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## CITY OF MERRILL

### Water & Sewage Utility

2401 River Street • Merrill, Wisconsin • 54452

Phone: 715.536.6561 • Fax: 715.539.2668

### NOTICE

RE: Water and Sewage Committee Meeting to be held **Wednesday, August 28, 2013** at 5:00 p.m. in the basement conference room of City Hall.

Voting members: Alderperson John Burgener, Alderperson Kandy Peterson, and Alderperson Rob Norton

The following items will be on the agenda:

1. Review & approval of vouchers.
2. Discussion & recommendation on water rate increase proposal as prepared by Utility Rate Consultant John A. Mayer.
3. Discussion & recommendation on proposals to rehabilitate/replace the grit removal system at the Wastewater Treatment Plant.
4. Operations Report.
5. Public Comment.
6. Next meeting.
7. Adjournment.

Reviewed by,

John Burgener  
Committee Chairperson

The Merrill City Hall is accessible to the physically disadvantaged. If special accommodations are needed, please contact the Merrill City Hall at 536-6561.

PACKET: 05094 water utility aug 2013

VENDOR SET: 01

BANK : 4 UTILITY A/P

VL	JR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
003108		AIRGAS USA, LLC I-9911224297	AIRGAS USA, LLC	R	8/13/2013		19.70CR	138208	19.70
001858		ALFA LAVAL ASHBROOK SIMON-HARTLEY INC I-127404	ALFA LAVAL ASHBROOK SIMON-HART	R	8/13/2013		471.15CR	138209	471.15
001521		BAY TOWEL I-073113	BAY TOWEL	R	8/13/2013		339.85CR	138210	339.85
000069		BRANDT EXTINGUISHERS I-007720	BRANDT EXTINGUISHERS	R	8/13/2013		38.50CR	138211	38.50
000381		CITY OF MERRILL I-REPLACEMENT SWG AC	CITY OF MERRILL	R	8/13/2013		15,000.00CR	138212	15,000.00
000123		DIAMOND BUSINESS GRAPHICS I-164774	DIAMOND BUSINESS GRAPHICS	R	8/13/2013		491.90CR	138213	491.90
000209		ENERGENECS I-0026820-IN	ENERGENECS	R	8/13/2013		1,121.09CR	138214	1,121.09
000212		FASTENAL COMPANY I-073113	FASTENAL COMPANY	R	8/13/2013		663.77CR	138215	663.77
000632		FERGUSON ENTERPRISES #331 I-073113	FERGUSON ENTERPRISES #331	R	8/13/2013		1,725.30CR	138216	1,725.30
002661		FRONTIER I-073113	FRONTIER	R	8/13/2013		127.62CR	138217	127.62
000221		GRAINGER I-9203731030	GRAINGER	R	8/13/2013		19.42CR	138218	19.42
003164		HEARTLAND COOPERATIVE SERVICES I-073113	HEARTLAND COOPERATIVE SERVICES	R	8/13/2013		134.41CR	138219	134.41
000224		HYDRITE CHEMICAL CO I-073113	HYDRITE CHEMICAL CO	R	8/13/2013		4,778.40CR	138220	4,778.40
000751		L W ALLEN, INC I-095075	L W ALLEN, INC	R	8/13/2013		138.00CR	138221	138.00

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V. NR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
000313	LINCOLN CO TREASURER'S OFFICE I-8776	LINCOLN CO TREASURER'S OFFICE	R	8/13/2013		378.08CR	138222	378.08
000041	MERRILL ACE HARDWARE I-073113	MERRILL ACE HARDWARE	R	8/13/2013		481.42CR	138223	481.42
000328	MERRILL WATER UTILITY I-SWG TRMT PLANT	MERRILL WATER UTILITY	R	8/13/2013		238.54CR	138224	238.54
001007	MIDLAND PLASTICS, INC. I-01178162	MIDLAND PLASTICS, INC.	R	8/13/2013		111.30CR	138225	111.30
000540	NAPA AUTO PARTS I-073113	NAPA AUTO PARTS	R	8/13/2013		15.06CR	138226	15.06
000337	NORTH CENTRAL LABORATORIES I-324072	NORTH CENTRAL LABORATORIES	R	8/13/2013		700.18CR	138227	700.18
000351	OFFICE OF STATE TREASURER I-REVENUE BOND RED.	OFFICE OF STATE TREASURER	R	8/13/2013		10,000.00CR	138228	10,000.00
001392	PACE ANALYTICAL SERVICES INC I-073113	PACE ANALYTICAL SERVICES INC	R	8/13/2013		168.00CR	138229	168.00
003381	PETERSEN PRODUCTS CO. LLC I-074148	PETERSEN PRODUCTS CO. LLC	R	8/13/2013		414.00CR	138230	414.00
000362	PETERSON BROS. SAND I-6567	PETERSON BROS. SAND	R	8/13/2013		152.50CR	138231	152.50
002177	PIONEER RESEARCH CORPORATION I-073113	PIONEER RESEARCH CORPORATION	R	8/13/2013		7,529.75CR	138232	7,529.75
000586	QUILL CORPORATION I-073113	QUILL CORPORATION	R	8/13/2013		88.69CR	138233	88.69
000725	CHARLES REINHARDT I-253942	CHARLES REINHARDT	R	8/13/2013		455.00CR	138234	455.00
001811	SGS ENVIRONMENTAL CONTRACTING LLC I-24034	SGS ENVIRONMENTAL CONTRACTING	R	8/13/2013		1,485.00CR	138235	1,485.00

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VL	JR	NAME / I.D.	DESC	CHECK TYPE	CHECK DATE	DISCOUNT	AMOUNT	CHECK NO#	CHECK AMOUNT
000575		SIEMENS WATER TECHNOLOGIES LLC							
		I-901322226	SIEMENS WATER TECHNOLOGIES LLC	R	8/13/2013		120.00CR	138236	120.00
000554		SUPERIOR CHEMICAL CORP							
		I-33494	SUPERIOR CHEMICAL CORP	R	8/13/2013		65.83CR	138237	65.83
000578		USA BLUE BOOK							
		I-073113	USA BLUE BOOK	R	8/13/2013		316.51CR	138238	316.51
000299		WAL-MART COMMUNITY/GEMB							
		I-073113	WAL-MART COMMUNITY/GEMB	R	8/13/2013		95.75CR	138239	95.75
003383		WATER ENVIRONMENT FEDERATION							
		I-MEMBERSHIP	WATER ENVIRONMENT FEDERATION	R	8/13/2013		163.00CR	138240	163.00
000656		WISCONSIN PUBLIC SERVICE							
		I-073113	WISCONSIN PUBLIC SERVICE	R	8/13/2013		9,147.56CR	138241	9,147.56

* * T O T A L S * *	NO#	DISCOUNTS	CHECK AMT	TOTAL APPLIED
REGULAR CHECKS:	34	0.00	57,195.28	57,195.28
HANDWRITTEN CHECKS:	0	0.00	0.00	0.00
PRE-WRITE CHECKS:	0	0.00	0.00	0.00
DRAFTS:	0	0.00	0.00	0.00
VOID CHECKS:	0	0.00	0.00	0.00
NON CHECKS:	0	0.00	0.00	0.00
CORRECTIONS:	0	0.00	0.00	0.00
REGISTER TOTALS:	34	0.00	57,195.28	57,195.28

TOTAL ERRORS: 0 TOTAL WARNINGS: 0

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\*\* POSTING PERIOD RECAP \*\*

