

CITY OF ANACORTES 1996 CSO REPORT

GENERAL INFORMATION

Discharge number 002 and 003 were monitored with Marsh-McBirney Model 260 portable flow meter systems.

The Model 260 flow meter measures level and velocity. The level and velocity measurements are stored in the meter, in the field. The meters are periodically “uploaded” to a laptop computer, level, velocity and error logs are transferred to the computer. The Marsh-McBirney T50 version 1.7 Floware Software package computes flows from this information, and generates reports.

The level and velocity sensing device was placed directly in the outfall pipes. The flow monitored was actual flow discharged.

The flow meters detect levels in excess of 0.4 inches. In pipe flows that do not reach or exceed 0.4 inches are not measured.

The flow meters detect velocity only when the level is in excess of one inch. Therefore the flow cannot be totaled unless the level in the pipe exceeds one inch.

The flow meters were set to record the level and velocity for 60 seconds, once every fifteen minutes.

Flow information is reported from 12:00 p. m. (midnight) to 11:59:59 p. m. (midnight) on the indicated day. Rainfall totals are reported from 7:00 a. m. on the indicated day to 6:59:59 a. m. on the following day.

Daily flow totals for Discharge #002, the B Avenue CSO, are included in appendix A, daily flow totals for Discharge #003, the M Avenue CSO, are included in appendix B. Rainfall data is included in Appendix C. Appendix D includes a map of the City of Anacortes, including wastewater pump stations identified by number.

**DETAIL OF FREQUENCY, VOLUME AND COMPARISON TO BASELINE
CONDITION, DISCHARGE NO. 002, "B" AVE. CSO**

FREQUENCY and VOLUME

The flow meter is routinely read on a monthly basis. During the January meter read the flow meter would not respond to repeated attempts to upload the stored data. Marsh-McBirney was consulted and at their direction various solutions were attempted. Eventually it was determined that the data was not retrievable. The data was deleted from the flow meter, and the flow meter reprogrammed. As a result flow data from January 1 to January 16, 1996 is not available.

The flow data for this CSO for the period of April 9, to May 8, 1996 were inadvertently deleted from the computer before a report was generated. No flow data is available for this period.

Rainfall records of the time period of Jan. 1 to Jan. 16 indicate that over the entire 16 day period 2.31 inches of rain fell. It is possible that the CSO was active during this period.

Rainfall records during the April 9 to May 8 time period reveal that it is not likely that the CSO was active during this time period.

The flow meter was active twice in 1996, the events, including the corresponding volumes discharged occurred on the following dates:

Date	Volume
January 21	1750
November 28	5070
Total	6820

Discharge from this CSO can be caused by failure of an adjacent wastewater pumping station. Neither of the CSO events this year were caused by pump station failure, both of the CSO events were caused by inflow or infiltration of rain water.

COMPARISON TO BASELINE

Annual rainfall was slightly less in 1996 than in 1995, and the total annual overflow volume was also slightly less in 1996 than in 1995. Overflow events and the annual baseline are charted and included at the end of this section.

DETAIL OF FREQUENCY, VOLUME AND COMPARISON TO BASELINE CONDITION, DISCHARGE NO. 003, "M" AVE. CSO

The flow meter is routinely read on a monthly basis. During the January meter read the flow meter would not respond to repeated attempts to upload the stored data. Marsh-McBirney was consulted and at their direction various solutions were attempted. Eventually it was determined that the data was not retrievable. The data was deleted from the flow meter, and the flow meter reprogrammed. As a result flow data from January 1 to January 16, 1996 is not available.

Rainfall records of the time period of Jan. 1 to Jan. 16 indicate that over the entire 16 day period 2.31 inches of rain fell. It is possible that the CSO was active during this period.

The M Avenue CSO flow meter recorded one overflow event that occurred as a result of rainfall.

Date	Volume
November 28	17,540 gallons
Total	17,540

The overflow event at this CSO was caused by a rainfall event that began on November 25th and resulted in a total of 1.87" of rain during a month in which 4.57" of rainfall was recorded.

COMPARISON TO BASELINE

The 1995 CSO report detailed three overflow events that were from unknown causes. It was stated in that report that the City would aggressively pursue any events of unknown cause in the future. No events of unknown cause were recorded in 1996.

