

APPENDIX K

SEWRPC Technical Memorandum- June 28, 2005- Point Source Calculations for
Purposes of Watercourse Modeling-Addendum No 2: Point Sources Located
Outside of the MMSD Planning Area Under Planned 2020 Conditions.

SEWRPC Technical Memorandum

**POINT SOURCE LOADINGS CALCULATIONS FOR PURPOSES
OF WATERCOURSE MODELING—ADDENDUM NO 2: POINT SOURCES
LOCATED OUTSIDE OF THE MMSD PLANNING AREA
UNDER PLANNED 2020 CONDITIONS**

Prepared by the

Southeastern Wisconsin Regional Planning Commission

June 28, 2005

SEWRPC Technical Memorandum

POINT SOURCE LOADINGS CALCULATIONS FOR PURPOSES OF WATERCOURSE MODELING—ADDENDUM NO 2: POINT SOURCES LOCATED OUTSIDE OF THE MMSD PLANNING AREA UNDER PLANNED 2020 CONDITIONS

INTRODUCTION

Purpose

Watercourse computer modeling is currently underway to evaluate the instream water quality conditions within the entirety of the Kinnickinnic River, Menomonee River, Milwaukee River, Oak Creek, and Root River watersheds. This modeling is intended to serve as a planning tool as part of the cooperative and coordinated efforts by the Milwaukee Metropolitan Sewerage District (MMSD) for its 2020 facilities planning effort and the Southeastern Wisconsin Regional Planning Commission (SEWRPC) for its update of the Regional Water Quality Management Plan. The technical work on the water quality modeling is being conducted by the MMSD 2020 facilities plan technical consulting team and is being overseen by SEWRPC staff.

A previous technical memorandum prepared by the MMSD 2020 Facilities Planning Team and dated December 2004, summarized the types of point source pollutant discharges to waterways within the MMSD planning area and identified the sources of data, assumptions, protocols, and methodologies used to calculate the point source pollutant loadings.¹ A May 28, 2005, SEWRPC technical memorandum was prepared to provide additional information regarding point sources of water pollution for those portions of the watersheds being modeled that are outside of the MMSD planning area. That addendum summarizes the types of pollutant point sources that discharge to the upper Milwaukee River watershed, the lower Root River watershed, and the portions of the Lake Michigan direct drainage area north of Wind Point for years 2002-2003 conditions which were to be used for the base year 2000 conditions.

This addendum memorandum summarizes the methodology to be used for characterizing the point sources outside the MMSD planning area under 2020 conditions. The point sources considered include:

- Municipal Sewage Treatment Plants,
- Local Community Sanitary Sewer Bypasses,
- Industrial Discharges,
- Private Sewage Treatment Plants, and
- Other Point Sources (as identified).

¹Mary Recketenwalt, Jeremy Nitka, Tom Sear, and Larua Gerold, Point Source Loadings Calculations for Purposes of Water Quality Modeling: MMSD Planning Area, Draft Technical Memorandum, Triad Engineering, December 13, 2004.

For the last four categories noted above, the point source loadings for planned 2020 conditions are to be maintained the same as the base year 2000 conditions, as documented in the aforementioned May 28, 2005, SEWRPC technical memorandum. For the municipal sewage treatment plants, the plant effluent flows should be increased to reflect planned 2020 conditions. Those changes are noted in Tables 1, 2, and 3 attached hereto. The plant effluent quality should be maintained at the base year level with regard to the concentrations of constituents. This will result in a concomitant increase in the loadings which are directly proportioned to the plant effluent flow increases.

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Table 1

**SELECTED CHARACTERISTICS OF PUBLIC WASTEWATER
 TREATMENT PLANTS IN THE MILWAUKEE RIVER WATERSHED**

Facility	2000 Estimated Area Served (square miles)	2000 Estimated Population Served	Date of Latest Major Modification	Receiving Water	WPDES Expiration Date	2003 CMAR ^a Point Total
City of Cedarburg	3.3	11,300	1988	Cedar Creek	06/30/2008	30
City of West Bend	8.5	30,300	1980	Milwaukee River	06/30/2005	23
Village of Campbellsport....	1.1	1,900	1989	Milwaukee River	06/30/2007	14
Village of Cascade	0.8	670	1976	North Branch Milwaukee River	09/30/2005	62
Village of Fredonia	0.6	2,000	1983	Milwaukee River	12/31/2004	20
Village of Grafton	2.6	11,200	1983	Milwaukee River	06/30/2007	50
Village of Jackson.....	1.6	5,000	1997	Cedar Creek	09/30/2005	44
Village of Kewaskum.....	1.0	3,300	1972	Milwaukee River	12/31/2004	41
Village of Newburg.....	0.4	1,100	1997	Milwaukee River	09/30/2007	26
Village of Random Lake	1.7	1,600	1979	Silver Creek	12/31/2000	24
Village of Saukville.....	1.4	4,100	2002	Milwaukee River	12/31/2008	1
Town of Scott	0.4	200	1985	Groundwater	06/30/2008	78

