup system***
042200-01140-CTS03	NYSDEC	3/90	Permit to construct CTS cold chemical makeup system***
NY-0000973	NYSDEC	9/90	State Pollution Discharge Elimination System (SPDES permit)
WVDP-187-01	EPA		Certificate to Operate Radioactive Air Source - Building 01-14 Ventilation System****

TABLE C-5.1
WEST VALLEY DEMONSTRATION PROJECT ENVIRONMENTAL PERMITS (CONTINUED)

Permit #	Issued by	Expiration Date	Type of Permit
WVDP-287-01	EPA		Certification to Operate Radioactive Air Source - Contact Size Reduction & Decontamination Facility****
WVDP-387-01	EPA		Certification to Operate Radioactive Air Source– Supernatant Treatment Ventilation System****
WVDP-487-01	EPA		Certificate to Operate Radioactive Air Source– Low-Level Waste Supercompactor Ventilation System***
WVDP-587	EPA		Certificate to Operate Radioactive Air Source - Outdoor Ventilation-Exhaust****
WVDP-687-01	EPA		Certificate to Operate Radioactive Air Source - Liquid Waste Treatment System (modification of Process Building Ventilation System)****
*****	EPA	N/A	Permit to construct or modify sources of atmospheric emissions of radionuclides - Analytical Chemistry Laboratories (modification of Process Building Ventilation System)

* Permit to construct is extended annually with submittal of status report.
**Currently nonradioactive waste is removed to a commercial landfill and not incinerated.
***Permits were not obtained until March 1989.
****National Emission Standard for Hazardous Air Pollutants (NESHAP) temporary permits are valid until the final permits are issued.
*****Pending EPA approval - Request for approval to construct or modify was submitted to the EPA on February 26, 1989.

TABLE C-5.2
WEST VALLEY DEMONSTRATION PROJECT SPDES SAMPLING PROGRAM
Effective September 1, 1985

Outfall	Parameter	Limit	Sample Frequency
001 (Process and Storm waste waters)	Flow	Monitor	2 per discharge event
	Aluminum, Total	14.0 mg/L	2 per discharge event
	Ammonia (as NH_3)	*	2 per discharge event
	Arsenic, Dissolved	0.15 mg/L	2 per discharge event
	BOD-5	**	2 per discharge event
	Iron, Total	**	2 per discharge event
	Zinc, Total Recoverable (Rec.)	0.48 mg/L	2 per discharge event
	Solids, Suspended	45.0 mg/L	2 per discharge event
	Cyanide, Amenable to Chlor.	0.022 mg/L	2 per discharge event
	Solids, Settleable	0.30 mL/L	2 per discharge event
	pH (Range)	6.0 - 9.0	2 per discharge event
	Oil & Grease	15.0 mg/L	2 per discharge event
	Sulfate***	Monitor	2 per discharge event
	Nitrate***	Monitor	2 per discharge event
	Nitrite***	Monitor	2 per discharge event
	Chromium (Hexavalent) Total Rec.***	0.016 mg/L	2 per discharge event
	Cadmium, Total Rec.***	0.007 mg/L	2 per discharge event
	Copper, Total Rec.***	0.03 mg/L	2 per discharge event
	Lead, Total Rec.***	0.15 mg/L	2 per discharge event
	Chromium, Total	0.050 mg/L	annual
	Nickel, Total	0.080 mg/L	annual
	Selenium, Total	0.040 mg/L	annual
	Barium***	0.5 mg/L	annual
	Antimony***	1.0 mg/L	annual
	Chloroform***	0.3 mg/L	annual
007 (Sanitary and Utility waste water)	Flow	Monitor	3 per month
	Ammonia (as NH_3)	*	3 per month
	BOD-5	**	3 per month
	Iron, Total	**	3 per month
	Suspended Solids	45.0 mg/L	2 per month
	Settleable Solids	0.3 mL/L	Weekly
	pH (Range)	6.0 - 9.0	Weekly
	Chloroform	0.020 mg/L	annual
008 (French Drain waste water)	Flow	Monitor	3 per month
	BOD-5	**	3 per month
	Iron	**	3 per month
	pH (Range)	6.0 - 9.0	3 per month
	Silver,Total	0.008 mg/L	annual
	Zinc, Total	0.100 mg/L	annual

* Reported as flow weighted average of Outfalls 001 and 007.
** Reported as flow weighted average of Outfalls 001, 007 and 008. Iron data are net limits reported after background concentrations are subtracted.
*** Parameters added in SPDES permit modification May 20, 1988.

Table C-5.3
WEST VALLEY DEMONSTRATION PROJECT 1988 SPDES NON-COMPLIANCE EPISODES

Date	Outfall	Parameter	Limit	Value	Comments
Feb 88	007	pH	6.0 - 9.0	9.89	
Mar 88	001	pH	6.0 - 9.0	5.62	
Mar 88	007	pH	6.0 - 9.0	min. 2.51 max. 11.30	seven occasions reported
Apr 88	Sum 001, 007 & 008	Fe	0.31 mg/L daily max.	0.76 mg/L	
Apr 88	007	pH	6.0 - 9.0	2.87	two occasions reported
May 88	007	pH	6.0 - 9.0	9.39	
Jul 88	Sum 001, 007 & 008	BOD-5	5.0 mg/L daily average	5.41 mg/L	
Jul 88	Sum 001, 007 & 008	Fe	0.31 mg/L daily max.	0.38 mg/L	
Sep 88	Sum 001, 007 & 008	BOD-5	5.0 mg/L daily average	5.80 mg/L	
Sep 88	Sum 001, 007 & 008	Fe	0.31 mg/L daily max.	0.40 mg/L	
Oct 88	001	Total Suspended Solids	30.0 mg/L avg. 45.0 mg/L max.	36.16 mg/L	
Oct 88	Sum 001, 007 & 008	Fe	0.31 mg/L daily max.	0.78 mg/L	
Oct 88	007	pH	6.0 - 9.0	3.98	
Oct 88	007	Total Suspended Solids	30.0 mg/L avg. 45.0 mg/L max.	55.08 mg/L	
Oct 88	007	Settleable Solids	0.3 ml/L	1.5 ml/L	
Nov 88	Sum 001, 007 & 008	Fe	0.31 mg/L daily max.	0.74 mg/L	two occasions reported

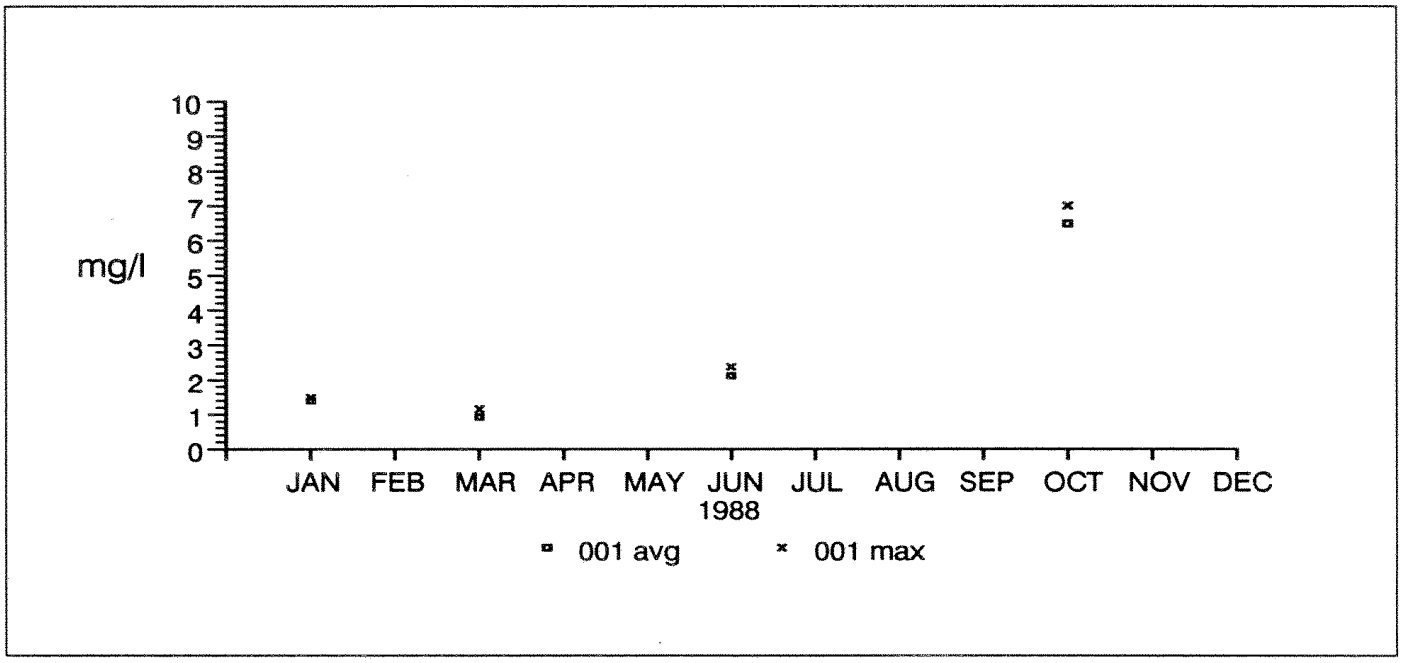

Figure C-5.2 BOD-5, Outfall 001.

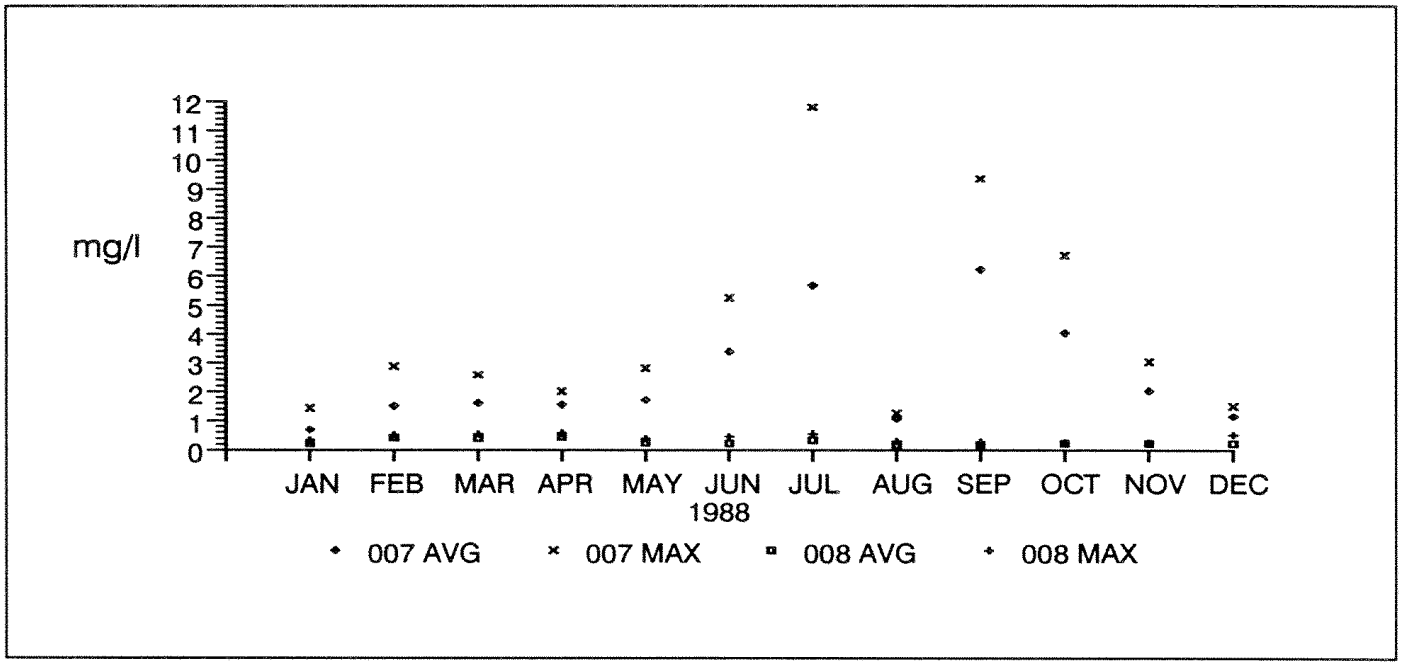

Figure C-5.3 BOD-5, Outfalls 007 and 008.