FUND	PERIOD	AMOUNT
20	8/2013	455.00CR
62	8/2013	21,415.97CR
63	8/2013	35,324.31CR
=====		
ALL		57,195.28CR

**MERRILL WATER UTILITY**

**MERRILL, WISCONSIN**

**WATER RATE INCREASE PROPOSAL**

**EXECUTIVE SUMMARY**

**AUGUST 28, 2013**

*John A. Mayer  
Utility Rate Consultant  
Milwaukee, Wisconsin*

# MERRILL WATER UTILITY

## MERRILL, WISCONSIN

### \*\*\* ESTIMATED WATER RATES \*\*\*

#### Summary of Major Findings & Recommendations

1. The water utility's last full rate increase was granted by the Public Service Commission of Wisconsin (PSCW) in a Rate Order stamped with a mailing date of December 30, 2010. That rate order increased water revenues by \$158,951 per year and represented an overall increase of about 13.4%.
2. A "financially prudent" level of utility rates suggests that revenues need to be great enough for the utility to pay all operating expenses, pay debt service principal and interest, and enough cash remaining to pay for "ordinary and typical capital expenditures" for an average year. Ordinary and typical capital projects include such things as replacing water mains in conjunction with road rehabilitation, rebuilding wells / pumps, replacing meters, replacing utility trucks, etc. If the utility needs to spend \$xxx,xxx for capital projects each and every year for the foreseeable future, borrowing for that level of expenditure on an annual basis does not make a lot of financial sense.
3. This is why it does not make financial sense. If the utility needed \$250,000 each year for "normal capital construction" the utility could raise rates to generate \$250,000 to cash finance the construction, or it could borrow the \$500,000 and raise rates to only pay for debt service. Each year the utility would have to borrow another \$250,000 and raise rates to cover the additional debt service. Each year the total debt service would increase because each year another \$250,000 was borrowed. Given a historical "normal level" of interest rates, (not the artificially low current interest rates courtesy of the Federal Reserve), and a maturity schedule of 14 – 18 years, there is a point of equilibrium when the oldest debt issue is paid off but another new debt issue is added. At that point total debt service is approximately 150% of the original borrowing. Ultimately the utility will have raised rates \$375,000 to pay for debt service basically forever versus originally raising rates by \$250,000 to fund "normal capital construction" with cash.
4. Recent inflation adjusted capital expenditure averages are:
  - 10-year: \$239,100
  - 8-year: \$245,800
  - 6-year: \$269,900
  - 4-year: \$219,200When the last rate study was performed in August 2010 the recommended level of rates was designed to generate an average cash flow of \$359,500 over the 5-year period 2011-2015.
5. The recent construction project to address the high manganese levels in Merrill's well water has caused the expenditure of approximately \$2.4 million. This has caused the water utility to incur two major increases in annual cash expenditures: 1) principal and interest payments of \$106,000 annually, and 2) an increase in the "tax equivalent" paid by the utility to the City of \$56,500. Total increase in cash expenditures by the utility of \$162,500. The utility implemented an across-the-board increase of 3.2% effective August 1, 2012 which increase revenues by \$40,700. This rate increase will increase

revenues by an estimated \$120,900. Grand total of both increases is \$161,600. **This recommended increase is simply the 2<sup>nd</sup> step in increasing revenues to pay for the manganese removal project.** The level of recommended rates will generate an average of \$333,700 for capital expenditures during the 5-year period 2014-2018 which is slightly lower than the 5-year average of \$359,500 anticipated at the time of the 2010 rate study.

6. As is the case with most water and wastewater utilities in Wisconsin, usage continues to decrease. From the last rate increase request in 2010 until now, residential usage down 5.6%; commercial usage up 3.7%; industrial usage up 3.5%; public authority usage down 0.4%; combined total usage down 2.1%. On a longer term perspective, total water sales are down 15.7% from calendar 2003.
7. It is recommended that the City authorize the filing of a rate increase request with the PSCW for an increase of \$120,858 which represents a **9.45% increase** in revenues from water utility customers.
8. If this increase is approved by the PSCW, the bill for general water service [GWS] including public fire protection for the typical residential customer with a 5/8" or 3/4" meter who uses 12,000 gallons (12 Kgals) would increase from \$55.36 to \$61.12 under the estimated future rates. This is an increase of \$5.76 per quarter, or \$1.92 per month. Refer to Schedule 1 for details of the present and estimated new rates. Schedule 2 compares bills for GWS at various levels of usage under the present and proposed rates.
9. Schedule 3 shows a comparison of the Utility's present and proposed water bills with those of a number of communities. The proposed rates are lower than the average of the barometer group of neighboring communities and lower than the average of all Class "C" water utilities.
10. Figure 1 is a pie chart indicating the expense components needed to be paid for from water revenues. Schedule 4A, 4B and Figure 2 show the revenue raised by each customer class under the proposed rates.
11. A "cash flow" coverage ratio is the number of times that the sum of net income and depreciation can pay both principal and interest in a given year. The coverage computation for the 2014 Test Year follows.

	<b><u>Before Increase</u></b>	<b><u>Including Increase</u></b>
<b>Sources of Cash:</b>		
Operating Revenues	\$1,385,564	\$1,506,422
Less: Oper. Expense (Excl. Depr.)	(1,017,321)	(1,017,321)
Plus: Interest Income	<u>6,900</u>	<u>6,900</u>
Total "Cash Available"	\$ 375,143	\$ 496,001
<b>Uses of Cash:</b>		
Principal	\$ 98,382	\$ 98,382
Interest	35,687	35,687
Less: TIF Rev. / Special Assessment	<u>-0-</u>	<u>-0-</u>
Total "Cash Required"	\$ 134,069	\$ 134,069
<b>Margin Of Safety or "Cushion"</b>	\$ 241,074	\$ 361,932
<b>Cash Flow Coverage Ratio</b>	2.798 x	3.700 x

The projected net cash flow of \$361,932 should permit the utility to fund a typical level of capital replacements without additional borrowing.

12. Recommend that the City authorize the filing of the above water rate increase request with the Public Service Commission of Wisconsin (PSCW).

Periodic rate adjustments are, unfortunately, required in order to keep most utilities in good financial shape. The PSCW's ***Simplified Rate Case (SRC)*** procedure helps in this task. Small, periodic rate increases are far more acceptable to customers and more financially beneficial to the utility, than larger infrequent increases. It is strongly recommended that the utility take advantage of a SRC in March 2015 if it meets all the PSCW's criteria.

### **Regulation: Public Service Commission of Wisconsin**

The process of obtaining a rate increase from the PSCW follows a specific procedure. The utility submits the filing requirements electronically to the PSCW. The PSCW takes rate cases on a first come first served basis, so typically there is some brief period of inactivity. Once the PSCW begins their review, the first staff member to review the application concentrates on the *Revenue Requirement*. Generally they make changes, some to increase items and some to decrease items. They will then put together their recommendations in the form of an exhibit, which is called the *Staff Revenue Requirement Exhibit*. The utility reviews whatever changes they made, and can make suggestions and/or provide additional information. Ultimately the utility needs to either accept or reject the Staff's recommendation. Typically the utility and the staff reach a compromise agreement.

The *Revenue Requirement Exhibit* is then given to another PSCW Staff member who designs water rates to produce the level of revenue identified in the revenue requirement. The utility's rate consultant typically prepares and submits a rate design to the PSCW in order to indicate the utility's desires to the PSCW. The PSCW may accept the utility's rates, or may present their own rates. Once the utility and the PSCW reach agreement or acceptance, a *Staff Rate Design Exhibit* is prepared, and a telephonic hearing is scheduled.

On the day of the hearing, a 3-way telephone conversation between the PSCW, the utility, and the rate consultant is initiated by the PSCW. Witnesses are sworn in. Exhibits are identified. Generally the utility agrees that it will accept (or at least not object to) the rates as recommended by the PSCW Staff. Public comments are also accepted at this time. About 7 days after the hearing, the official ***Rate Order*** is issued by the PSCW, and the utility is authorized to implement the new rates. The PSCW's web site states that a ***Rate Order*** will likely take 120-150 days from the day the application is filed with them.

### **Summary**

This increase will provide the utility with a 5-year estimated cash flow of \$333,700 to pay for normal water main replacement and other capital expenditures without the need to borrow. Utilities with the lowest rates are generally those with the least debt. Making the difficult decision to increase rates now will be a large step in maintaining the excellent financial health the utility has enjoyed over the past several decades.

**PRESENT & ESTIMATED RATES**  
 RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED

**General Water Service - Metered**

<u>Meter Size</u>	<u>Quarterly Customer Charge</u>	
	<u>Present</u>	<u>Estimated</u>
5/8"	\$17.80	\$20.50
3/4"	17.80	20.50
1"	27.86	31.00
1½"	46.44	51.00
2"	71.21	81.00
3"	114.55	129.00
4"	160.99	184.00
6"	281.74	322.00
8"	430.34	489.00
10"	622.30	708.00
12"	817.34	930.00

<u>Usage In CCF</u>	<u>Present Charge \$/CCF</u>	<u>Estimated Charge \$/CCF</u>
	First 40	\$2.15
Next 960	\$1.72	\$1.98
Over 1,000	\$1.28	\$1.54

**General Water Service - Unmetered**

	<u>Quarterly Customer Charge</u>	
	<u>Present</u>	<u>Estimated</u>
<b>Unmetered Water Customers</b>	\$46.37	\$51.83
est. @ 14.0 CCF per period for "Present" rates		
est. @ 13.0 CCF per period for "Estimated" rates		

**Private Fire Protection**

<u>Size of Connection</u>	<u>Quarterly Customer Charge</u>	
	<u>Present</u>	<u>Estimated</u>
2	\$13.50	\$13.50
3	25.50	25.50
4	43.50	43.50
6	87.00	87.00
8	135.00	135.00
10	210.00	210.00
12	300.00	300.00

**PRESENT & ESTIMATED RATES**  
**RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED**

**Public Fire Protection**

	<u>Present</u>	<u>Estimated</u>
<b>Annual Charge To Municipality</b>	\$114,540	\$114,540

<b>Meter Size</b>	<b><u>Quarterly Customer Charge</u></b>	
	<u>Present</u>	<u>Estimated</u>
5/8"	\$11.76	\$11.70
3/4"	11.76	11.70
1"	29.72	29.40
1½"	58.82	60.00
2"	95.98	93.00
3"	179.57	177.00
4"	297.22	294.00
6"	594.43	588.00
8"	953.57	942.00
10"	1,430.35	1,413.00
12"	1,904.04	1,884.00