Annual rainfall was slightly less in 1996 than in 1995, and the total annual overflow volume was also slightly less in 1996 than in 1995. Overflow events and the annual baseline are charted and included at the end of this section.

DETAIL OF FREQUENCY, VOLUME AND COMPARISON TO BASELINE CONDITION, DISCHARGE NO. 004, "Q" AVE. CSO

NPDES permit number WA-002025-7, condition S-12 required the City of Anacortes to commence monitoring of CSO outfall #004 (#004) no later than October 1, 1996. The City has not met this requirement.

CSO #004 is located on Port of Anacortes property leased to Dakota Creek Industries, Inc. (DCI). DCI is operating a ship yard on this site. The outfall pipe for #004 is located directly underneath the a facility referred to as the syncro lift. The syncro lift facility is used to haul ships up to 275 feet long and 75 feet wide, weighing up to 5000 tons out of the water for maintenance. The ships are lifted out of the water on a platform. The ships then can be rolled off of the platform across a set of heavy rails. The CSO manhole containing the overflow weir is beneath the rails that carry the ships off of the syncro lift platform.

The method of flow measurement used in the past at this CSO was to measure the elevation of water above the overflow weir. When the syncro lift was installed the outfall pipe was damaged. Due to the damage to the pipe, there is not a free fall of water on the downstream side of the weir. Weir overflow rates cannot be accurately determined unless the water is allowed to fall freely downstream of the weir. Therefore, in the current configuration accurate flow measurement is not possible. Repairs will need to be made to the outfall pipe.

Repairing the outfall pipe requires that the syncro lift be taken out of operation, the heavy rail system must be removed to provide access to the pipe and overflow structure. This obviously will have significant impact on DCI. The syncro lift provides a large portion of DCI's business. To force the shut down of the of the syncro lift would cause unacceptable economic hardship on DCI. And as a major employer, the negative impact on DCI would have far reaching effects on the local economy.

DCI plans to (and is required to) take the syncro lift out of service in the near future, within the next two or three years, to make improvements that allow ship bottom wash water to be captured and treated. While the syncro lift is out of service, making repairs and improvements to the CSO could be accomplished without economic hardship to DCI and the local economy.

In the interim period, the CSO can be monitored for frequency, without monitoring for volume. Equipment required to perform frequency monitoring is on order and will be installed as soon as possible. The City will coordinate repairs with DCI. The outfall repairs and permanent flow monitoring installation will be accomplished when the syncro lift is out of service.

CSO REDUCTION ACCOMPLISHMENTS

The sewer trunk line serving pump station #4 (see Appendix E for a map of sewer pump stations, or the Anacortes Comprehensive Sewer Plan) was improved with a new polyethylene liner, all manholes were grouted and sealed. This pump station pumps into the drainage basin served by discharge #004. This improvement should help to reduce overflow events from discharge #004.

A radio telemetry system has been installed at pump station #3. This has dramatically improved pump station operating condition reporting. Improved knowledge about the operating condition of this pump station will help to minimize or prevent future CSO events caused by pump station failures.

PLANNED IMPROVEMENTS

The improvements planned for 1997 are as follows:

1. Install frequency of discharge monitoring on discharge #004.
2. A storm water catch basin that is tied into the sanitary sewer has been identified in the drainage basin served by discharge #002. Storm sewer will be constructed and this catch basin will be removed from the sanitary sewer and tied into the storm sewer. This will reduce storm flows to CSO discharge #002. Since the drainage basin served by discharge #002 flows to a pump station that pumps into the drainage basin served by CSO discharge #003, this storm flow reduction will also reduce storm flows to CSO discharge #003.
3. The installation of an AC powered flow meter on discharge #002 was delayed in 1996. This meter will be installed in 1997. The new meter will provide improved reliability, immediate real time reporting of CSO overflow events, as well as immediate reporting of meter malfunctions. This should minimize the possibility of unmeasured CSO overflow events.
4. The City of Anacortes has hired a new engineer. One of the primary job functions in this job description is to work on solving the inflow and infiltration problem in the sanitary sewer collection system. This engineer is working on a grant application to begin repairs of the sanitary sewer collection system. With or without a grant, the City is committed to working on reducing the impact of inflow and infiltration to the sanitary sewer collection system.