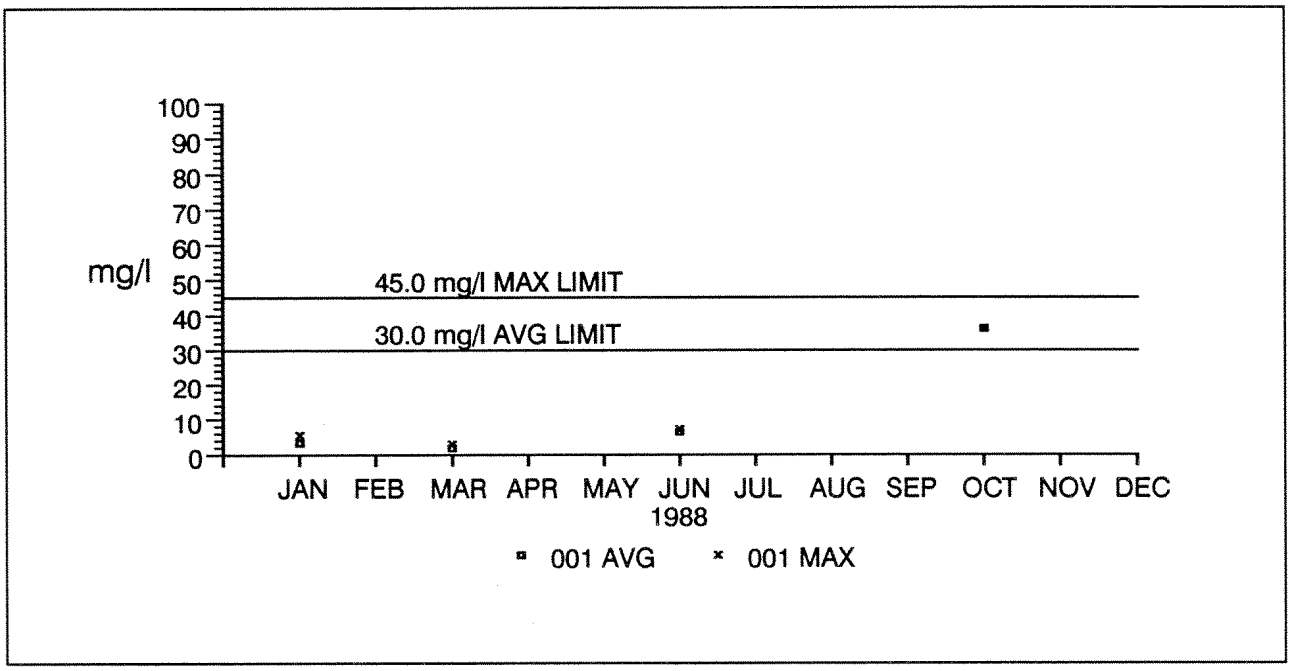

Figure C-5.4 Suspended Solids, Outfall 001.

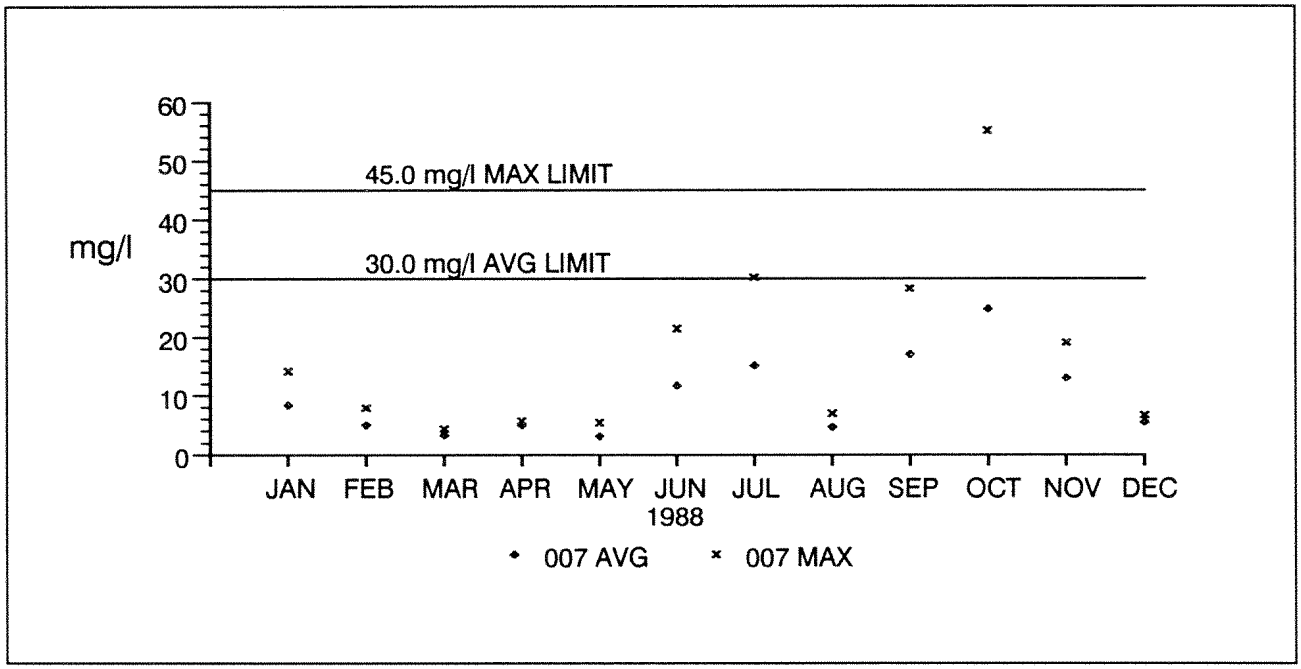

Figure C-5.5 Suspended Solids, Outfall 007.

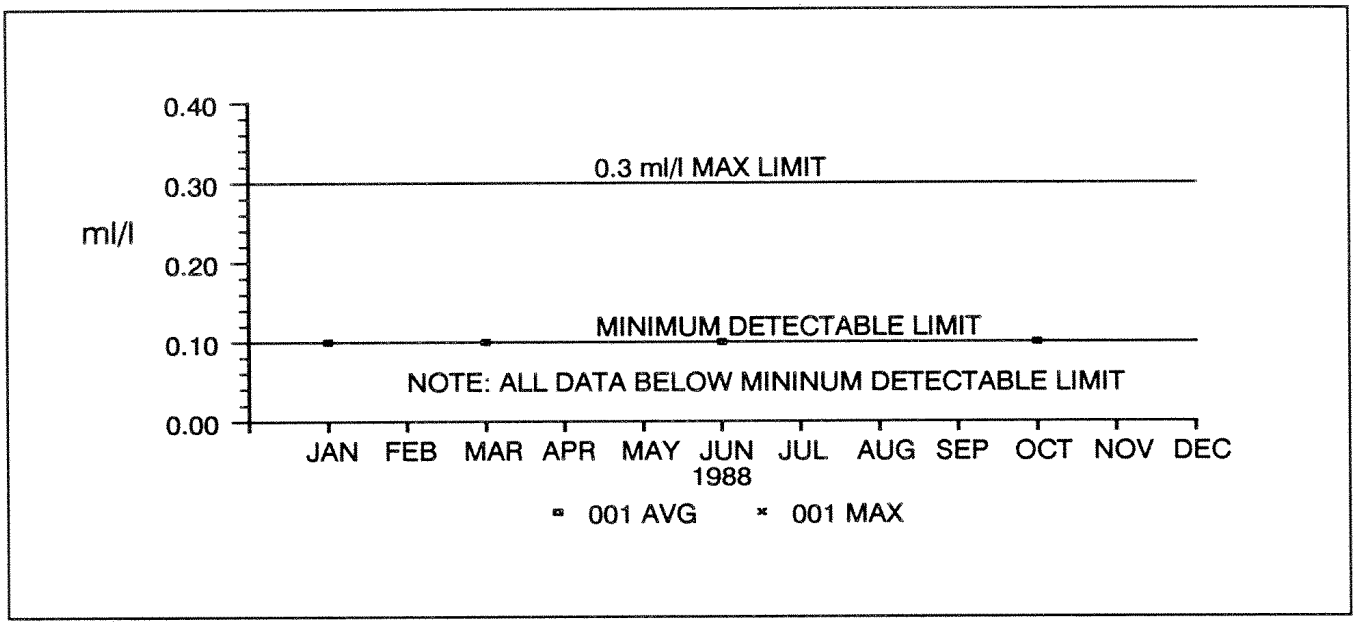

Figure C-5.6 Settleable Solids, Outfall 001.

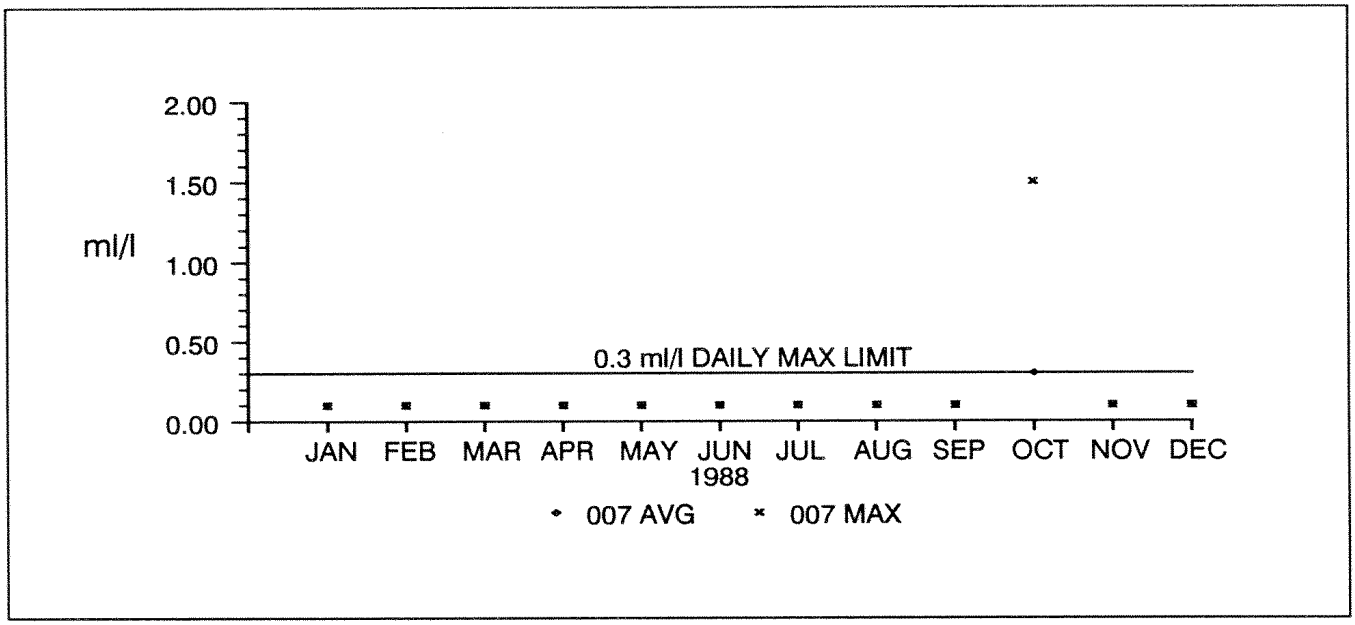

Figure C-5.7 Settleable Solids, Outfall 007.