**WATER BILL COMPARISON**  
**INCLUDING FIRE PROTECTION DIRECT CHARGE**  
**RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED**

Qtrly Usage CCF	0.75 " METER				1 " METER				2 " METER			
	Present	Estimated	\$ Chg	% Chg	Present	Estimated	\$ Chg	% Chg	Present	Estimated	\$ Chg	% Chg
0	29.56	32.20	2.64	8.9%								
1	31.71	34.61	2.90	9.1%								
2	33.86	37.02	3.16	9.3%								
3	36.01	39.43	3.42	9.5%								
4	38.16	41.84	3.68	9.6%								
5	40.31	44.25	3.94	9.8%								
6	42.46	46.66	4.20	9.9%								
7	44.61	49.07	4.46	10.0%								
8	46.76	51.48	4.72	10.1%								
9	48.91	53.89	4.98	10.2%								
10	51.06	56.30	5.24	10.3%	79.08	84.50	5.42	6.9%				
11	53.21	58.71	5.50	10.3%	81.23	86.91	5.68	7.0%				
12	<b>55.36</b>	<b>61.12</b>	<b>5.76</b>	<b>10.4%</b>	83.38	89.32	5.94	7.1%				
13	57.51	63.53	6.02	10.5%	85.53	91.73	6.20	7.2%				
14	59.66	65.94	6.28	10.5%	87.68	94.14	6.46	7.4%				
15	61.81	68.35	6.54	10.6%	89.83	96.55	6.72	7.5%				
16	63.96	70.76	6.80	10.6%	91.98	98.96	6.98	7.6%				
17	66.11	73.17	7.06	10.7%	94.13	101.37	7.24	7.7%				
18	68.26	75.58	7.32	10.7%	96.28	103.78	7.50	7.8%				
19	70.41	77.99	7.58	10.8%	98.43	106.19	7.76	7.9%				
20	72.56	80.40	7.84	10.8%	100.58	108.60	8.02	8.0%				
24	81.16	90.04	8.88	10.9%	109.18	118.24	9.06	8.3%				
25	83.31	92.45	9.14	11.0%	111.33	120.65	9.32	8.4%	220.94	234.25	13.31	6.0%
30	94.06	104.50	10.44	11.1%	122.08	132.70	10.62	8.7%	231.69	246.30	14.61	6.3%
35	104.81	116.55	11.74	11.2%	132.83	144.75	11.92	9.0%	242.44	258.35	15.91	6.6%
40	115.56	128.60	13.04	11.3%	143.58	156.80	13.22	9.2%	253.19	270.40	17.21	6.8%
45	124.16	138.50	14.34	11.5%	152.18	166.70	14.52	9.5%	261.79	280.30	18.51	7.1%
50	132.76	148.40	15.64	11.8%	160.78	176.60	15.82	9.8%	270.39	290.20	19.81	7.3%
60	149.96	168.20	18.24	12.2%	177.98	196.40	18.42	10.3%	287.59	310.00	22.41	7.8%
70	167.16	188.00	20.84	12.5%	195.18	216.20	21.02	10.8%	304.79	329.80	25.01	8.2%
80	184.36	207.80	23.44	12.7%	212.38	236.00	23.62	11.1%	321.99	349.60	27.61	8.6%
90	201.56	227.60	26.04	12.9%	229.58	255.80	26.22	11.4%	339.19	369.40	30.21	8.9%
100	218.76	247.40	28.64	13.1%	246.78	275.60	28.82	11.7%	356.39	389.20	32.81	9.2%
150	304.76	346.40	41.64	13.7%	332.78	374.60	41.82	12.6%	442.39	488.20	45.81	10.4%
200	390.76	445.40	54.64	14.0%	418.78	473.60	54.82	13.1%	528.39	587.20	58.81	11.1%
300	562.76	643.40	80.64	14.3%	590.78	671.60	80.82	13.7%	700.39	785.20	84.81	12.1%
400	734.76	841.40	106.64	14.5%	762.78	869.60	106.82	14.0%	872.39	983.20	110.81	12.7%
500	906.76	1,039.40	132.64	14.6%	934.78	1,067.60	132.82	14.2%	1,044.39	1,181.20	136.81	13.1%
750	1,336.76	1,534.40	197.64	14.8%	1,364.78	1,562.60	197.82	14.5%	1,474.39	1,676.20	201.81	13.7%
1000	1,766.76	2,029.40	262.64	14.9%	1,794.78	2,057.60	262.82	14.6%	1,904.39	2,171.20	266.81	14.0%
2000	3,046.76	3,569.40	522.64	17.2%	3,074.78	3,597.60	522.82	17.0%	3,184.39	3,711.20	526.81	16.5%
3000	4,326.76	5,109.40	782.64	18.1%	4,354.78	5,137.60	782.82	18.0%	4,464.39	5,251.20	786.81	17.6%

**WATER BILL COMPARISON**  
**INCLUDING FIRE PROTECTION DIRECT CHARGE**  
**RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED**

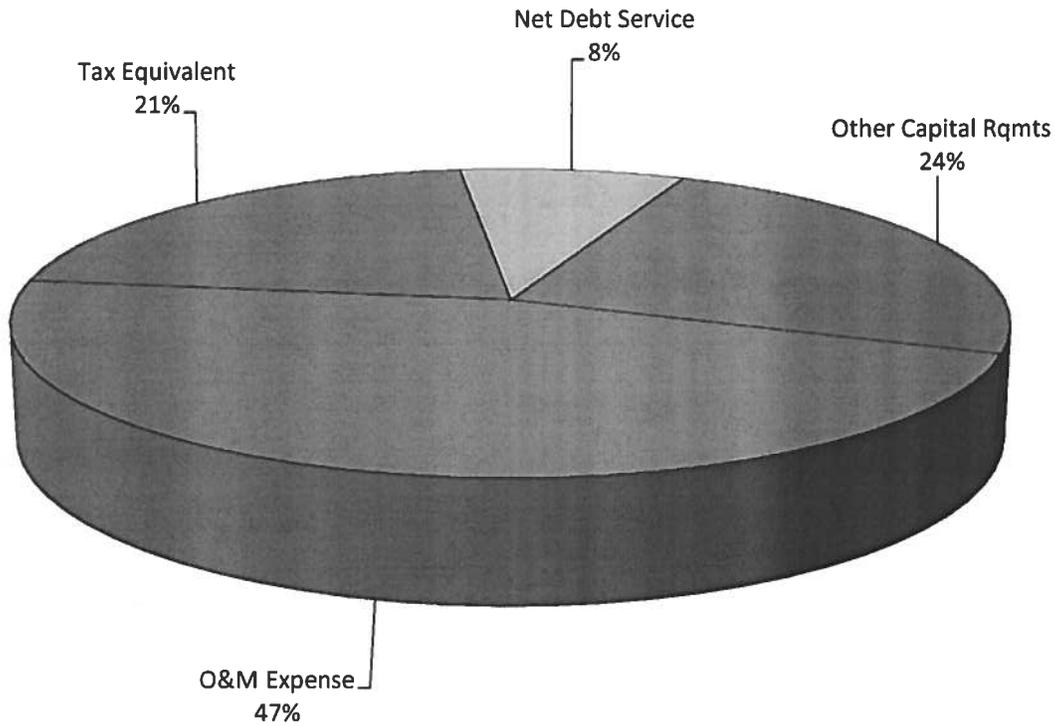
Meter Size (in.)	Customer Type	CCF Used	Quarterly Bill @			
			Present	Proposed	\$ Change	% Change
			\$	\$	\$	%
0.750	Small Residential	6	42.46	46.66	4.20	9.9%
0.750	Typical Residential	12	55.36	61.12	5.76	10.4%
0.750	Large Residential	24	81.16	90.04	8.88	10.9%
0.750	Small Commercial	23	79.01	87.63	8.62	10.9%
1.000	Typical Commercial	46	153.90	168.68	14.78	9.6%
1.500	Large Commercial	138	359.82	401.44	41.62	11.6%
2.000	Very Large Commercial	500	1,044.39	1,181.20	136.81	13.1%
0.750	Industrial	4,000	5,606.76	6,649.40	1,042.64	18.6%
2.000	Very Large Industrial	15,000	19,824.39	23,731.20	3,906.81	19.7%
1.500	Public Authority	62	229.10	250.96	21.86	9.5%
2.000	P/A - School	3,000	4,464.39	5,251.20	786.81	17.6%

