

Watershed Outlet Monitoring Program

Willow Creek Station Burnsville, MN

Quarterly Report *Preliminary Data* January – March 2009



Prepared By: Dakota County Soil and Water Conservation District
Prepared For: Lower Minnesota River Watershed District
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Introduction

The Willow Creek WOMP site, located in Burnsville behind the Menards on Hwy. 13, has been in operation since 1999. The Willow Creek watershed drains more than 5,000 acres of various types of land uses including residential, vacant/agricultural, and commercial properties (Appendix A). This report summarizes the results of flow, precipitation, and water quality for the 1st quarter of 2009. This data is preliminary and is subject to change until the Metropolitan Council submits the final report for this period.

Flow and Precipitation

Average flow in Willow Creek was 1.86 cubic feet per second (cfs) or 1.20 million gallons per day (mgd) (Table 1). A graph describing quarterly flow and precipitation results is also provided (Figure 1).

Table 1. Average flow and total precipitation at Willow Creek WOMP Station January – March 2009

Period	Average Flow (cfs/mgd)	Precipitation (inches)	*Average Monthly Precipitation, 1999-2008 (inches)
JANUARY	0.62/0.40	na**	0.81
FEBRUARY	0.84/0.54	na**	0.79
MARCH	4.02/2.60	1.60**	1.80
TOTAL QUARTER	1.86/1.20	1.60**	1.13

*Average monthly precipitation data obtained from the National Weather Service station located near the Willow WOMP site.

**Rain gauge was not activated until 3/16/09.

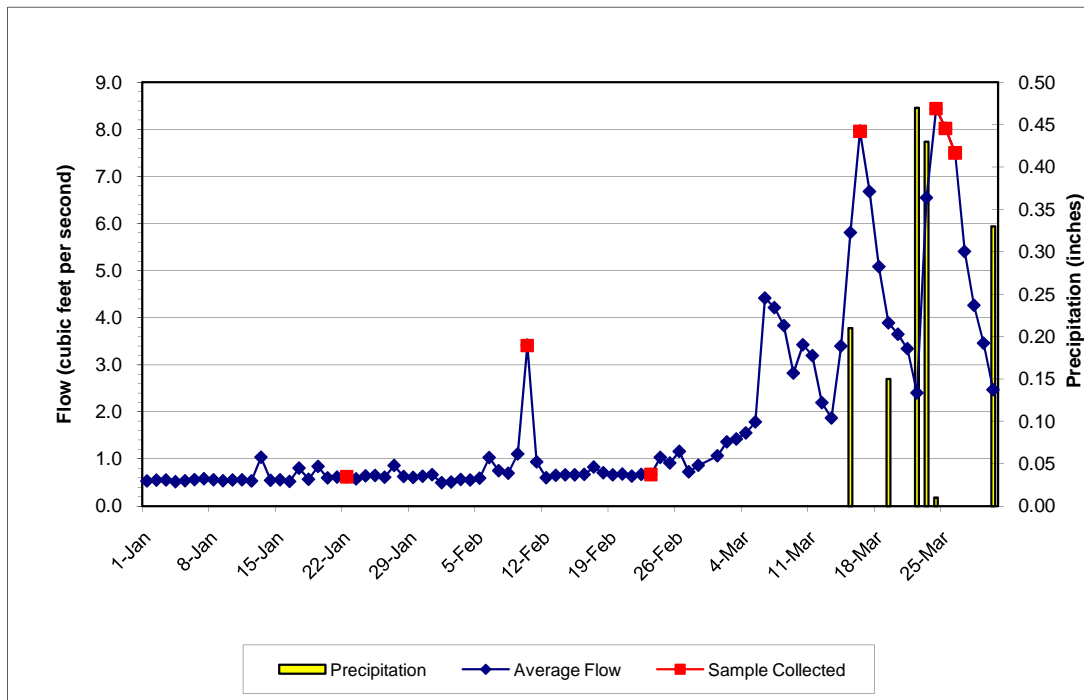


Figure 1. Flow and precipitation at Willow WOMP Station January-March 2009

Water Quality

Three event flow grab samples (2/10/09, 3/16/09, 3/24/09), one storm event composite sample (3/24-3/26/09), and two base flow grab samples (1/22/09, 2/23/09) were collected from the Willow WOMP Station during the 1st quarter of 2009.

Overall, water quality was good with most parameters below the state standard (in compliance with standards) or near the ecoregion mean (Table 2). However, several endpoints exceeded standards or ecoregion means (highlighted red). These results are primarily due to elevated sample concentrations common in early spring runoff samples. Concentrations will likely moderate as the year progresses.

Table 2. Average concentrations at Willow Creek WOMP Station October 2008-December 2008 (for comparison purposes) and January-March 2009.