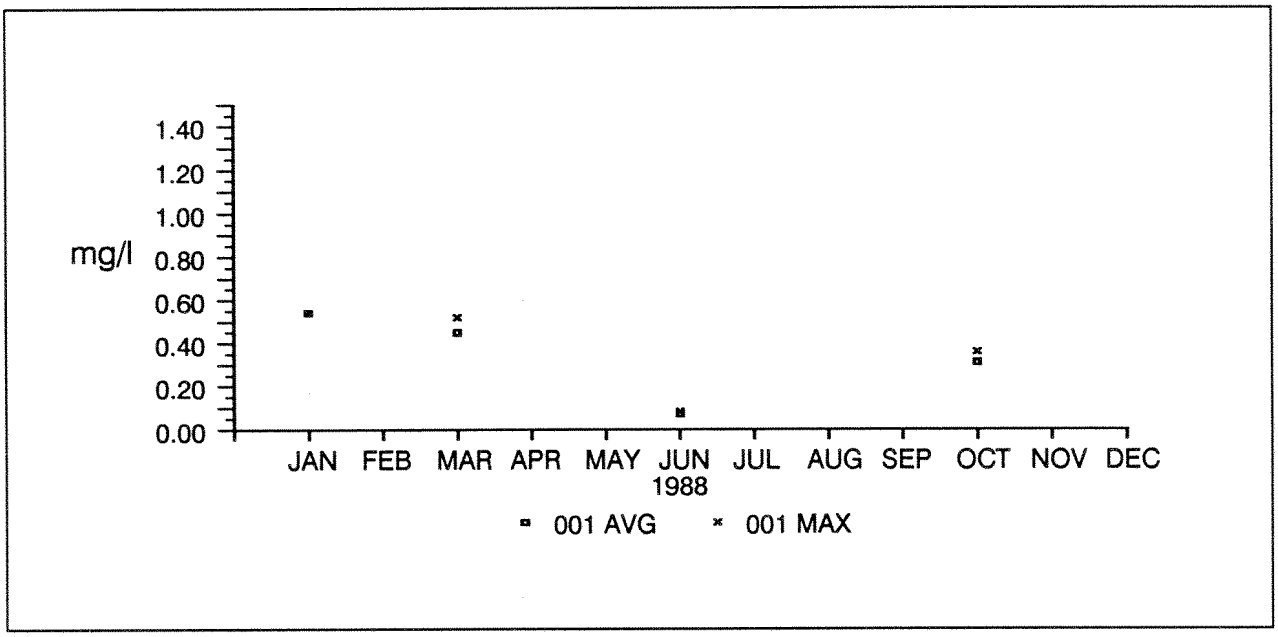

Figure C-5.8 Ammonia, Outfall 001.

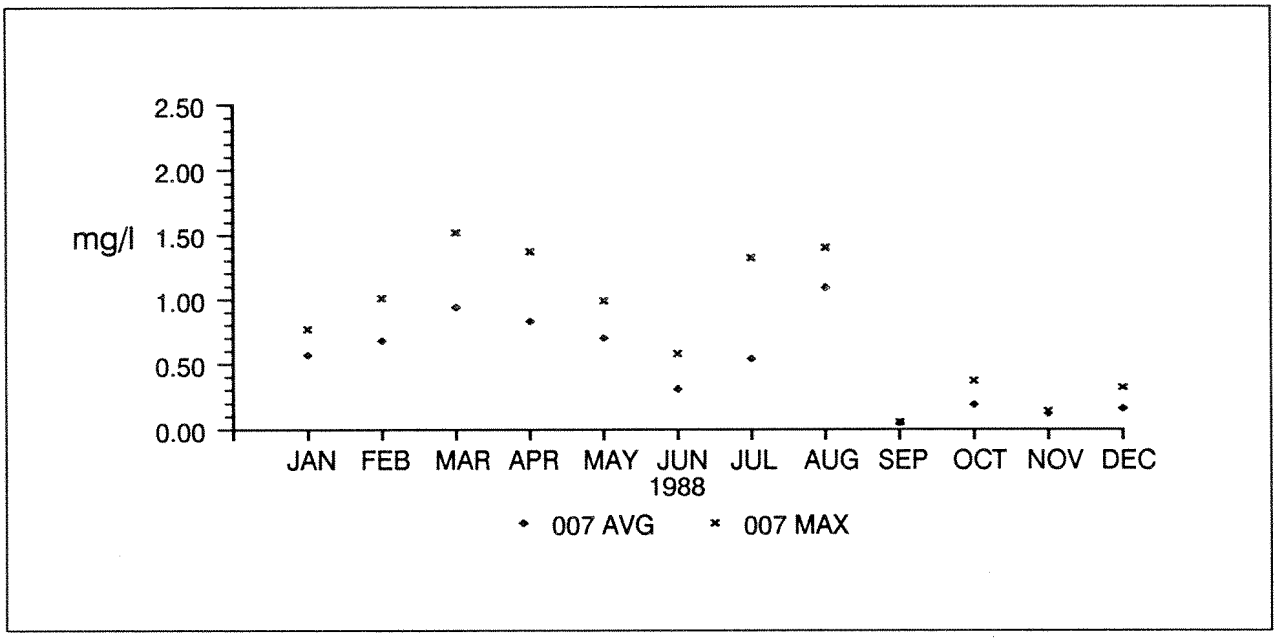

Figure C-5.9 Ammonia, Outfall 007.

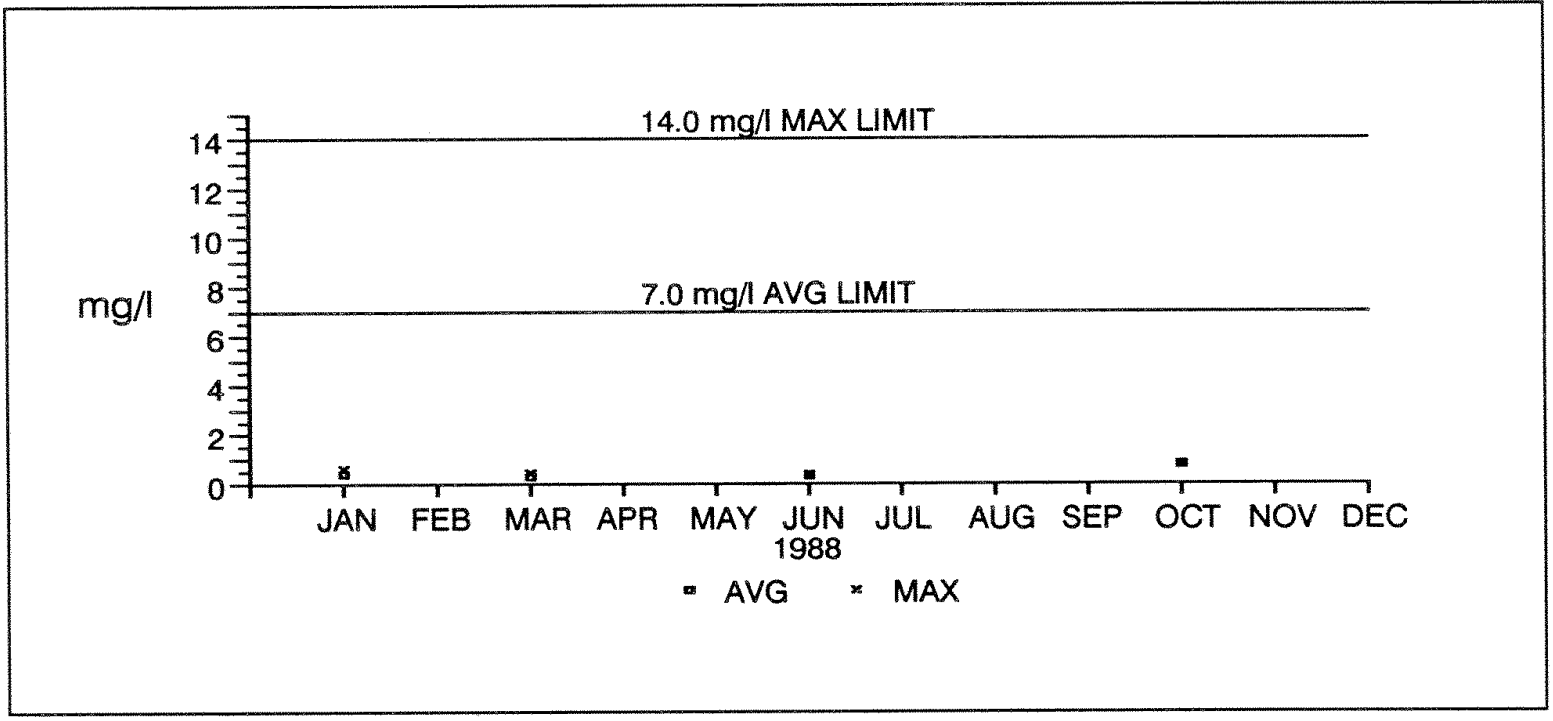

Figure C-5.10 Metals, Aluminum (Al), Outfall 001.

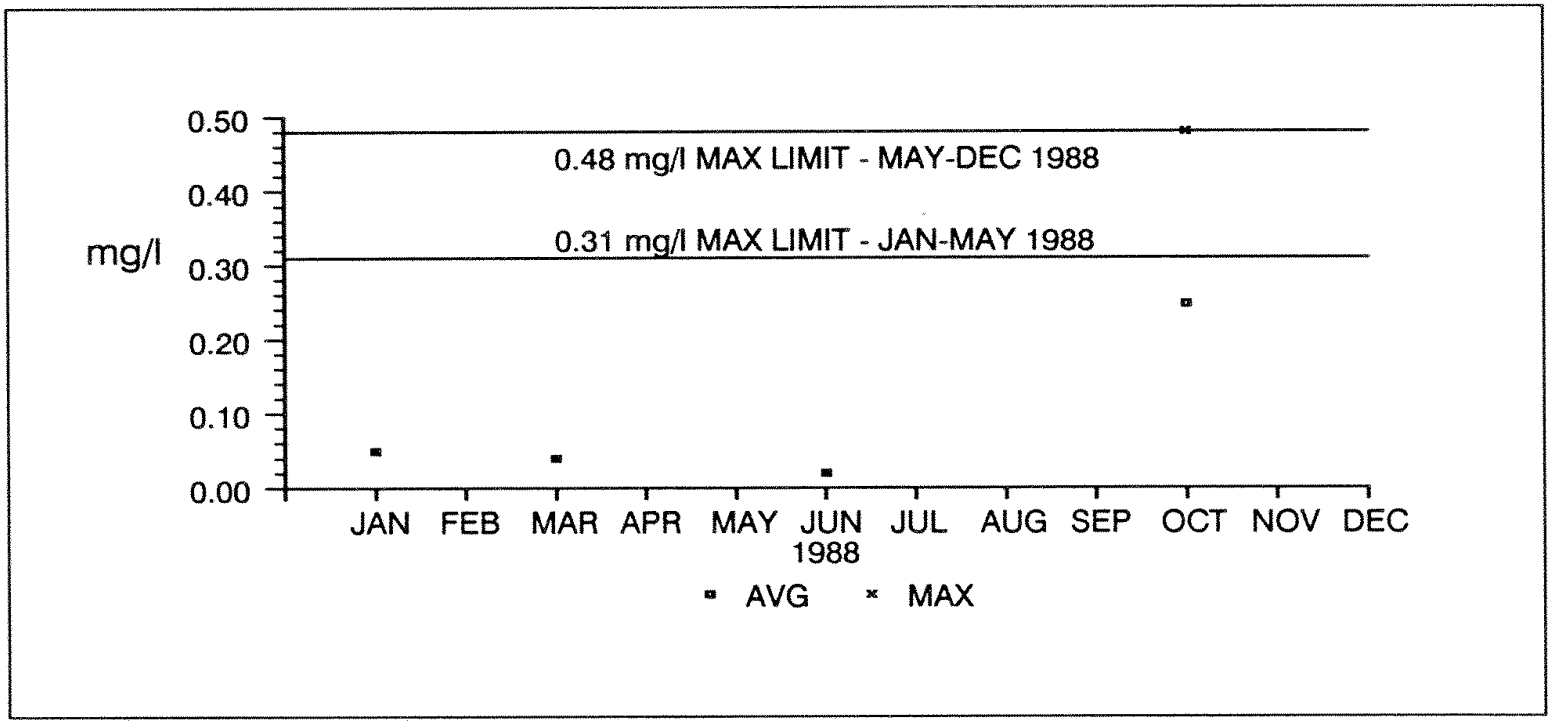

Figure C-5.11 Metals, Zinc (Zn), Outfall 001.