**COMPARISON WITH OTHER WATER RATES**  
RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED

Municipality:	Class	Date of Last Rate Order	QUARTERLY BILLS 5/8" or 3/4" Meter					
			Bill @ Usage of					
			Minimum	5 CCF	10 CCF	25 CCF	60 CCF	100 CCF
Hurley	D	05/01/2012	33.00	64.88	96.75	<b>192.38</b>	409.50	652.50
Menasha	AB	03/01/2012	33.00	57.00	81.00	<b>153.00</b>	321.00	511.50
Cornell	D	10/20/2012	25.50	48.00	70.50	<b>138.00</b>	285.00	444.00
Ashland	C	05/08/2013	35.40	55.30	75.20	<b>134.90</b>	274.20	433.40
Neenah	AB	01/01/2011	21.00	42.79	64.58	<b>129.94</b>	282.45	456.75
Park Falls	C	09/17/2013	25.18	45.02	64.86	<b>124.37</b>	259.28	394.28
Thorp	D	12/31/2004	42.00	57.86	73.73	<b>121.31</b>	214.35	314.25
Black River Falls	C	09/25/2012	27.87	43.62	59.37	<b>106.62</b>	208.41	315.61
Wisconsin Rapids	AB	06/04/2012	18.00	34.75	51.50	<b>101.75</b>	219.00	353.00
Stanley	D	06/01/2012	19.67	35.05	50.42	<b>96.55</b>	204.17	317.67
Antigo	AB	07/05/2012	26.40	40.40	54.40	<b>96.40</b>	194.40	298.40
Marshfield	AB	01/01/2012	20.40	34.65	48.90	<b>91.65</b>	191.40	305.40
Medford	C	12/10/2012	24.60	36.98	49.35	<b>86.48</b>	169.35	260.85
Prentice	D	01/01/2013	18.59	31.64	44.69	<b>83.84</b>	171.79	255.79
Cadott	D	09/19/2007	14.25	27.71	41.18	<b>81.56</b>	167.55	258.75
<b>Merrill</b>	<b>C</b>	<b>Estimated</b>	24.46	43.73	63.00	<b>80.75</b>	251.86	382.82
Ladysmith	C	05/29/2013	16.20	28.61	41.03	<b>78.26</b>	165.15	251.70
<b>Merrill</b>	<b>C</b>	<b>01/01/2014</b>	17.80	28.55	39.30	<b>71.55</b>	138.20	207.00
Mellen	D	12/16/2011	17.51	27.64	37.76	<b>68.14</b>	128.51	188.51
Eagle River	D	07/30/2004	16.47	26.72	36.97	<b>67.72</b>	139.47	213.07
Tomahawk	C	12/30/2011	15.60	25.60	35.60	<b>65.60</b>	127.60	191.60
Stevens Point	AB	05/01/2012	25.50	33.40	41.30	<b>65.00</b>	120.30	183.50
Durand	D	03/09/2009	20.40	28.73	37.05	<b>62.03</b>	106.05	155.55
Waupaca	C	07/15/2011	15.90	25.05	34.20	<b>61.65</b>	116.88	177.48
Shawano	AB	01/01/2009	21.00	28.90	36.80	<b>60.50</b>	108.90	159.90
Weston	AB	03/18/2009	18.00	25.50	33.00	<b>60.31</b>	135.50	228.50
Rhineland	C	11/21/2008	24.00	31.01	38.03	<b>59.06</b>	107.70	161.10
Phillips	D	12/01/2012	13.55	22.45	31.35	<b>58.05</b>	116.95	174.55
Wausau	AB	07/01/2010	15.45	23.90	32.35	<b>57.70</b>	116.85	178.05
Lakeland SD	C	06/01/2005	13.50	21.23	28.95	<b>52.13</b>	103.10	146.30
Chippewa Falls	AB	12/01/2009	18.69	25.09	31.49	<b>50.69</b>	90.99	136.19
Menomonie	AB	12/01/2002	12.33	19.18	26.03	<b>46.58</b>	84.33	125.53
<b>Average w/o Merrill</b>			<b>\$21.63</b>	<b>\$34.95</b>	<b>\$48.28</b>	<b>\$88.40</b>	<b>\$178.00</b>	<b>\$274.79</b>
Merrill	C	01/01/2014	17.80	28.55	39.30	71.55	138.20	207.00
Merrill	C	Estimated	20.50	32.55	44.60	80.75	156.50	235.70
Mean of All Class C Utilities -		07/03/2013	\$23.07	\$34.48	\$46.05	\$80.90	\$159.21	\$243.31
Mean of All Classes -		07/03/2013	\$25.28	\$37.73	\$50.33	\$88.31	\$172.51	\$263.24
Present Rates +/- Selected Communities			-17.71%	-18.32%	-18.59%	-19.07%	-22.36%	-24.67%
Present Rates +/- Mean Class "C"			-22.83%	-17.21%	-14.65%	-11.55%	-13.20%	-14.92%
Present Rates +/- Mean All Classes			-29.60%	-24.33%	-21.91%	-18.98%	-19.89%	-21.36%
Estimated Rates +/- Selected Communities			-5.23%	-6.88%	-7.62%	-8.66%	-12.08%	-14.23%
Estimated Rates +/- Mean Class "C"			-11.13%	-5.61%	-3.14%	-0.18%	-1.70%	-3.13%
Estimated Rates +/- Mean All Classes			-18.92%	-13.73%	-11.38%	-8.56%	-9.28%	-10.46%

**RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED**

**EXPENSE COMPONENTS**



<b>EXPENSE COMPONENTS</b>	<b>\$</b>	<b>% of Total Expense</b>
O&M Expense	700,730	46.5%
Tax Equivalent	316,591	21.0%
Net Debt Service	127,169	8.4%
Other Capital Rqmts	361,932	24.0%
<b>Total Revenue Needed</b>	<b>\$1,506,422</b>	<b>100.00%</b>
<b>REVENUE NEEDED FROM RATES</b>	<b>\$1,506,422</b>	

**SUMMARY - PRESENT & ESTIMATED REVENUES**  
 RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED

	Revenues Under		Dollar Change	Percent Change
	Present	Estimated		
	Rates	Rates		
	\$	\$	\$	%
Residential	595,536	675,525	79,989	13.4%
Commercial	192,611	219,184	26,573	13.8%
Industrial	60,364	69,822	9,459	15.7%
Public Auth.	53,922	61,833	7,910	14.7%
Public Fire Prot. - Ad Valorem	114,540	114,540	0	0.0%
Public Fire Prot. - Direct Charge	229,322	227,491	(1,831)	-0.8%
Private Fire Prot.	31,470	31,470	0	0.0%
Misc. Revenues	107,800	107,800	0	0.0%
<b>Total Revenues</b>	<b>1,385,564</b>	<b>1,507,664</b>	<b>122,100</b>	<b>8.8%</b>
<b><u>Revenues from Water Customers</u></b>				
R, C, I, P/A, & Direct Charge PFP	1,131,754	1,253,854	122,100	10.8%

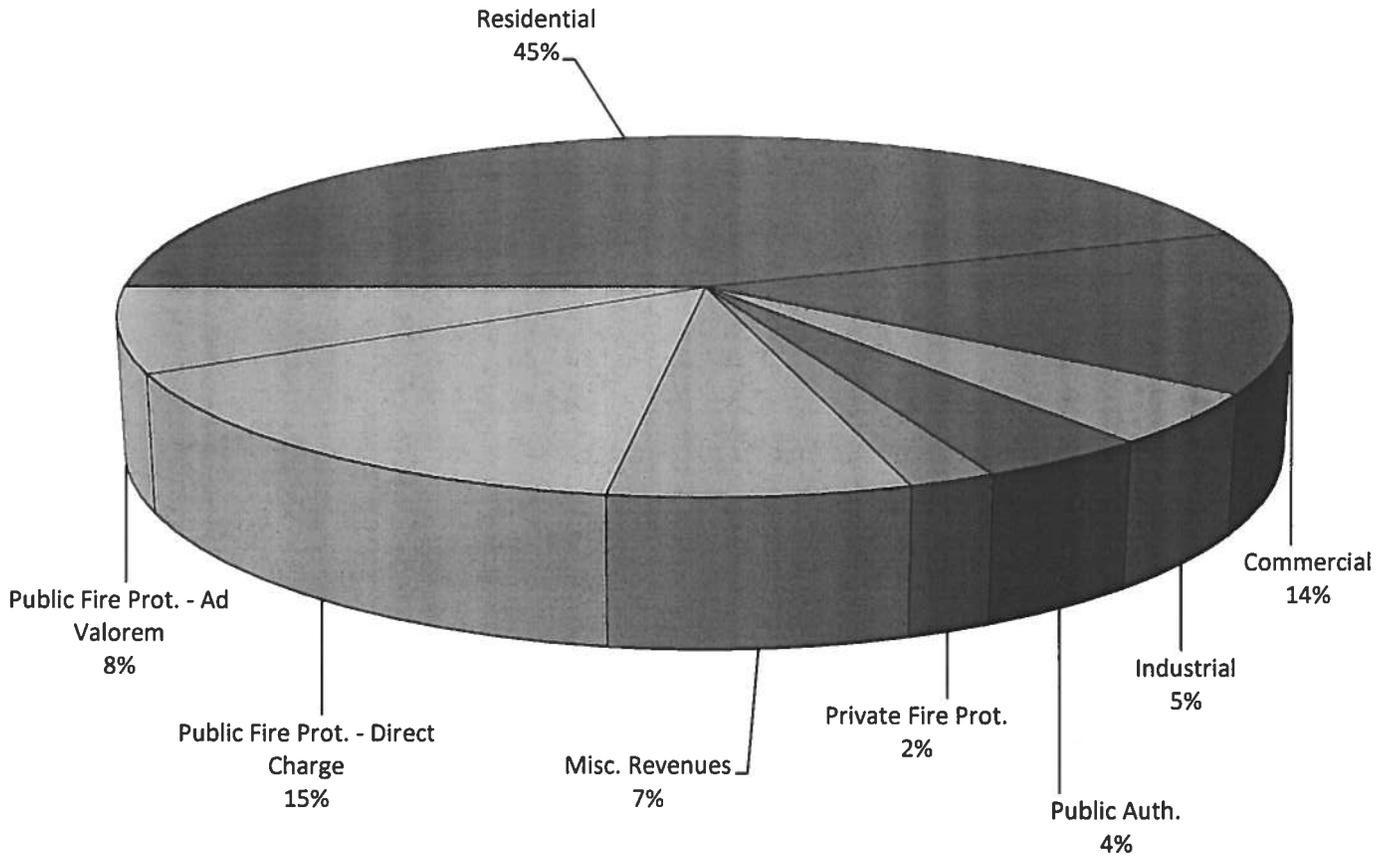
**SUMMARY - PRESENT & ESTIMATED REVENUES**  
**RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED**