Facility	2003 Design Average Hydraulic Loading (mgd)	2003 Hydraulic Loading (mgd)		Number of Months in 2003 in Which the Monthly Average Exceeded Design Average Loadings	Number of Reported Bypasses or Overflows in 2003	Planned 2020		Comments
		Average Annual	Maximum Monthly			Estimated Population Served ^d	Estimated Average Annual Hydraulic Loading (mgd)	
City of Cedarburg	2.75	1.65	1.97	0	3	14,600	2.15	Bypasses were reported due to equipment failure
City of West Bend	9.00	3.42	3.66	0	0	38,700	4.50	--
Village of Campbellsport....	0.47	0.22	0.29	0	0	2,100 ^c	0.25	--
Village of Cascade	0.17	0.06	0.07	0	0	700 ^c	0.07	--
Village of Fredonia	0.60	0.19	0.27	0	0	2,800	0.30	Includes Waubeka area
Village of Grafton	2.15	1.27	1.35	0	0	13,500	1.56	--
Village of Jackson.....	1.25	0.81	1.27	1	0	7,000 ^d	1.10	--
Village of Kewaskum.....	0.75	0.51	0.79	1	1	4,300	0.70	--
Village of Newburg.....	0.18	0.11	0.12	0	0	1,400	0.15	--
Village of Random Lake	0.45	0.21	0.24	0	0	1,800 ^c	0.25	--
Village of Saukville.....	1.60	0.82	1.02	0	0	5,200	1.10	--
Town of Scott	0.03	0.02	0.02	0	0	200	0.02	Of the 78 CMAR points, 40 are due to groundwater standards exceedences

Table 1 Footnotes

^aCompliance Maintenance Annual Report Point Value Significance and Associated Recommended Actions: 0-70 Points = Voluntary Range; 71-120 Points = WDNR Recommendation Range; and Over 121 Points – WDNR Action Range.

^bBased upon 2020 recommended plan level as set forth in the regional land use plan for Southeastern Wisconsin, unless noted differently.

^cBased upon Wisconsin Department of Administration estimate for each civil division.

^dBased upon an increase in population of 50 percent of the increment to the buildout level for the sewer services area.

Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 2

SELECTED CHARACTERISTICS OF PUBLIC WASTEWATER TREATMENT PLANTS IN THE ROOT RIVER WATERSHED

Facility	2000 Estimated Area Served (square miles)	2000 Estimated Population Served	Date of Latest Major Modification	Receiving Water	WPDES Expiration Date	2003 CMAR ^a Point Total
Village of Union Grove.....	0.8	4,400	2003	West Branch Root River Canal Tributary to Hoods Creek	12/31/2003	5
Town of Yorkville.....	0.4	300	1983		03/31/2004	25

Facility	Design Average Hydraulic Loading (mgd)	2003 Hydraulic Loading (mgd)		Number of Months in 2003 in Which the Monthly Average Exceeded Design Average Loadings	Number of Reported Bypasses or Overflows in 2003	Planned 2020		Comments
		Average Annual	Maximum Monthly			Estimated Population Served ^b	Estimated Average Annual Hydraulic Loading (mgd)	
Village of Union Grove.....	2.00	0.72	1.070	0	0	5,800	0.95	--
Town of Yorkville.....	0.15	0.07	0.106	0	0	400	0.10	--

^aCompliance Maintenance Annual Report Point Value Significance and Associated Recommended Actions: 0-70 Points = Voluntary Range; 71-120 Points = WDNR Recommendation Range; and Over 121 Points – WDNR Action Range.

^bBased upon 2020 recommended plan level as set forth in the regional land use plan for Southeastern Wisconsin.

Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 3

**SELECTED CHARACTERISTICS OF PUBLIC WASTEWATER
 TREATMENT PLANTS IN THE LAKE MICHIGAN DIRECT DRAINAGE AREA**

Facility	2000 Estimated Area Served (square miles)	2000 Estimated Population Served	Date of Latest Major Modification	Receiving Water	WPDES Expiration Date	2003 CMAR ^a Point Total
City of South Milwaukee	4.3	21,200	2000	Lake Michigan	06/30/2005	13

Facility	Design Average Hydraulic Loading (mgd)	2003 Hydraulic Loading (mgd)		Number of Months in 2003 in Which the Monthly Average Exceeded Design Average Loadings	Number of Reported Bypasses or Overflows in 2003	Planned 2020		Comments
		Average Annual	Maximum Monthly			Estimated Population Served ^b	Estimated Average Annual Hydraulic Loading (mgd)	
City of South Milwaukee	6.0	3.45	4.37	0	2	21,800	3.55	Bypasses were reported due to power failure

^aCompliance Maintenance Annual Report Point Value Significance and Associated Recommended Actions: 0-70 Points = Voluntary Range; 71-120 Points = WDNR Recommendation Range; and Over 121 Points – WDNR Action Range.

^bBased upon 2020 recommended plan level as set forth in the regional land use plan for Southeastern Wisconsin.

Source: Wisconsin Department of Natural Resources and SEWRPC.