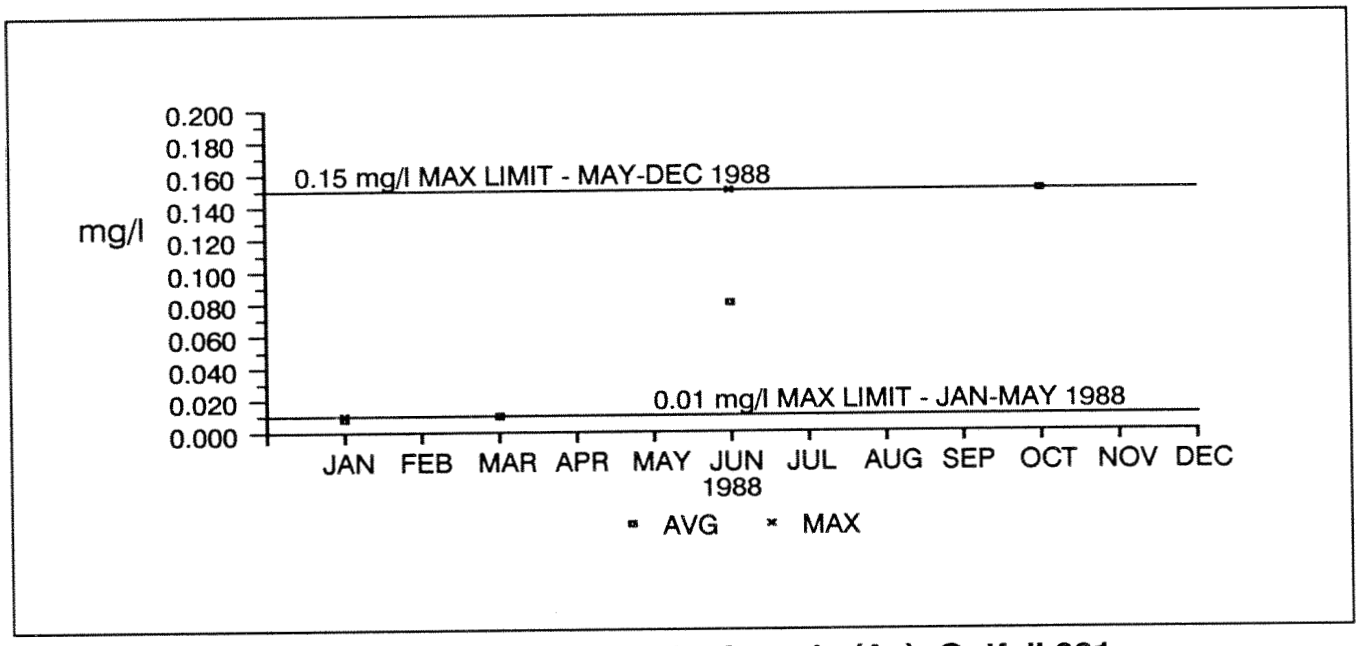

Figure C-5.12 Metals, Arsenic (As), Outfall 001.

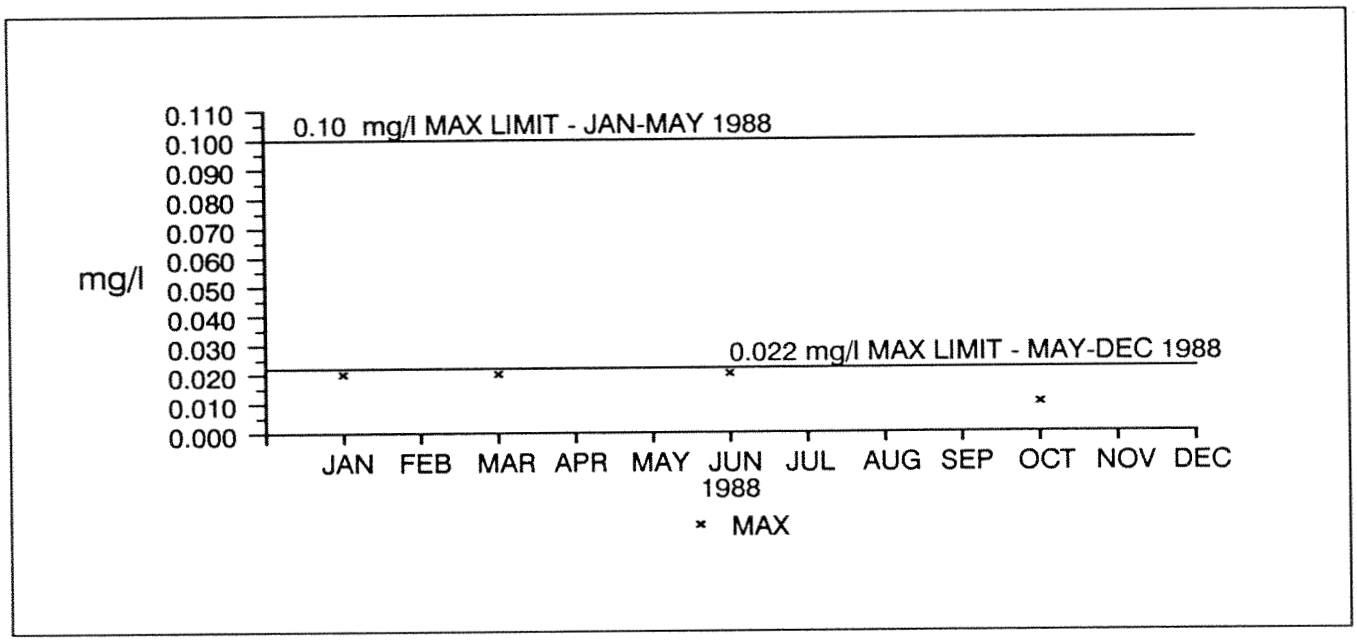

Figure C-5.13 Cyanide, Outfall 001.

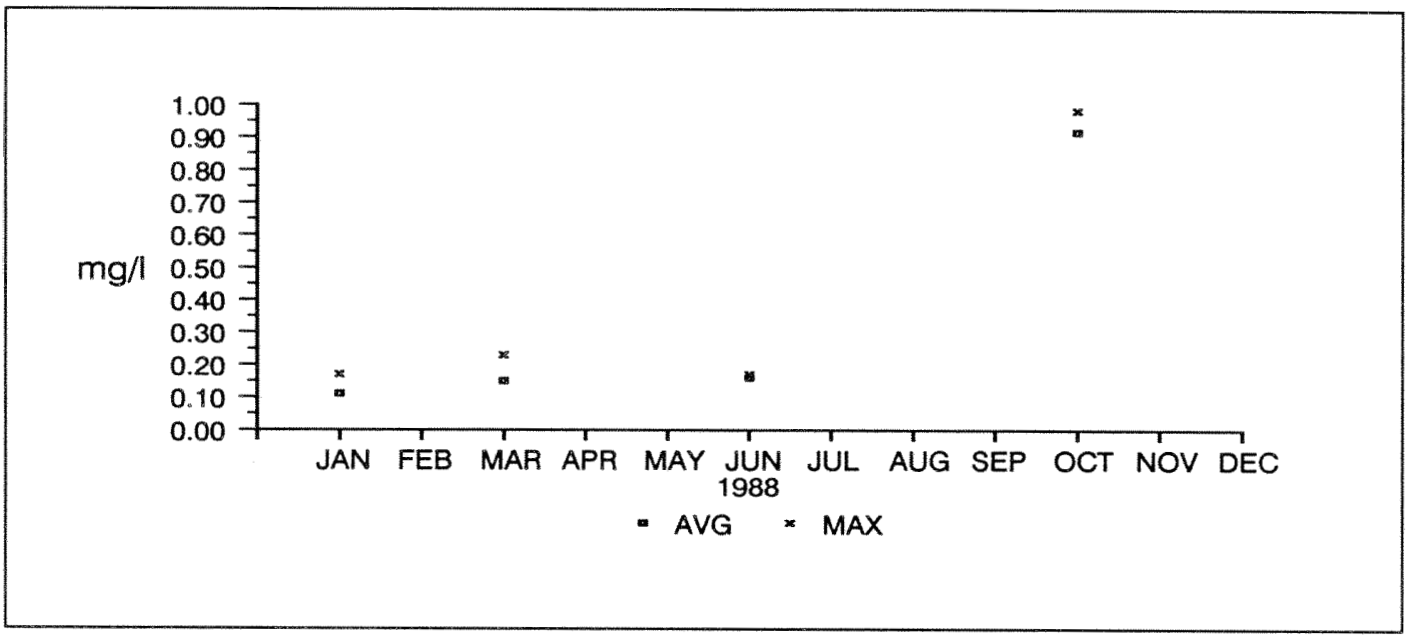

Figure C-5.14 Metals, Iron (Fe), Outfall 001.

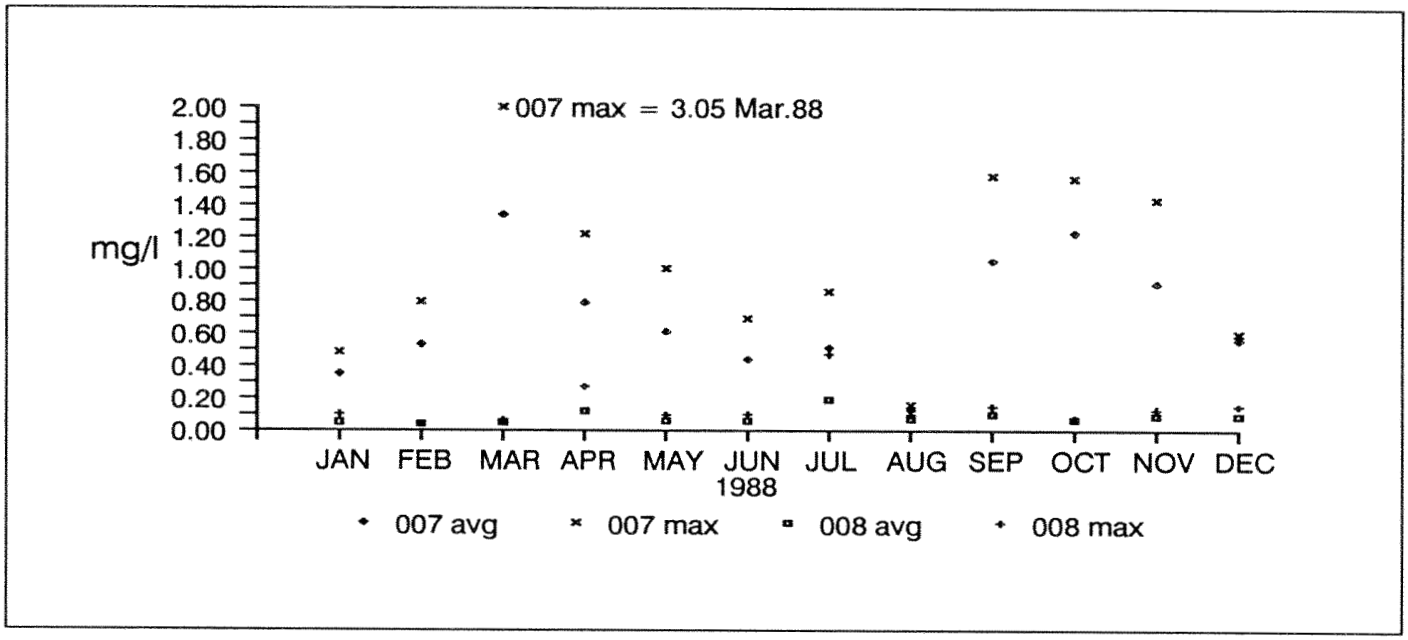

Figure C-5.15 Metals, Iron (Fe), Outfalls 007 and 008.