	Revenue Under Present Rates	Adj. Cost of Service	Revenue Under Estimated Rates	Dollar Increase Over Present Rates	Cost of Service Increase Indicated	Achieved Increase Over Present Rates	% Over/ (Under) Cost of Service	Direct Charge PFP Revenues	Total Combined Revenues	Total Combined Increase
	\$	\$	\$	\$	%	%	%	\$	\$	%
Residential	595,536	670,127	675,525	79,989	12.5%	13.4%	0.8%	155,104	830,628	10.5%
Commercial	192,611	222,188	219,184	26,573	15.4%	13.8%	-1.4%	46,782	265,966	10.8%
Industrial	60,364	69,910	69,822	9,459	15.8%	15.7%	-0.1%	8,213	78,035	13.6%
Public Auth.	53,922	61,788	61,833	7,910	14.6%	14.7%	0.1%	17,393	79,225	10.6%
Public Fire Prot. - Ad Valorem	114,540	114,540	114,540	0	0.0%	0.0%	0.0%		114,540	
Public Fire Prot. - Direct Charge	229,322	228,598	227,491	(1,831)	-0.3%	-0.8%	-0.5%			
Public Fire Prot. Direct - Residential	155,908	155,104	155,104	(805)	-0.5%	-0.5%	0.0%			
Public Fire Prot. Direct - Commercial	47,376	46,782	46,782	(594)	-1.3%	-1.3%	0.0%			
Public Fire Prot. Direct - Industrial	8,331	8,213	8,213	(119)	-1.4%	-1.4%	0.0%			
Public Fire Prot. Direct - Public Auth.	17,707	17,393	17,393	(314)	-1.8%	-1.8%	0.0%			
Private Fire Prot.	31,470	31,470	31,470	0	0.0%	0.0%	0.0%		31,470	
Misc. Revenues	107,800	107,800	107,800	0	0.0%	0.0%	0.0%		107,800	
<b>Total Revenues</b>	<b>1,385,564</b>	<b>1,506,422</b>	<b>1,507,664</b>	<b>122,100</b>	<b>8.7%</b>	<b>8.8%</b>	<b>0.1%</b>	<b>227,491</b>	<b>1,507,664</b>	<b>8.8%</b>
<b>Less: Private Fire Prot.</b>	<b>(31,470)</b>	<b>(31,470)</b>	<b>(31,470)</b>	<b>-</b>					<b>(31,470)</b>	<b>0.0%</b>
<b>Less: Misc. Revenues</b>	<b>(107,800)</b>	<b>(107,800)</b>	<b>(107,800)</b>						<b>(107,800)</b>	<b>0.0%</b>
<b>Less: PFP - Ad Valorem</b>	<b>(114,540)</b>	<b>(114,540)</b>	<b>(114,540)</b>						<b>(114,540)</b>	<b>0.0%</b>
<b>Net Revenues from Utility Customers</b>	<b>1,131,754</b>	<b>1,252,612</b>	<b>1,253,854</b>	<b>122,100</b>	<b>10.7%</b>	<b>10.8%</b>	<b>0.1%</b>	<b>227,491</b>	<b>1,253,854</b>	<b>10.8%</b>
<b>Net Cash Flow for Construction</b>	<b>363,174</b>		<b>Whsle Rate:</b>	<b>\$0.00</b>						

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RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED

REVENUE UNDER PROPOSED RATES



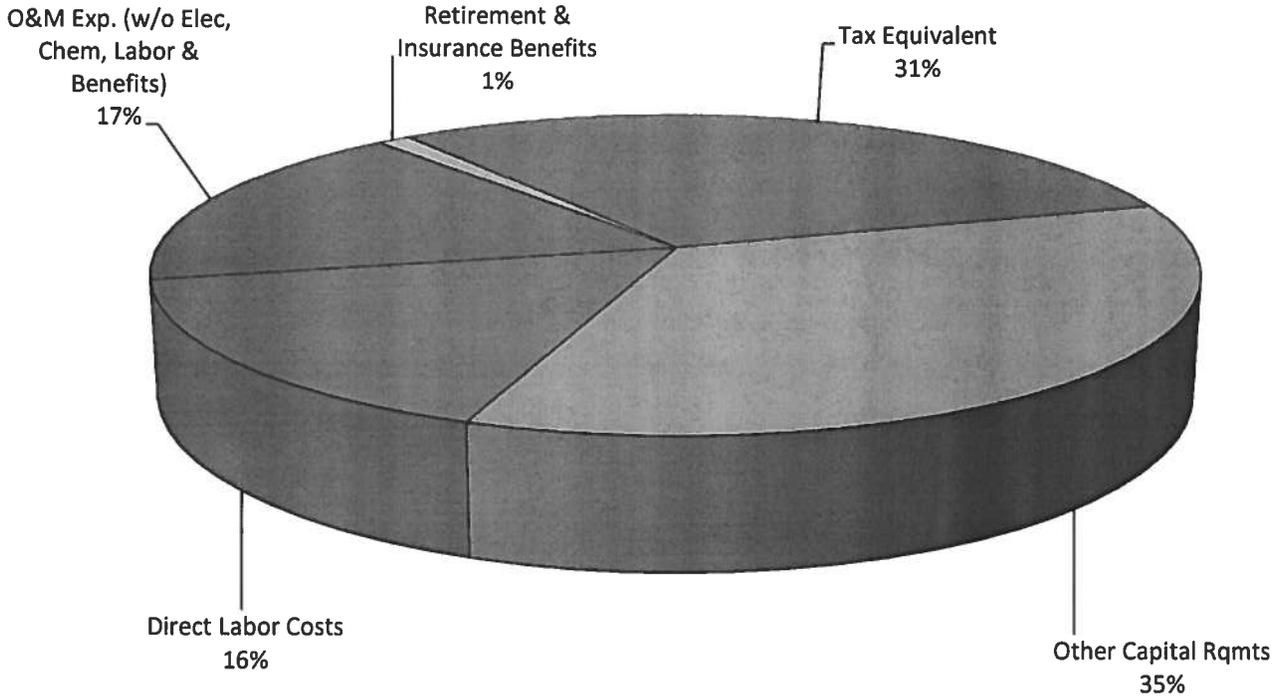
<u>REVENUE UNDER PROPOSED RATES</u>	<u>\$</u>	<u>% of Total Revenues</u>
Residential	675,525	44.8%
Commercial	219,184	14.5%
Industrial	69,822	4.6%
Public Auth.	61,833	4.1%
Private Fire Prot.	31,470	2.1%
Misc. Revenues	107,800	7.2%
Public Fire Prot. - Direct Charge	227,491	15.1%
Public Fire Prot. - Ad Valorem	114,540	7.6%
<b>USER CHARGE REVENUE</b>	<b>\$1,507,664</b>	<b>100.0%</b>

