

# **CITY OF ANACORTES**

## **1999 CSO REPORT**

### **GENERAL INFORMATION**

Discharge number 002 was monitored with a Marsh-McBirney Model 256A flow meter.

The Model 256A flow meter measures level and velocity and reports flows to the treatment plant via a radio telemetry system. When the meter is active the plant control system is programmed to activate an alarm that indicates overflow at this CSO. The plant data acquisition system computes daily flow totals.

Discharge number 003 was monitored with Marsh-McBirney Model 260 portable flow meter system.

The Model 260 flow meter measures level and velocity. The level and velocity measurements are stored in the meter, in the field. The meter is 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 was used to compute flows from this information, and generates reports from January to October. This software was replaced with Floware for Windows version 2.80.2.8. The new version was used to prepare reports for November and December.

The following information applies to the flow meter systems at Discharge #002 and #003:

1. The flow meter level and velocity-sensing device was placed directly in the outfall pipes. The flow monitored was actual flow discharged.
2. 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.
3. 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.
4. The flow meters were set to record the level and velocity for 60 seconds, once every fifteen minutes.
5. Flow information is reported from 12:00 p. m. (midnight) to 11:59:59 p. m. (midnight) on the indicated day.

Discharge number 004 was monitored for duration of activity only from January 1, 1999 to March 18, 1999. Both duration of activity and volume of flow discharged were monitored for the remainder of the year. The flow was monitored with a Krohne Magmeter, type IFS-4000/PF. A float switch also monitors this CSO. The switch provides an alarm if the level of the water in the sewer approaches the level of the overflow structure. The rate of the flow rate measured by this meter and the position of the float switch are reported to the wastewater treatment plant via a radio telemetry system. The plant data acquisition system totals the flow data and includes the information on plant reports.

Rainfall reported is recorded at the Anacortes Wastewater Treatment Plant by a tipping bucket rain gauge. 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 and #004 are included in appendix A. Daily flow totals for Discharge #003 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**

As stated previously, discharge number 002 was monitored with a Marsh-McBirney Model 256A flow meter. Flow information from the meter is transmitted to the treatment plant via a radio telemetry system. Reports of this flow data are generated on a daily and monthly basis. Due to calibration of the system, the reporting system recorded approximately a one-gallon per minute signal, twenty-four hours per day. This results in a daily flow total of approximately 1475 gallons per day. The system was calibrated on August 31, 1999. This corrected the one-gallon per minute signal. All daily flow information is contained in Appendix A.

There are no overflow events to report for 1999.

Total rainfall measured in 1999 was 26.53

Discharge from this CSO can be caused by failure of an adjacent wastewater pump station. No overflow events occurred in 1999 as a result of failure of the pump station.

**COMPARISON TO BASELINE**

Annual precipitation in 1999 was more than in 1995, 1997 or 1998. The annual precipitation in 1999 was less than in 1996. There were no overflow events. 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. A meter was in service continuously for the entire monitoring period.

There were no overflow events in 1999.

Total rainfall measured in 1999 was 26.53

**COMPARISON TO BASELINE**

Annual precipitation in 1999 was more than in 1995, 1997 or 1998. The annual precipitation in 1999 was less than in 1996. There were no overflow events. Overflow events and the annual baseline are charted and included at the end of this section.

**1999**  
**DETAIL OF FREQUENCY, VOLUME AND COMPARISON TO BASELINE**  
**CONDITION, DISCHARGE NO. 004, "Q" AVE. CSO**

Previous reports contain considerable detail explaining why this CSO was not being monitored. Reports from 1997 and 1998 are included in Appendix E. These reports explain some of the history of this CSO.

The 1998 report included information about the duration of events (actually there were no events in 1998) at this CSO. The duration of the event was determined by the activation of a float switch in the CSO structure. In March 1999 a construction project was performed to repair the CSO outfall pipe and install a Krohne type IFS-4000/PF magnetic flow meter. The float switch position and the flow meter output are communicated to the wastewater treatment plant via radio telemetry.

There are several instances where hours of activity or gallons discharged are shown on the reports for this CSO. None of these is an actual overflow event at this CSO. All hours reported were caused by work performed at the CSO. On September 2, City water was used (from a fire hydrant) to test the output of the meter.

The CSO was not active during 1998 or 1999. The total rainfall for 1998 was 24.76 inches. Rainfall for 1999 was 26.53 inches. This data shall be used to develop baseline information. No chart has been included for this CSO as there is no overflow data to present on the chart.

## **CSO REDUCTION ACCOMPLISHMENTS**

1. The outfall pipe that serves discharge #004 has been repaired and a flow meter installed to measure the volume discharged from this CSO.
2. A storm sewer directly connected to the sanitary sewer was discovered in 1998. The storm sewer serves a three-square block area, Commercial Avenue to O Avenue (one block) and from 10<sup>th</sup> Street to 13<sup>th</sup> Street. This area is in the down town area of Anacortes and is mostly asphalt. Several attempts to remove this storm sewer connection were made in 1999. It has proved to be very difficult to find the pipes under ground and the connection point. Recently ground-penetrating radar was used to establish the location of the entire length of the pipe. The City is committed to correcting this situation in 2000.
3. Turnover in the City of Anacortes Engineering Dept. caused a delay in the completion of an I & I reduction project. A new engineer has been hired. The City of Anacortes requested bids on a project to make repairs to 33 badly leaking sanitary sewer manholes. Unfortunately the results of the bidding were unsatisfactory. All bids were rejected. The project will be re-bid and the manholes will be repaired.
4. Sewer pump station #3 is adjacent to CSO discharge #2. A failure of pump station #3 will cause discharge from CSO #2. A construction project is currently underway to upgrade pump station #3. Numerous improvements to this pump station will dramatically improve the reliability of the station, including connecting a stand-by emergency generator. This will virtually eliminate any possibility of CSO discharge caused by a pump station failure. The CSO meter will also be connected to emergency power.
5. A one half-block long storm sewer was installed in the alley between 7<sup>th</sup> & 8<sup>th</sup> St. on Q Avenue. Roof drains in this area were disconnected from the sanitary sewer and routed to the storm sewer.

## **PLANNED IMPROVEMENTS**

The improvements planned for 2000 are as follows:

1. Remove the storm sewer connection to the sanitary sewer identified in #2 above.
2. Complete the improvements to sewer pump station #3.
3. Repair 33 leaking sanitary sewer manholes.