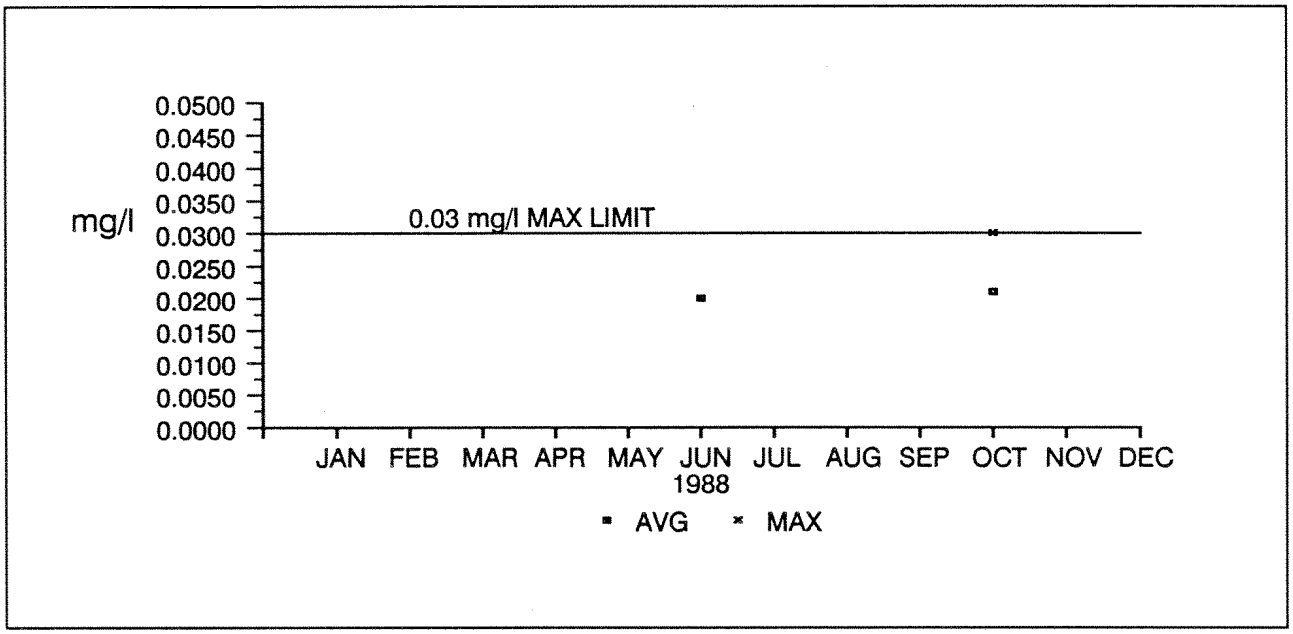

Figure C-5.16 Metals, Copper (Cu), Outfall 001.

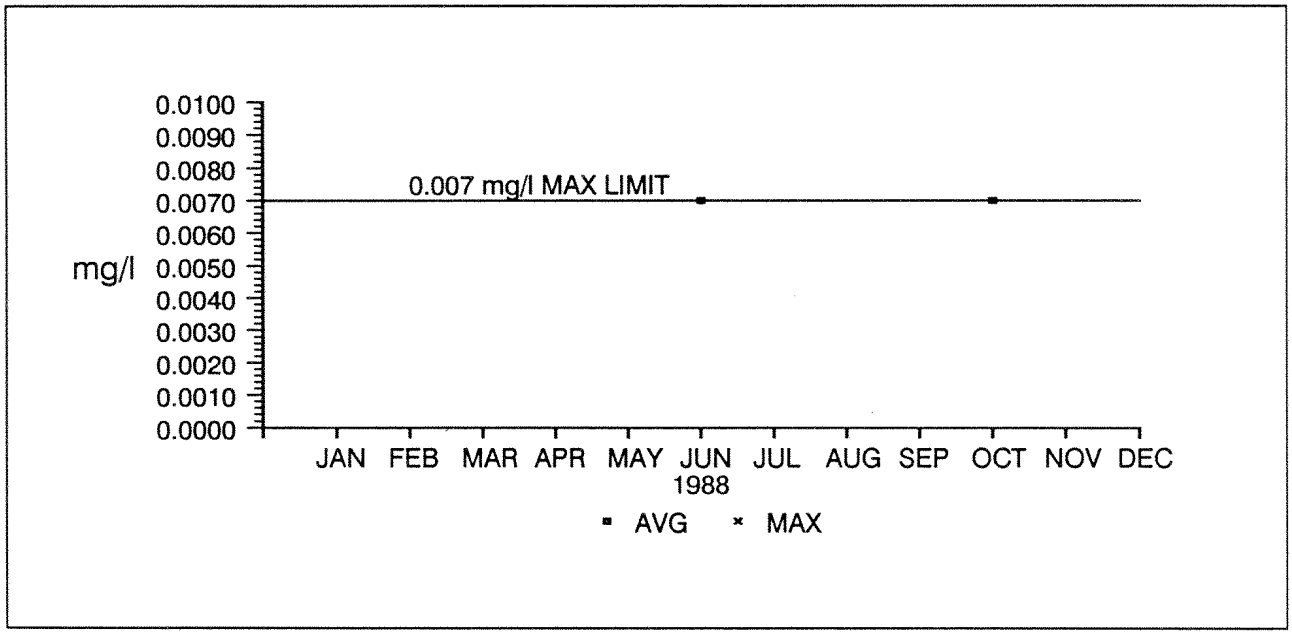

Figure C-5.17 Metals, Cadmium (Cd), Outfall 001.

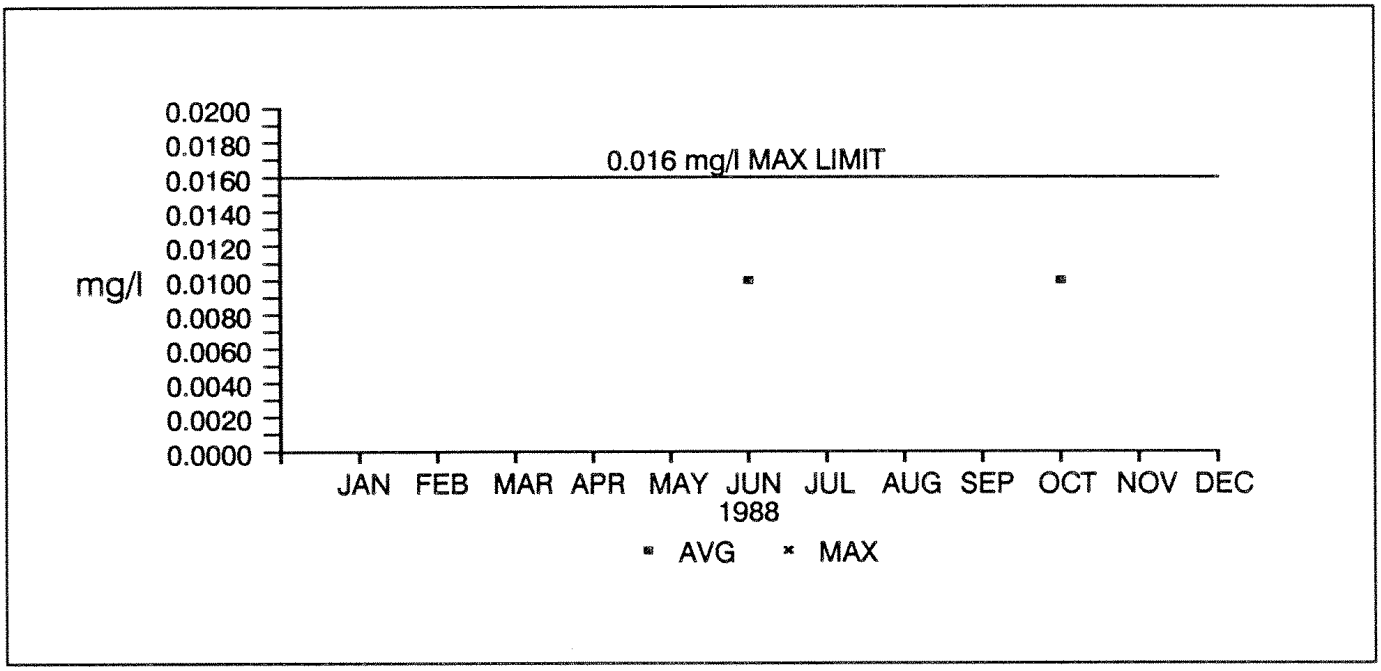

Figure C-5.18 Metals, Chromium (Cr), Outfall 001.

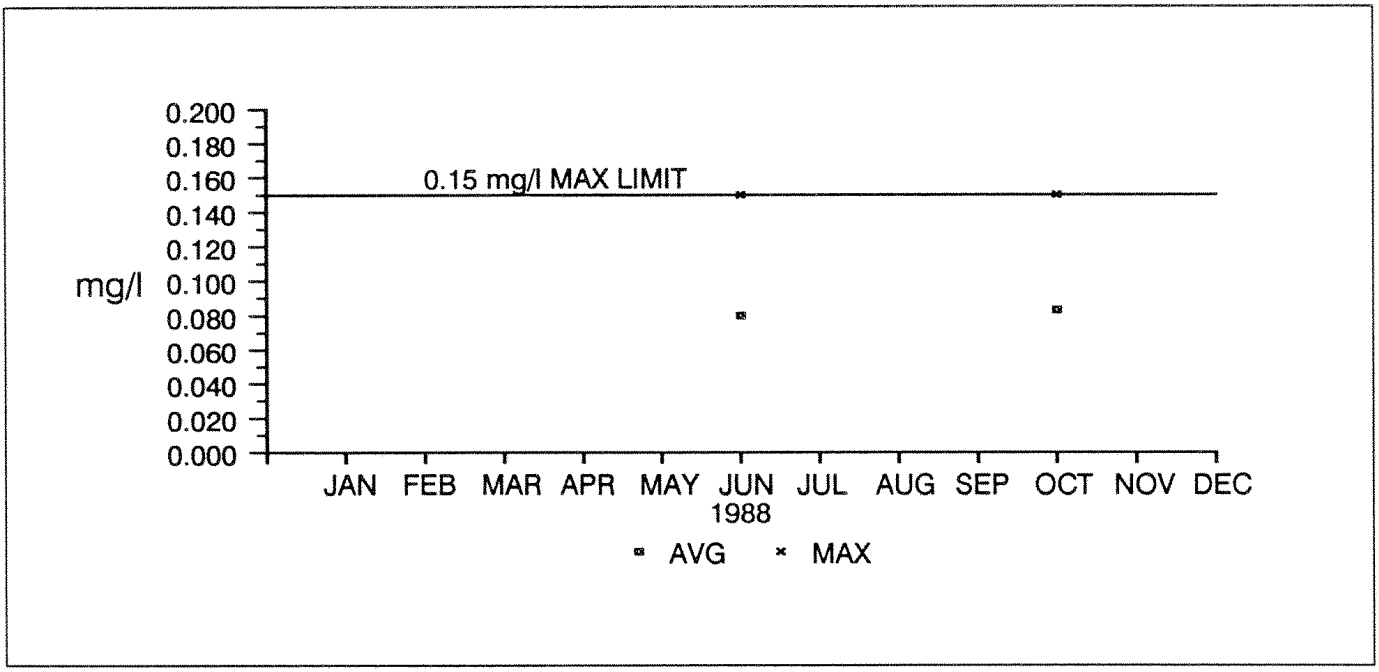

Figure C-5.19 Metals, Lead (Pb), Outfall 001.