**REASONS FOR THE CHANGE IN WATER RATES**  
RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED

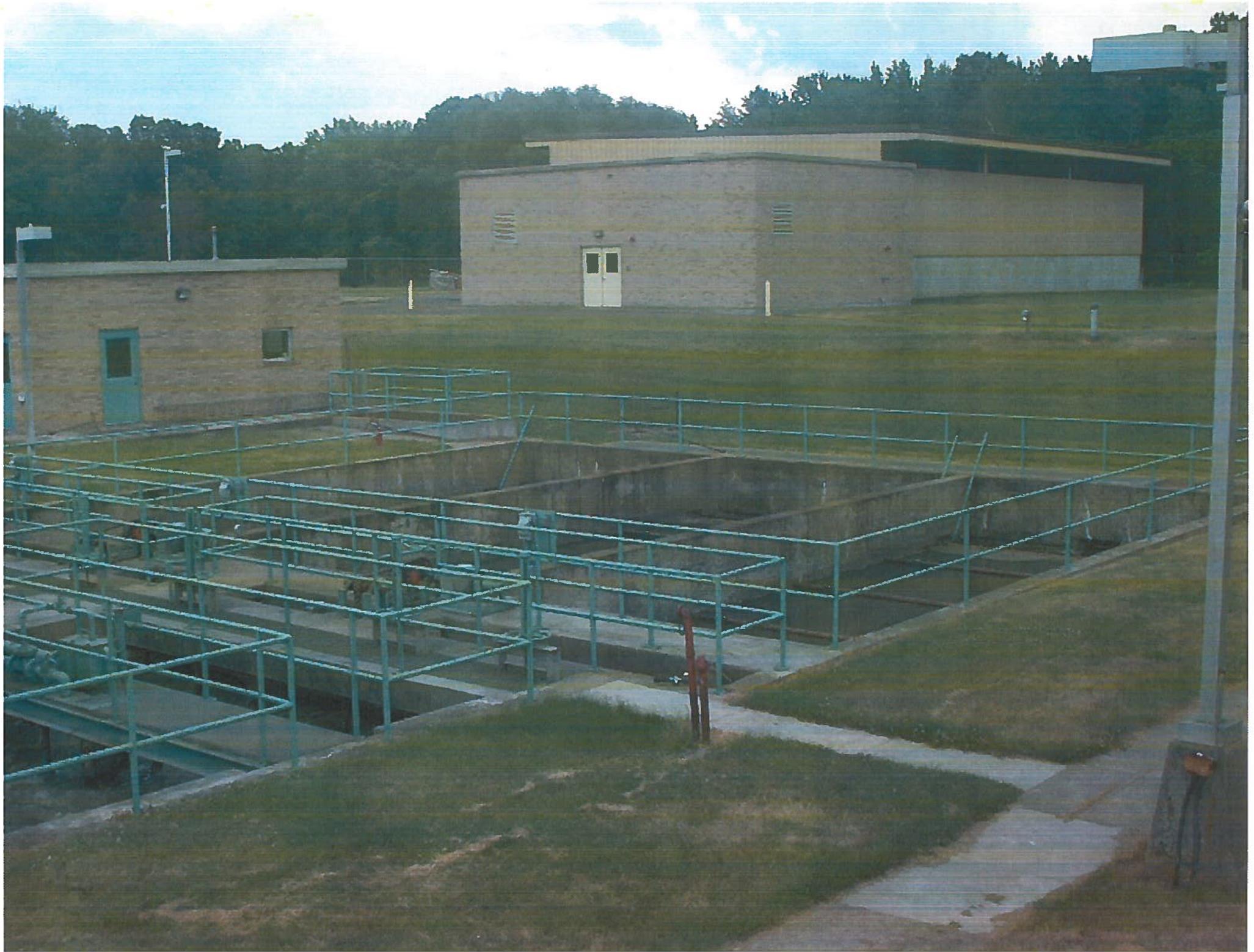
	Basis For Present Rates	Present Revenues & Expenses	Increase/ (Decrease)	% Increase/ (Decrease)	
	\$	\$	\$	%	
<b>REVENUES:</b>					
Residential	595,856	595,536	(320)	-0.05%	
Commercial	181,728	192,611	10,883	5.99%	
Industrial	56,861	60,364	3,502	6.16%	
Public Auth.	52,852	53,922	1,070	2.03%	
Unmetered	1,300	1,200	(100)	-7.69%	
<b>TOTAL WATER SERVICE</b>	<b>888,597</b>	<b>903,632</b>	<b>15,035</b>	<b>1.69%</b>	
Private Fire Protection	32,760	31,470	(1,290)	-3.94%	
Public Fire Protection (Ad Valorem)	193,488	114,540	(78,948)	-40.80%	
Public Fire Protection (Direct Charge)	139,705	229,322	89,617	64.15%	
Late Payment Charge	3,700	6,000	2,300	62.16%	
Misc. Revenues	70,500	84,900	14,400	20.43%	
Other Water Revenues	15,000	15,700	700	4.67%	
<b>TOTAL OPERATING REVENUES</b>	<b>1,343,750</b>	<b>1,385,564</b>	<b>41,815</b>	<b>3.11%</b>	
<b>OPERATING EXPENSES:</b>					
					Annualized % Chg.
Direct Labor Costs	144,450	184,050	39,600	27.41%	7.16%
Retirement & Insurance Benefits	142,300	145,100	2,800	1.97%	0.56%
Electric Power	50,200	47,400	(2,800)	-5.58%	-1.63%
Chemicals	30,900	30,900	0	0.00%	0.00%
All Other Costs	251,550	293,280	41,730	16.59%	4.48%
<b>Total O&amp;M Expense (Incl. FICA)</b>	<b>619,400</b>	<b>700,730</b>	<b>81,330</b>	<b>13.13%</b>	<b>3.59%</b>
<b>Tax Equivalent</b>	<b>241,873</b>	<b>316,591</b>	<b>74,718</b>	<b>30.89%</b>	<b>7.99%</b>
<b>CASH OPERATING EXPENSES</b>	<b>861,273</b>	<b>1,017,321</b>	<b>156,048</b>	<b>18.12%</b>	<b>4.87%</b>
<b>CAPITAL COSTS:</b>					
Principal & Interest on Debt	210,191	134,069	(76,122)	-36.22%	-12.05%
Less: Interest Income / TIF / Spec. Assess.	(3,600)	(6,900)	(3,300)	91.67%	20.42%
Cash Contingency	275,886	361,932	86,046	31.19%	8.06%
<b>TOTAL CAPITAL REQUIREMENTS</b>	<b>482,477</b>	<b>489,101</b>	<b>6,624</b>	<b>1.37%</b>	<b>0.39%</b>
<b>TOTAL OPERATING &amp; CAPITAL EXPENSES</b>	<b>\$1,343,750</b>	<b>\$1,506,422</b>	<b>\$162,672</b>	<b>12.11%</b>	<b>3.32%</b>
<b>TOTAL CHANGE IN REVENUES REQUIRED</b>	<b>\$0</b>	<b>\$120,858</b>	<b>\$120,858</b>	<b>8.72%</b>	<b>2.42%</b>

**RATE STUDY USING UTILITY REVENUE REQUIREMENT AS ORIGINALLY FILED**

**REASONS FOR THE CHANGE**



<b>REASONS FOR THE CHANGE</b>	<b>\$</b>	<b>%</b>	<b>Rate Incr. Required</b>
Direct Labor Costs	39,600	16.2%	2.9%
O&M Exp. (w/o Elec, Chem, Labor & Benefits)	41,730	17.0%	3.0%
Retirement & Insurance Benefits	2,800	1.1%	0.2%
Tax Equivalent	74,718	30.5%	5.4%
Other Capital Rqmts	86,046	35.1%	6.2%
<b>Sub-total</b>	<b>\$244,894</b>	<b>100.0%</b>	
Less: Increase in Revenue	(41,815)		-3.0%
Electric Pwr & Chem.	(2,800)		-0.2%
Debt Service (Net of Interest Income)	(79,422)		-5.7%
<b>NET CHANGE REQUIRED</b>	<b>\$120,858</b>		<b>8.7%</b>