Parameter (standard/ecoregion mean)	4 th Quarter 2008 Mean Concentration	1 st Quarter 2009 Mean Concentration	Notes – 1 st quarter results
Alkalinity	188.2 mg/L CaCO ₃	146.9 mg/L CaCO ₃	Typical for freshwater; higher during low flow
Biological Oxygen Demand (2.7 mg/L)	1.0 mg/L	6.8 mg/L	Above ecoregion mean
Cadmium	0.50 ug/L	0.50 ug/L	In compliance with state standard
Chloride (230 mg/L)	101 mg/L	171 mg/L	In compliance with state standard
Chlorophyll-a	3.8 mg/L	21.4 mg/L	Fair level
Chromium	3.0 ug/L	5.6 ug/L	In compliance with state standard
Conductivity (297.7 umMHOs)	853 umMHOs	1083 umMHOs	Above ecoregion mean, higher during low flow
Copper	1.6 ug/L	4.5 ug/L	In compliance with state standard
<i>E. coli</i> (126 MPN/100mL)	401 MPN/100mL	387 MPN/100mL	Exceeds state standard
Hardness	308 mg/L CaCO ₃	332 mg/L CaCO ₃	Considered hard water; sometimes very hard during low flow
Lead	0.10 ug/L	0.10 ug/L	In compliance with state standard
Nickel	5.5 ug/L	5.3 ug/L	In compliance with state standard
Nitrogen Ammonia	24 ug/L	362 ug/L	Above ecoregion mean
Nitrate + Nitrite (0.16 mg/L)	0.22 mg/L	0.28 mg/L	Above ecoregion mean
Phosphorus, Total (0.13 mg/L)	0.056 mg/L	0.20 mg/L	Above ecoregion mean
Suspended Solids (13.7 mg/L)	2.25 mg/L	15.4 mg/L	Above ecoregion mean
Turbidity (25 NTU)	5 NTRU	13 NTRU	In compliance with state standard
Zinc	2.3 ug/L	12.0 ug/L	In compliance with state standard

mg/L = milligrams per liter or parts per million (ppm)

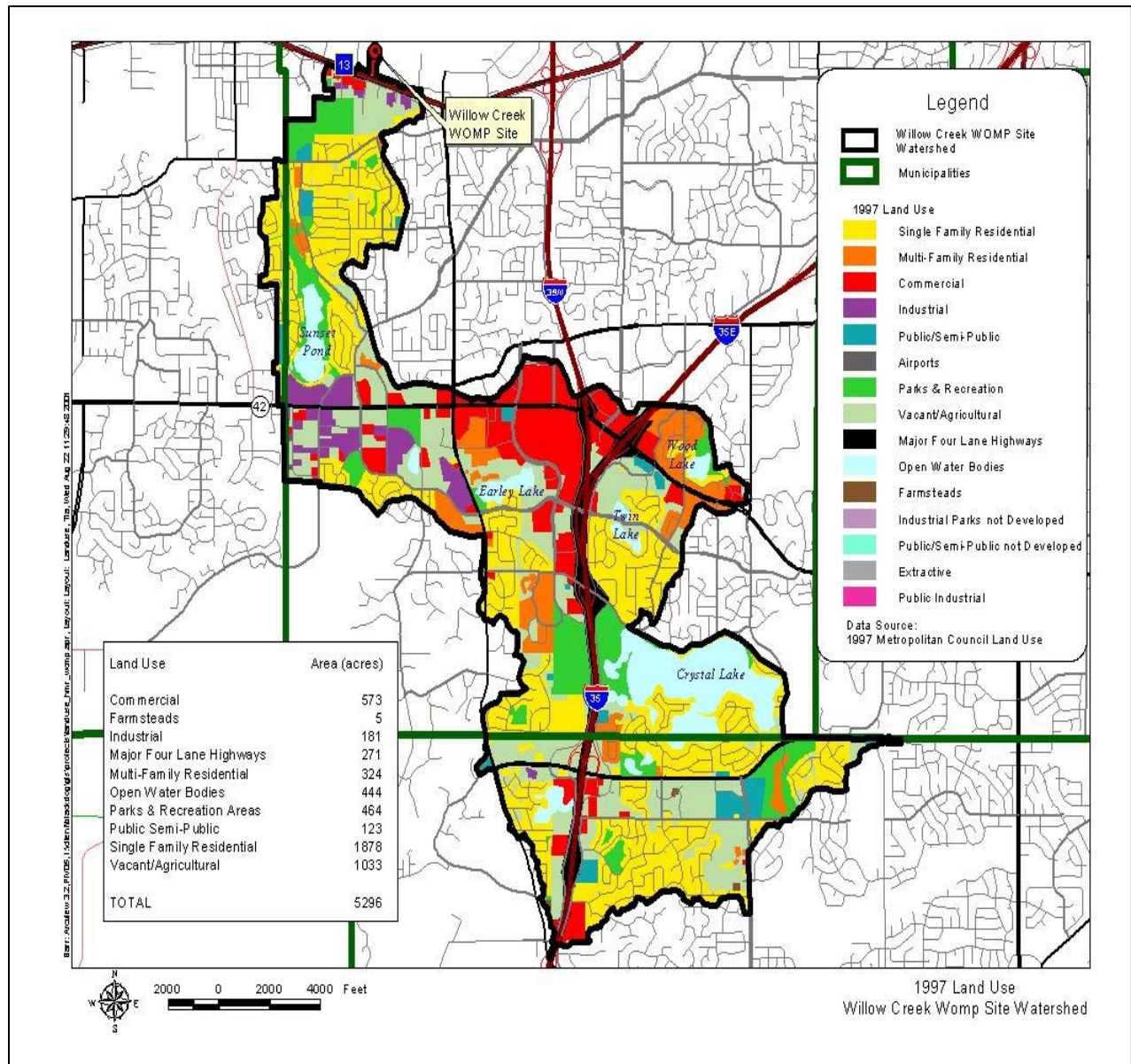
ug/L = micrograms per liter or parts per billion (ppb)

mMHO = micromhos or micorseimens

MPN= most probable number

NTU = nephelometric turbidity units

Appendix A



Watershed and land use information provided by Metropolitan Council Environmental Services.