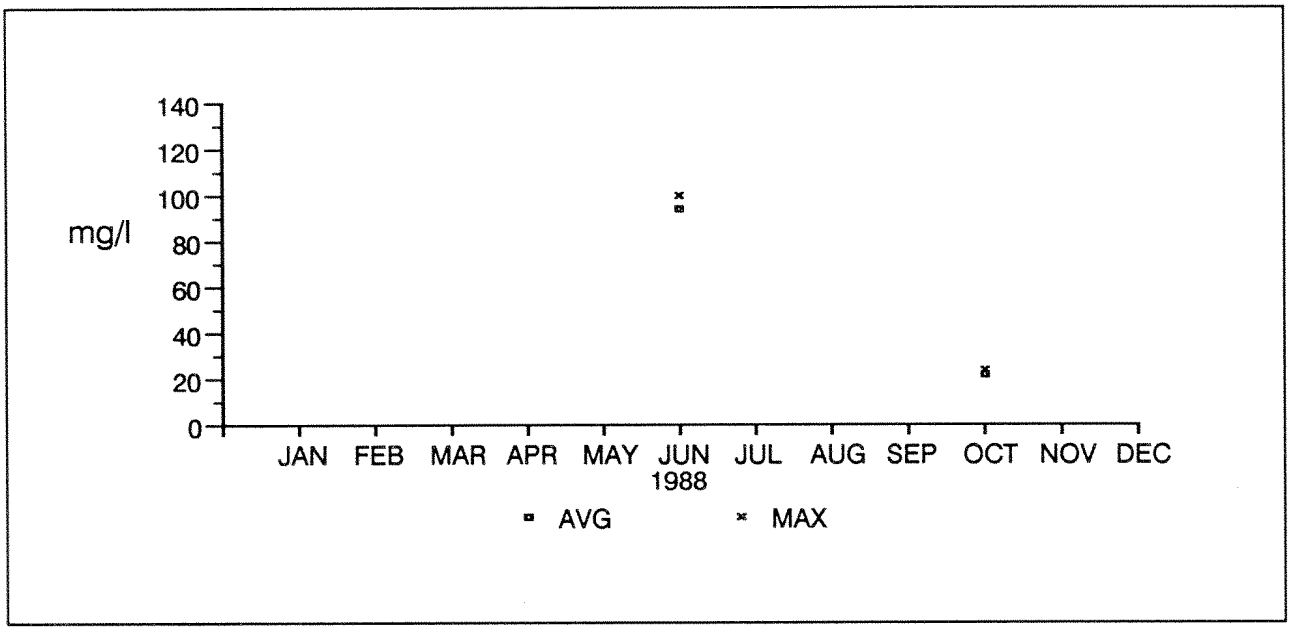

Figure C-5.20 Nitrate, Outfall 001.

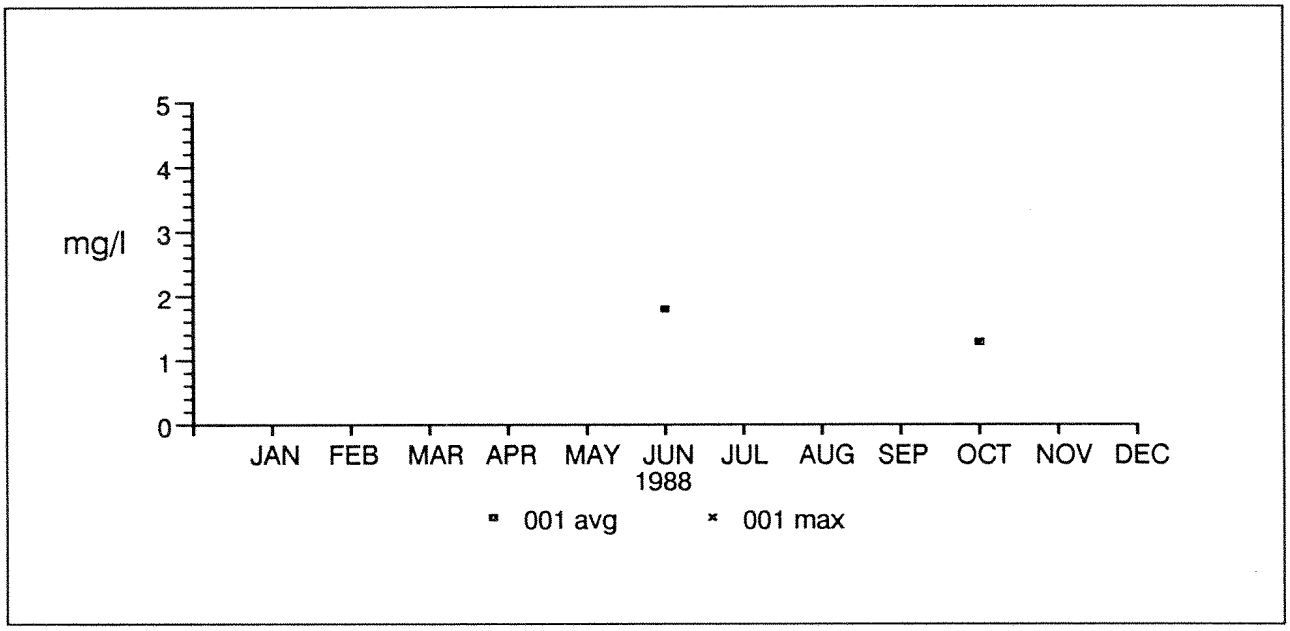

Figure C-5.21 Nitrite, Outfall 001.

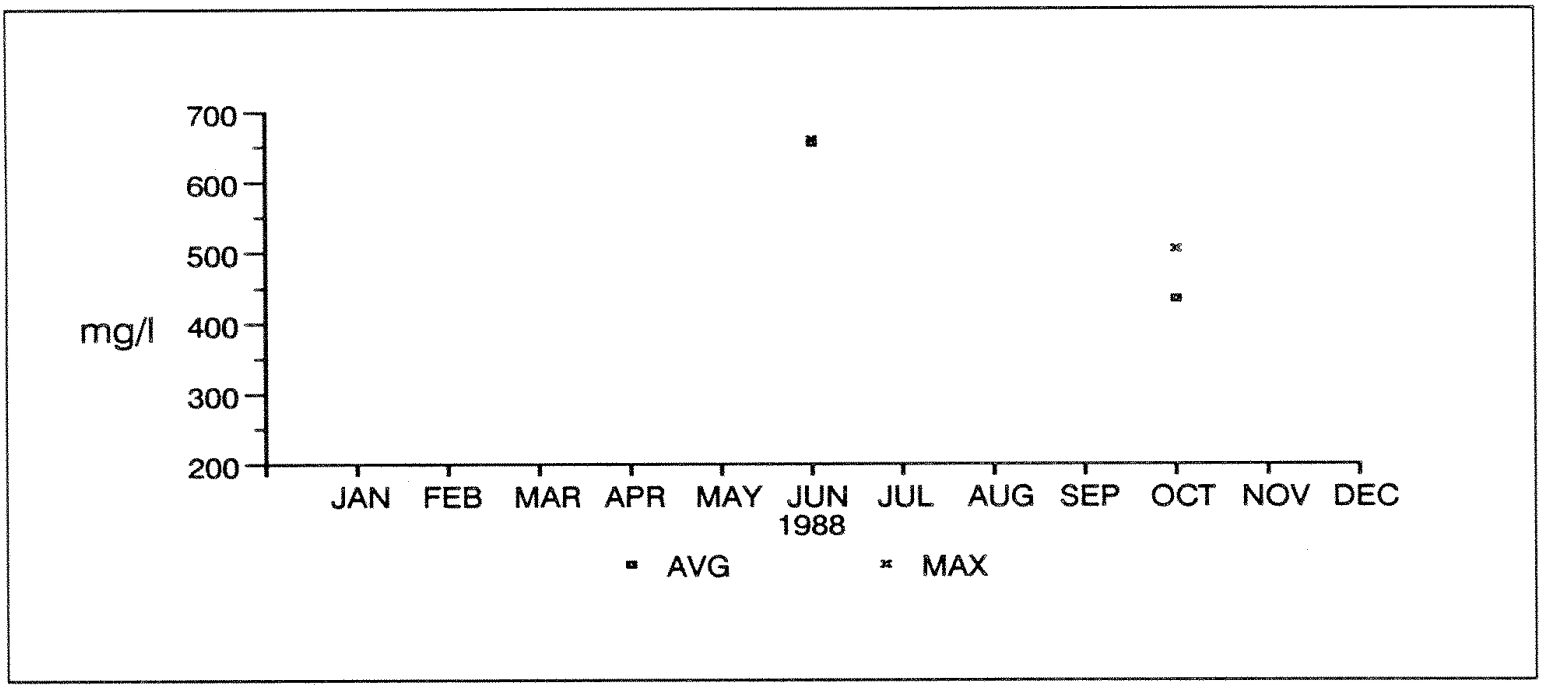

Figure C-5.22 Sulfate, Outfall 001.

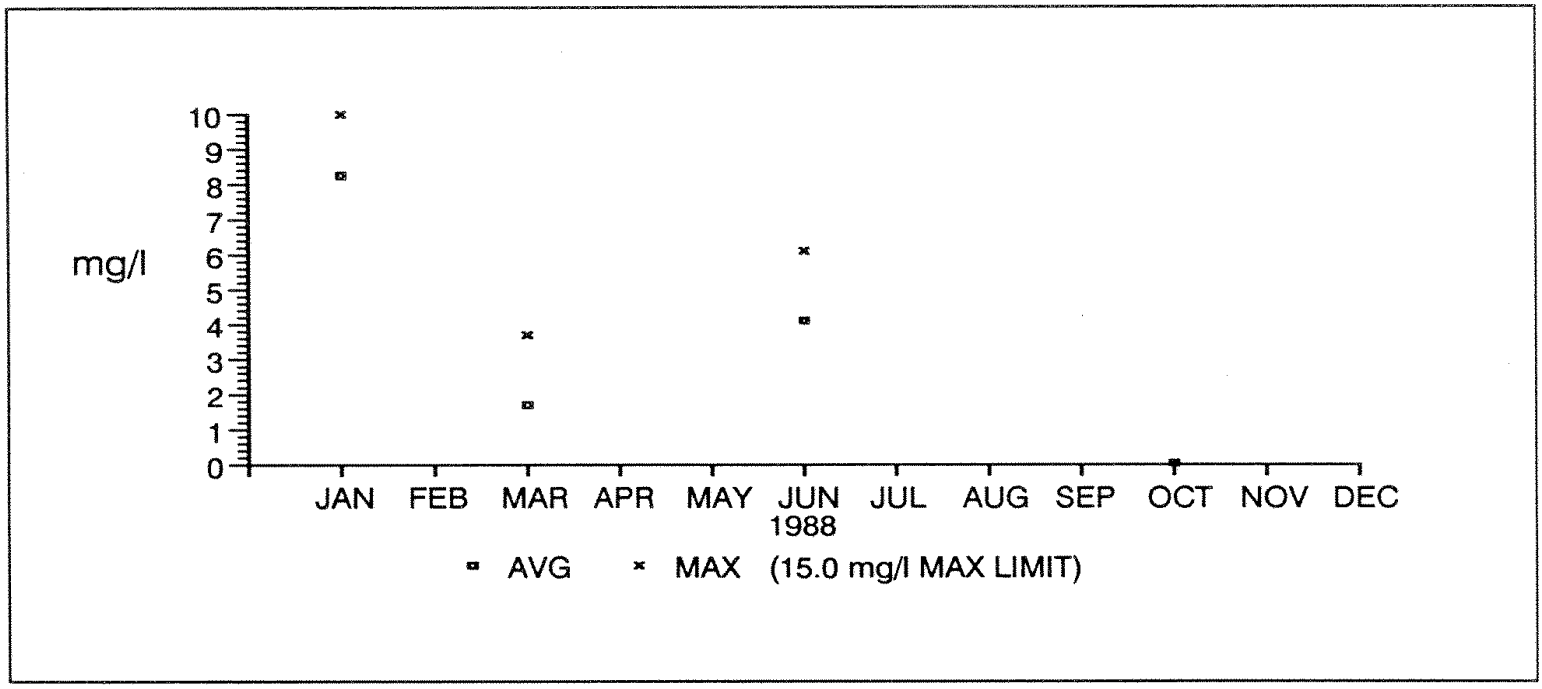

Figure C-5.23 Oil and Grease, Outfall 001.