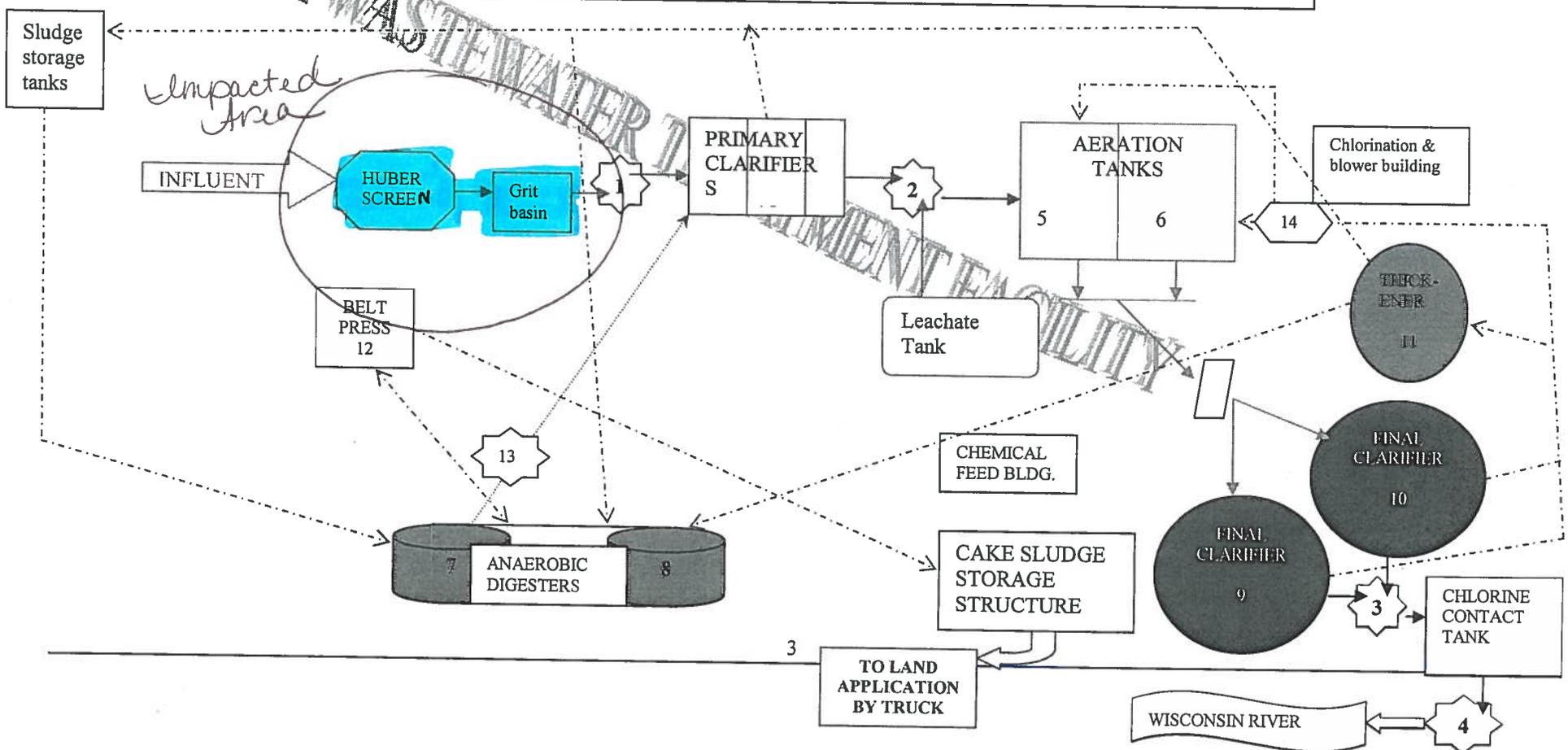




# Flow Schematic of Merrill WI Wastewater Facility

## Sample Location and Analyses performed

1. Influent: Flow, BOD, TSS, pH, VSS, Zinc
2. Primary Effluent: BOD, TSS, pH, VSS
3. Effluent: BOD, TSS, VSS, NH3-N, Total Phosphorus, WET test
4. Effluent: Cl2 res., Fecal Coliforms, pH, Zinc
- 5 & 6. Aeration Mixed Liquor, Settleability, TSS, VSS, DO, pH, temperature & Microscopic examination
7. Secondary digester: TS, VS,
8. Primary Digester: % Solids, %VS, pH, Temperature, Volatile acids, Alkalinity
- 9 & 10. Clarifier: Sludge blanket
11. Thickener: TS
12. Belt press: Feed % Solids, Cake % Solids, Filtrate % Solids
13. Supernatant: BOD, TSS, pH
14. Return Waste Activated sludge: TS, VS, pH
15. Primary Clarifiers: Raw primary sludge TS & VS



Supplier	Manufacturer	Grit Removal	Grit Classifier	Grit Pump	Installation	Total Cost	Comments
LAI-Ltd							
	Wemco	none quoted	Wemco Hydrogritter (\$25000-\$45000 depending on material)	Wemco Grit Pump (\$19000-\$24000 DEPENDS ON ARRANGEMNET, SEAL SELECTION)	not included	\$46000 - \$69000	Still needs a grit removal basin not included in quote
	Lakeside	Rapter	Rapter		not included	\$75000 - \$90000	grit removal and grit classifier combined in one unit doesn't need grit pump
	Lakeside	SpiraGrit			not included	\$15000 - \$200000	Still need grit classifier and grit pump
	Walker Process	Aerated Rolling grit system			not included	\$85000 - \$150000	Still need grit classifier and grit pump
William Reid LTD							
	Envirodyne				not included	\$150,000	complete system
Peterson & Matz, Inc.							
	WSG				not included	\$95,000	complete system
Mulcahy Shaw Water							
	Anwell				not included	\$83,500	complete system
Process Equipment repair Services, Inc.							
	PERS	Aerated grit chamber (\$11,800)	Grit Classifier (\$30000)	Wemco Grit Pump (\$22800)	\$49000 plus cost of electrician	\$123,800	Included with this total is addition piping needed to complete project \$10200
Drydon							
	Hydro International	Eutek Head Cell	Eutek teacup	not needed	Not included	\$141,000	More grit dewatering could be added \$90000 and alternate gritclassifying and washing for \$65000
Energenecs							
	Smith and Loveless	PISTA (\$110000)	S&L Model 15 (\$50000)	S&L grit pump (\$15000)	not included	\$175,000	
WTP Equipment							
	WTP				Not included	\$75,000	Complete System

Crane							
	Lakeside	Aeroductor aerated grit	20° Grit classifier	air lift pump	not included	\$112,000	complete system

August 21, 2013

TO: Water & Sewage Committee

FROM: Kim Kriewald, Utility Superintendent

RE: Operations Report

Water & Sewer Operations & Water Recycling Operations aka Wastewater Operations

Annual Inspection of city landfill done by DNR – we are in compliance. No work necessary.

New WPDES Permit was re-issued for Wastewater Plant. Takes effect on October 1<sup>st</sup> (permit fact sheet is attached).

Continuing with routine meter changes.

Continuing to check on operational conditions of mainline and hydrant gates.

Received DNR's response to the city's submittal of CMAR (copy is attached).

Continuing system cleaning of sanitary sewers.

Preparing to have a number of manholes rehabbed – the ones chosen are in very bad shape or leak badly. Will have Infratech do the work.

Thanks to Kiefer & Ryan for good work over the summer as they head back to school. The intern at the WWTP will continue to work sharing duties at the water and wastewater plants.

Large meter testing is completed.

Information concerning potential impact of Act 25; possible amendments coming regarding certain aspects of Act 25.

Respectfully submitted,

Kim Kriewald  
Utilities Superintendent

ah

# COMPLIANCE MAINTENANCE ANNUAL REPORT

Facility Name: Merrill City Of

Last Updated:  
6/25/2013

Reporting Year: 2012

**DNR Response to Resolution or Owner's Statement**

<b>NAME OF GOVERNING BODY OR OWNER</b>	<b>DATE OF RESOLUTION OR ACTION TAKEN</b>
CITY OF MERRILL	06/11/2013
<b>RESOLUTION NUMBER</b>	
2307	
<b>ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO SPECIFIC CMAR SECTIONS (Optional for grade A or B, required for grade C, D, or F):</b>	
<b>Influent Flow and Loadings: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Effluent Quality: BOD: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Effluent Quality: TSS: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Effluent Quality: Phosphorus: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Biosolids Quality and Management: Grade=A</b>	
<b>Resolution Response:</b>	
<p><b>DNR Response:</b> In question 2.1.2, you 0 acres was indicated used in 2012. I believe based on your 3400-55 Annual Land Application Report, you may have wanted to indicate 113 acres used over 7 sites. I'm certainly interested and look forward to the demonstration initiative we've discussed at different times regarding infra-red heating and 90% solids, potentially class A sludge. I believe if this initiative is a full-scale activity, plans and specification approval will be necessary. Steve Smith and Fred Hegeman at the appropriate time should be brought into the discussions. I'll brief them as to what I know and what may be potential implications. It at this point does sound very positive.</p>	
<b>Staffing: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Operator Certification: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Financial Management: Grade=A</b>	
<b>Resolution Response:</b>	
<b>DNR Response:</b>	
<b>Collection Systems: Grade=B</b>	
<b>Resolution Response:</b>	
<p><b>DNR Response:</b> As you're probably aware, the SSO rules go into effect August 1 of this year. One of the requirements of those rules is that all communities with collection systems must develop a CMOM by August 1, 2016. Our WEB site provides guidance on what a CMOM entails. <a href="http://dnr.wi.gov/topic/wastewater/cmom.html">http://dnr.wi.gov/topic/wastewater/cmom.html</a></p>	

# COMPLIANCE MAINTENANCE ANNUAL REPORT

Facility Name: Merrill City Of

Last Updated:  
6/25/2013

Reporting Year: 2012

## DNR Response to Resolution or Owner's Statement (Continued)

ACTIONS SET FORTH BY THE GOVERNING BODY OR OWNER RELATING TO THE OVERALL GRADE POINT AVERAGE AND ANY GENERAL COMMENTS (Optional for G.P.A. greater than or equal to 3.00, required for G.P.A. less than 3.00) **G.P.A. = 3.91**

### Resolution Response:

### DNR Response:

**DNR Overall eCMAR Response:** Thank you for submittal of the annual CMAR. I've made comments above for your information in the Bio-solids section and the Collection System section. If you have any questions or would like to further discuss, please don't hesitate to contact me. In the meantime, thank you for submission of the annual CMAR and more importantly yours and the City's commitment towards clean water.

