CITY OF ANACORTES
2002 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. During the upload, level, velocity and error logs are transferred to the computer. The Marsh-McBirney Co. Floware for Windows version 2.80.2.8 software package was used to compute flows from this information.

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 with a Krohne Magmeter, type IFS-4000/PF. The rate of flow measured by this meter is 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. A float switch also monitors this CSO. When the level in the sewer system approaches the height of the overflow weir the float is activated. This float switch activates an alarm at the wastewater treatment. Plant personnel are alerted of the impending CSO activity.

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.

Appendix E contains information from previous annual CSO reports and overflow information for CSO discharge #004.

Appendix F contains a copy of the public notice advertised in the City of Anacortes paper of record, the Anacortes American, announcing the availability of the annual CSO report.

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. This meter occasionally reports discharge amounts of from one to three gallons. These amounts reported are a result of noise from the flow meter or in the telemetry system. The day after this shows up on the report the flow channel has been examined and no evidence of any overflow exists.

There are no overflow events to report for 2001.

Total rainfall measured at the Anacortes Wastewater Treatment Plant in 2001 was 24.37".

Discharge from this CSO can be caused by failure of an adjacent wastewater pump (PS #3) station. No overflow events occurred in 2001 as a result of failure of PS #3. During the year 2000 significant improvements were made to PS #3. Most notably the pump station is now connected to a standby emergency power generator.

COMPARISON TO BASELINE

Annual precipitation in 2001 was greater than in 2000 but less than in 1996, 1997, 1998 or 1999. There has not been an overflow event at this CSO since 1997. 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 CSO is monitored with a portable flow meter. 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 2001.

Total rainfall measured in 2001 was 24.37"

COMPARISON TO BASELINE

Annual precipitation in 2001 was greater than in 2000 but less than in 1996, 1997, 1998 or 1999. There has not been an overflow event at this CSO since 1997. Overflow events and the annual baseline are charted and included at the end of this section.

2001
DETAIL OF FREQUENCY, VOLUME AND COMPARISON TO BASELINE CONDITION, DISCHARGE NO. 004, "Q" AVE. CSO

Previous reports contain considerable detail explaining the history of this CSO. Reports from 1997, 1998, 1999 and 2000 are included in Appendix E; these reports explain some of the history of this CSO.

On September 11, 2001 the data acquisition system reported 60,000 gallons of overflow during an event lasting 21.4 hours. The CSO was not active during this time. On Sept. 11 a contractor working for the City of Anacortes installed a new program into one of the programmable logic controllers (PLC) at the wastewater treatment plant. This program effected the recording of data for this CSO. No rain fell in Anacortes on this day or the days preceding this reported event. The flow measured at the wastewater treatment plant on this day is virtually identical to the days preceding and following this reported event. The treatment plant was not shutdown nor was maintenance performed on this day that could have caused an overflow event. The event flow and duration information that appear on the report were caused by the contractor working on the PLC that communicates with the data acquisition system for this CSO.

Copies from the wastewater treatment plant manger's logbook for Sept. 11 are included in appendix E. One of the entries on this date shows that the contractor, TSI (Technical Systems Incorporated) loaded a new program into PLC #3. This PLC controls master telemetry unit (MTU) communications. The MTU communicates with all the wastewater pumping stations and CSO #4.

There were no overflow events in 2001.

Total rainfall measured in 2001 was 24.37"

COMPARISON TO BASELINE

Flow monitoring was installed on this CSO in January of 1998. Annual precipitation in 2001 was greater than in 2000 but less than in 1998 or 1999. No chart has been included for this CSO as there is no overflow data to present.

CSO REDUCTION ACCOMPLISHMENTS

1. 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 10th Street to 13th Street. This area is in the down town area of Anacortes and is mostly asphalt. Several attempts have been made to remove this storm sewer connection. Ground-penetrating radar was used to establish the location of the entire length of the pipe. The pipe was exposed and a manhole has been installed on the pipe. It has been determined that the Port of Anacortes damaged the storm water outfall during maintenance activities. Some of the work that must be completed to accomplish the needed repairs to this drainage system must be performed below the high water line in Puget Sound. Permitting requirements delayed the project until July 15, 2001. Due to scheduling problems between the Port of Anacortes and the City of Anacortes the project could not be completed in 2001. Permitting is in place and plans have been made to complete this project in July of 2002.
2. The City of Anacortes has replaced approximately 1200 feet of old, damaged and leaking sanitary sewer pipelines.
3. A project with the combined goals of replacing Central Business District sidewalks and diverting building roof drains to the storm sewer was completed in 2001. The sidewalks were removed and a new storm drain was installed. Roof drains from six buildings were picked up in the new storm drain. None of these building roof drains were directly connected to the sanitary sewer. However these drains all contributed to elevated ground water levels in an area of the sanitary sewer collection system known to be subject to infiltration.

PLANNED IMPROVEMENTS

The improvements planned for 2002 are as follows:

1. Remove the storm sewer connection to the sanitary sewer identified in #1 above.
2. The City of Anacortes plans to replace approximately 1000 feet of leaking sewer lines in 2002.
3. Another block of the Central Business District sidewalks will be replaced, and all of the adjacent building roof drains will be collected and diverted into the storm sewer.