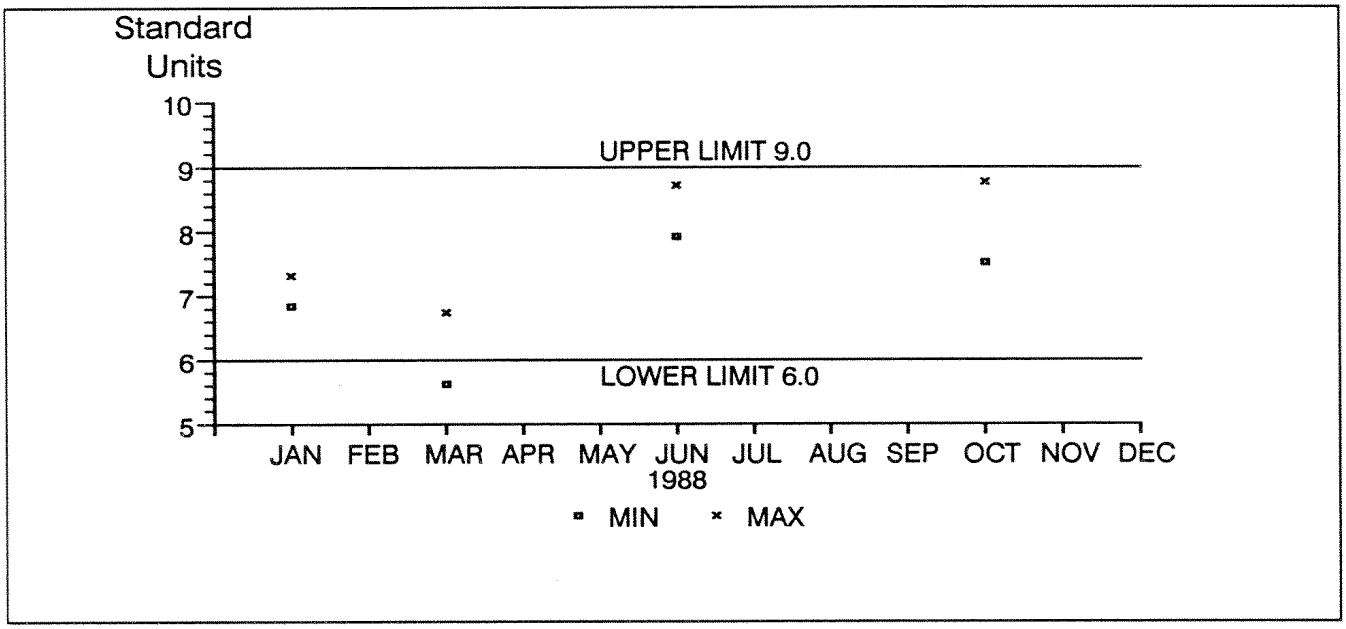

Figure C-5.24 pH, Outfall 001.

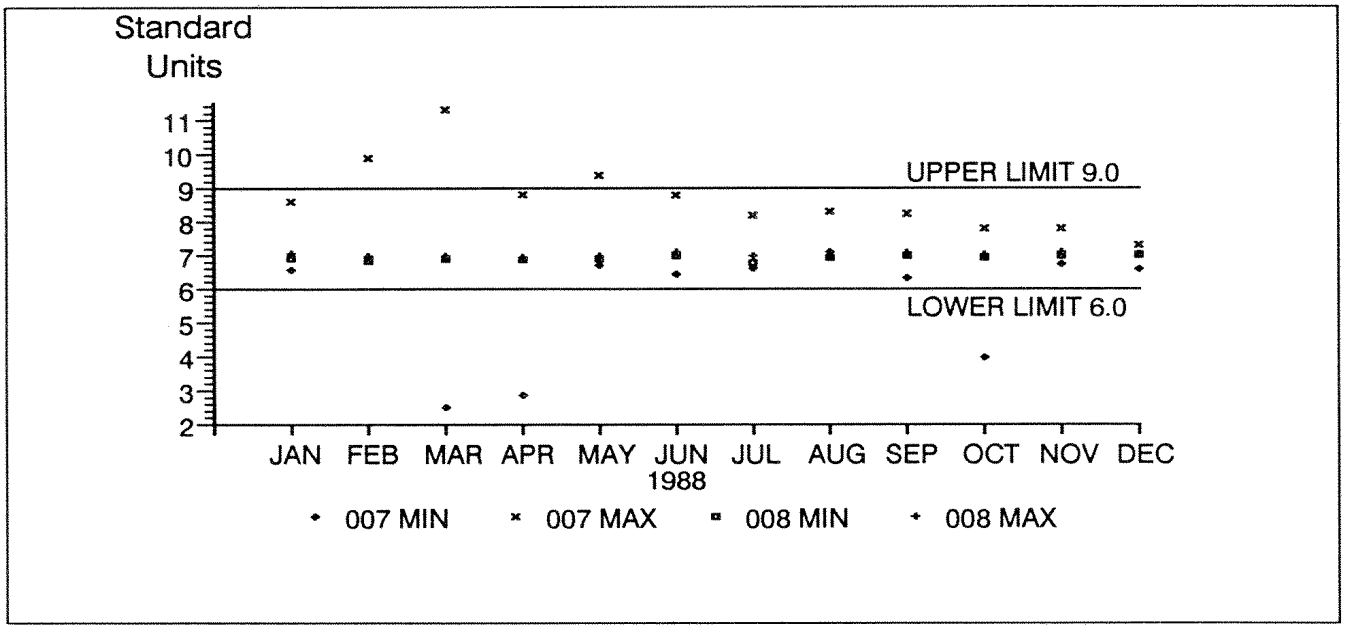

Figure C-5.25 pH, Outfalls 007 and 008.

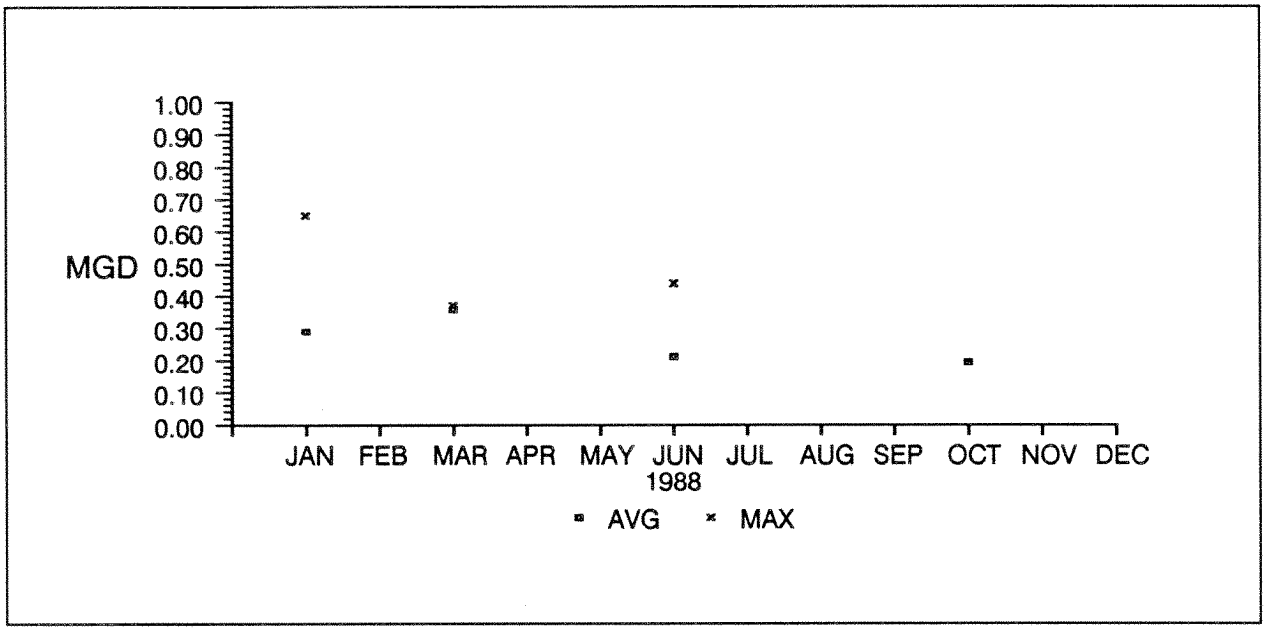

Figure C-5.26 Discharge Rate (MGD), Outfall 001.

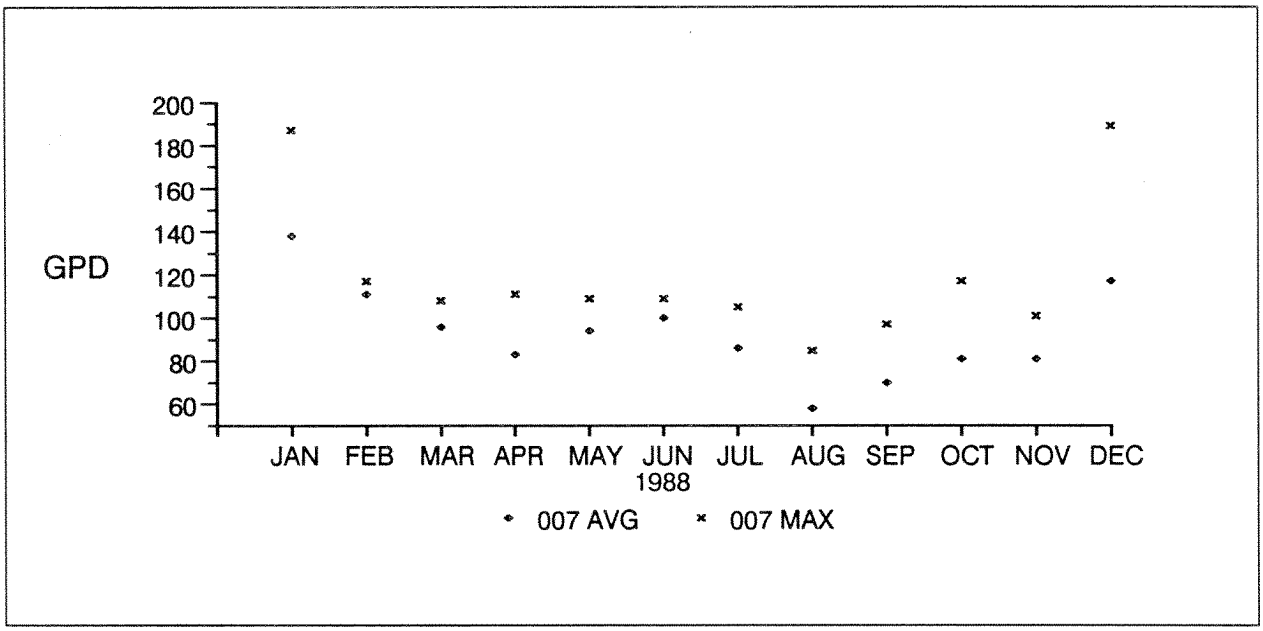

Figure C-5.27 Discharge Rate (GPD x 1,000), Outfall 007.

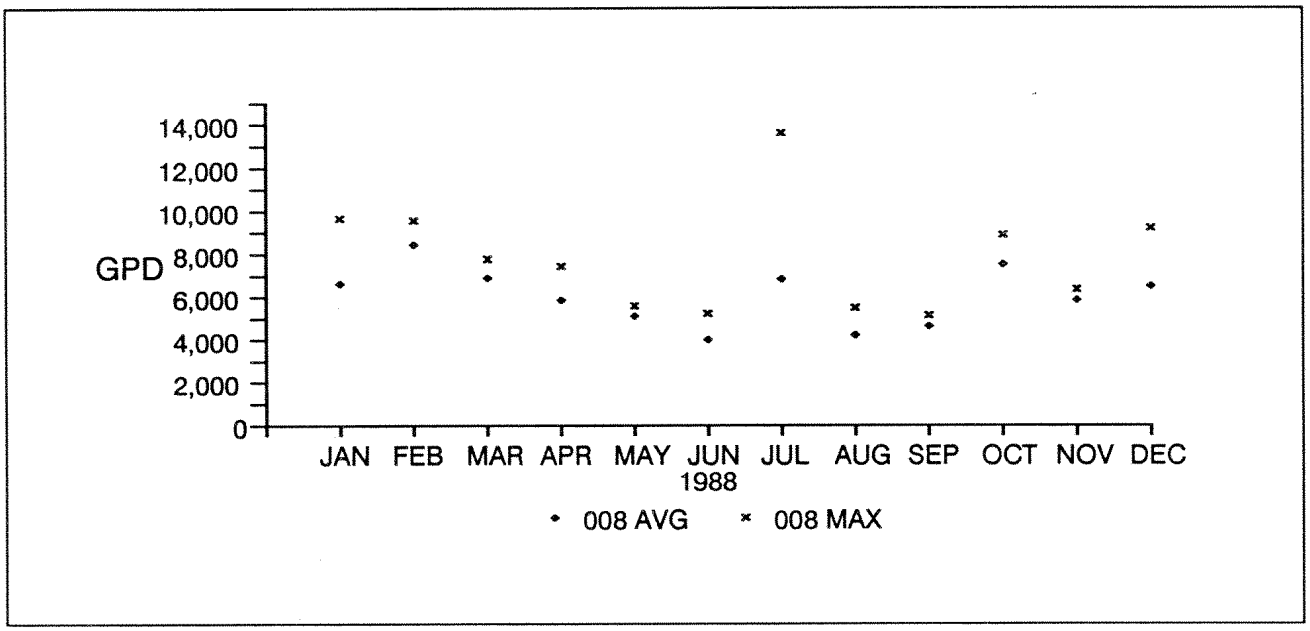

Figure C-5.28 Discharge Rate (GPD), Outfall 008.

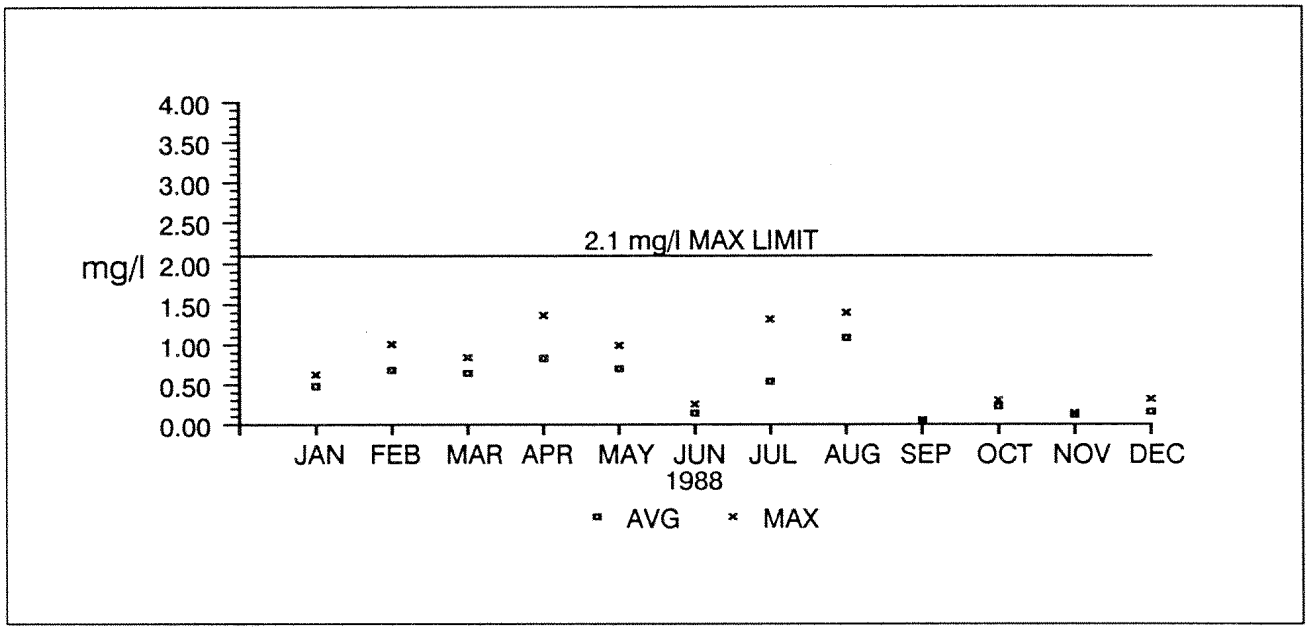

Figure C-5.29 Flow Weighted Averages - Ammonia, Outfalls 001 and 007.

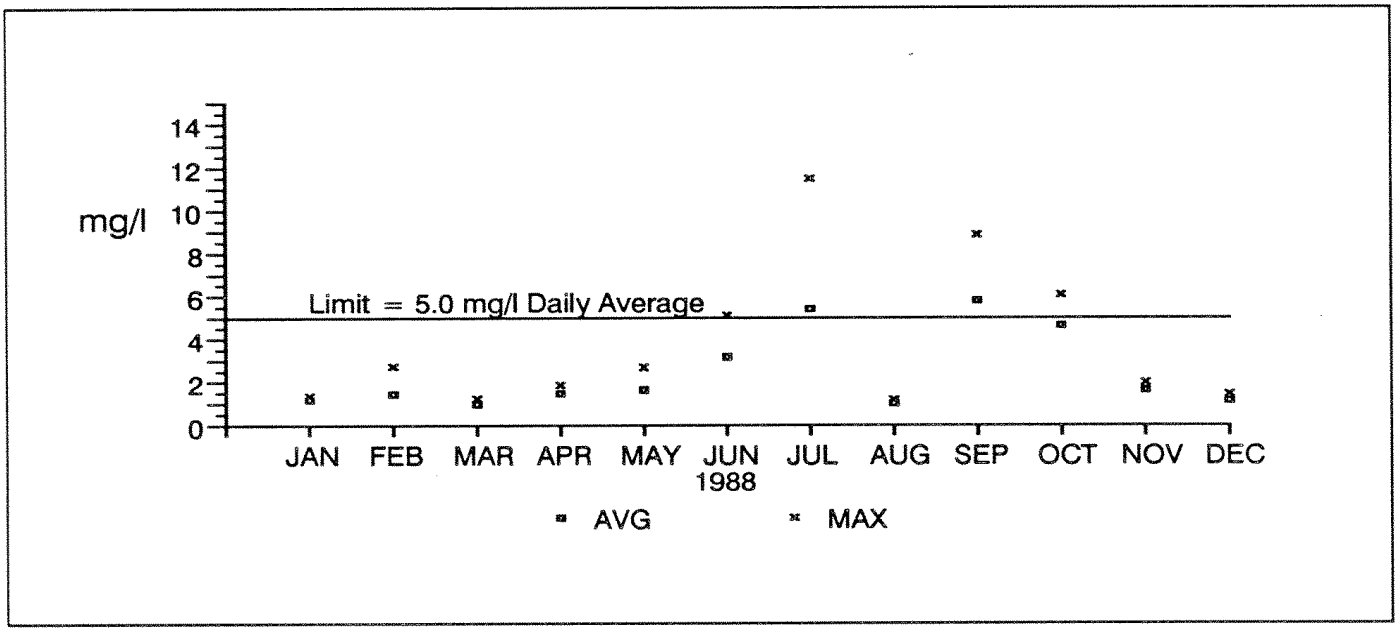

Figure C-5.30 Flow Weighted Averages, BOD-5, Outfalls 001, 007 and 008.

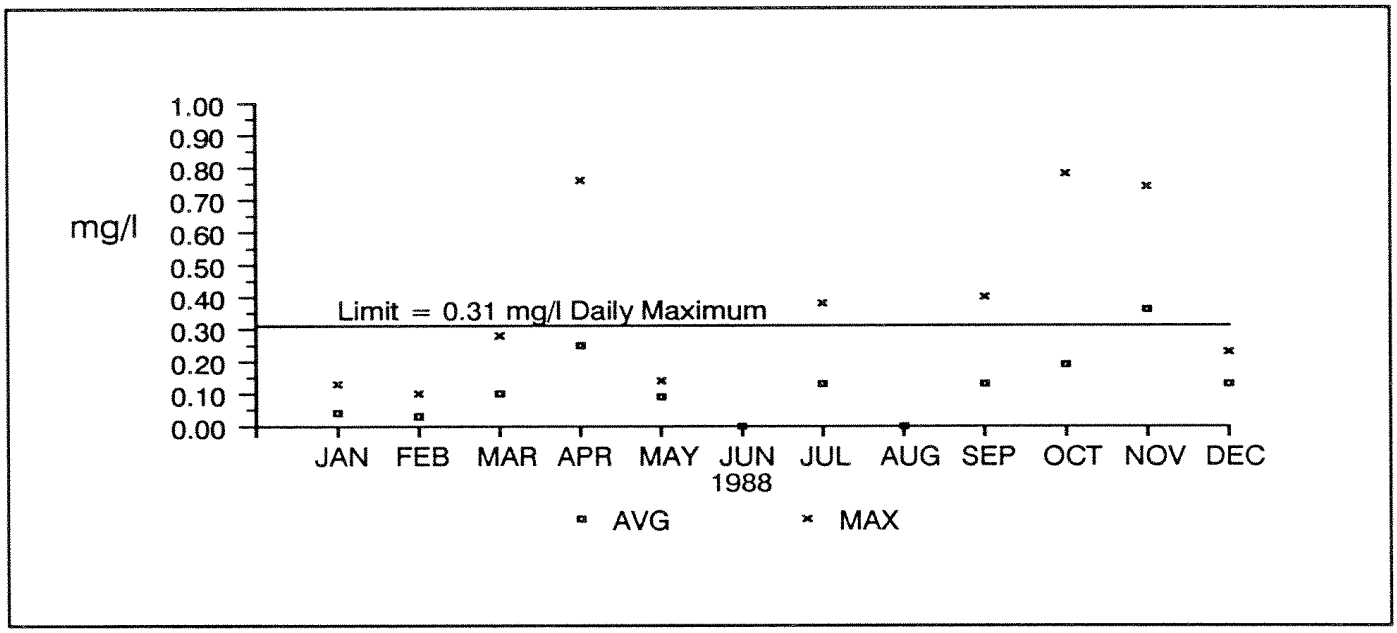

Figure C-5.31 Flow Weighted Averages, Iron (Fe), Outfalls 001, 007 and 008.