**DNR Reviewer:** Ohm, Steven

**Address:**

107 Sutliff Avenue, Rhineland, WI 54501

**Phone:** (715) 365-8939

**Date:** 7/30/2013

## Permit Fact Sheet

### 1 General Information

Permit Number:	WI-0020150-09-0	
Permittee Name:	CITY OF MERRILL	
Address:	1004 E. FIRST STREET	
City/State/Zip:	Merrill WI 54452	
Discharge Location:	2602 Sturdevant Street, Merrill, Wisconsin (NE¼ NW¼ of section 18; T31N-R7E)	
Receiving Water:	The Wisconsin River within the Prairie River Watershed in the Upper Wisconsin River Basin in Lincoln County.	
StreamFlow (Q <sub>7,10</sub> ):	846 cfs	
Stream Classification:	Fish and aquatic life, warm water sport fishery.	
Design Flow(s)	Daily Maximum	5.39 MGD (using design flow worksheet)
	Weekly Maximum	3.95 MGD (using design flow worksheet)
	Monthly Maximum	3.42 MGD (using design flow worksheet)
	Annual Average	3.06 MGD (from 1992 facility plan)
Significant Industrial Loading?	Three contributors are regulated under the DNR Pretreatment Program and Merrill City Ordinance: Northern Wire, Mitchell Metal, and Merrill Manufacturing.	
Operator at Proper Grade?	Yes	
Pretreatment Program Approval Date:	A POTW pretreatment program is not required for facilities with less 5.0 MGD design flow.	

### 2 Facility Description

The City of Merrill owns and operates a wastewater treatment plant. The plant has a design rating to treat 3,060,000 gallons per day. It currently handles an average of 1,068,000 gallons per day (2010 – 2012 data). The facility is an activated sludge facility which consists of mechanical screening (removes debris) with barscreen backup and grit removal via an aerated grit chamber. It includes three primary clarifiers where solids are allowed to settle. Flow then enters two aeration tanks (air added) where it mixes with activated sludge which breaks down the organic matter. Activated sludge is composed of settled solids containing naturally occurring bacteria recycled from the treatment system. The water is then pumped into two final clarifiers where remaining solids are settled out. Alum is added following primary clarification to facilitate the precipitation of phosphorus. Some of the sludge is returned to the head of the aeration tanks to re-seed the new wastewater entering the tank while the rest of the sludge is sent to waste. The settled solids (sludge) from the system that is not used as activated sludge is removed, thickened, and treated by bacteria and organisms through anaerobic digestion; reducing harmful pathogens to safe levels. Water is removed from the sludge via a belt press before it is landspread on Department approved agricultural sites. The treated wastewater (effluent) is seasonal disinfected (May through September) by chlorination then dechlorinated with sodium bisulfite wastewater and caustic soda is added for pH adjustment. The treated effluent is discharged to the Wisconsin River.

<b>Sample Point Designation</b>		
<b>Sample Point Number</b>	<b>Discharge Flow, Units, and Averaging Period</b>	<b>Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)</b>
701 <b>INFLUENT</b>	An average of 1.068 MGD (2010 – 2012 data)	Representative samples shall be collected from the aerated channel after screening for grit removal and communitation prior to the primary clarifiers.
001 <b>EFFLUENT</b>	Flow is not a required parameter.	Representative samples shall be collected downstream of final clarification prior to the chlorine contact tank except for samples for pH, fecal coliform, chlorine residual, and WET testing which shall be collected after the last treatment unit.
002 <b>SLUDGE</b>	An average 167 dry tons (2011 – 2009 data)  An estimated 175 dry tons will be generated annually. (from application)	Samples shall be collected at a point and in a manner which will yield sample results representative of the sludge being tested and collected at a time which is appropriate for the specific test.
003 <b>SLUDGE</b>	Sludge is removed once every 5-6 years with an estimated total of 18 dry tons (3 tons per year). (from application)	Samples shall be collected prior to land application of the primary digester sludge for List 1, 2, 3, 4, and PCBs.
004 <b>SLUDGE</b>	Sludge is removed once every 5-6 years with an estimated total of 16 dry tons (2.5 tons per year). (from application)	Samples shall be collected prior to land application of the secondary digester sludge for List 1, 2, 3, 4, and PCBs.
101 <b>IN-PLANT</b>	In-plant mercury sampling only.	At least one field blank shall be collected for each day a sample of mercury is collected from Outfall 001. The purpose of the field blank is to determine whether the field or sample transporting procedures and environment have contaminated the sample.

### 3 Substantial Compliance Determination

	Compliance?	Comments
Discharge limits	Yes	The City has experienced upsets on rare occasions and recently had some problems with sodium-bi-sulfite de-chlorination pump clogging, however has been quick to respond. Generally effluent quality is good as can be seen from averages over the last permit term of CBOD <sub>5</sub> 8mg/L, TSS 11 mg/L, Total Phosphorus 0.8 mg/L, Fecal Coliform < 121 fecal counts/100ml. Zn has gone from an avg. of 220 ug/L in 2008-2009 to an avg. of 68 ug/L as a result of Merrill's diligence in monitoring industry. Hg has avg. 4.4 ng/L against their current monthly variance limit of 15 ng/L to the WQBEL of 1.3 ng/L. They will need to pursue another Hg variance given current technology is not economically feasible.
Sampling/testing requirements	Yes	
Groundwater standards	N/A	
Reporting requirements	Yes	
Compliance schedules	Yes	<p>The compliance schedules pertained to monitoring and addressing high Zn levels at the beginning of the permit term. In this regard Merrill began an industrial monitoring program and was successful in reducing Zn levels considerably as well as identifying an high Zn discharger. Actions have been put in place and further action regarding this issue is not required provided Merrill remains diligent in their industrial and system monitoring efforts. Another permit compliance schedule pertains to implementing a Hg pollutant minimization program. This has been accomplished and should continue as a condition of the permit in particular given the possible approval and continuation of the current Hg. Variance.</p> <p>There is some concern with respect to the current design rating of 3.06 MGD which has been utilized as the design loading, however when the facility was upgraded in the early 90s, not all unit processes were upgraded in kind. For example it is uncertain whether the secondary treatment which was not upgraded should be rated at the 3.06 MGD capacity. In this regard a compliance schedule could be considered to conduct a design rating analysis and perhaps ONR by the end of the permit term.</p>
Management plan	N/A	The City does spread bio-solids. Zn levels in the bio-solids as a result of their industrial monitoring program similarly have dropped considerably.
Operator at proper grade	Yes	
Other		The City is currently piloting biological phosphorus removal. It's too early to tell whether or not they'll be fully successful in that regard, however they have met with some success regarding pH control. This effort could result in further improvements to the facility.

Enforcement considerations	None at this time	
In substantial compliance?	Yes	
	Concurrence: Steve Ohm	Date: February 15, 2013

## 4 Influent - Proposed Monitoring

### 4.1 Sample Point Number: 701- INFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Continuous	Continuous	
BOD5, Total		mg/L	5/Week	24-Hr Comp	
Suspended Solids, Total		mg/L	5/Week	24-Hr Flow Prop Comp	
Zinc, Total Recoverable		ug/L	Quarterly	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Quarterly	24-Hr Flow Prop Comp	See the "Mercury Monitoring" footnote for more information.

#### 4.1.1 Changes from Previous Permit:

The parameters and monitoring frequency are appropriate for an activated sludge system.

**Zinc** – Monthly monitoring was required during the last permit term to assist in identifying when influent contributions occurred. The City worked with local industries to better control zinc discharged to their collection system and has been able reduce levels below the calculated limit (340 ug/L). Monitoring has been kept but reduced to quarterly to check influent levels.

**Mercury** - Quarterly monitoring for total recoverable mercury has been retained in the permit influent section as required in ch. NR 106, Wis. Admin. Code.

## 5 Inplant - Proposed Monitoring and Limitations

### 5.1 Sample Point Number: 101- EFFLUENT FIELD BLANK

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Quarterly	Grab	See the "Mercury Monitoring" footnote for more information.

### 5.1.1 Changes from Previous Permit:

An in-plant sample point has been retained in the permit that requires the permittee to collect and analyze mercury samples and field blanks according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The permittee shall collect a mercury field blank for each day that mercury samples are collected. The permittee shall report results of field blanks to the Department on Discharge Monitoring Reports.

## 6 Surface Water - Proposed Monitoring and Limitations

### 6.1 Sample Point Number:001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
CBOD5	Monthly Avg	25 mg/L	5/Week	24-Hr Flow Prop Comp	
CBOD5	Weekly Avg	40 mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	5/Week	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	5/Week	Grab	
pH Field	Daily Min	6.0 su	5/Week	Grab	
Phosphorus, Total	Monthly Avg	1.0 mg/L	5/Week	24-Hr Flow Prop Comp	
Chlorine, Total Residual	Daily Max	38 ug/L	5/Week	Grab	Limit and monitoring are required May through September annually.
Fecal Coliform	Geometric Mean	400 #/100 ml	Weekly	Grab	Limit and monitoring are required May through September annually.
Zinc, Total Recoverable		ug/L	Quarterly	Grab	
Mercury, Total Recoverable	Daily Max	15 ng/L	Quarterly	Grab	An Alternative Mercury Effluent Limitation has been granted for this permit reissuance. See the "Mercury Variance and Monitoring" footnote for more information.
Acute WET		TUa	See Listed	24-Hr Flow	One acute WET test is

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
			Qtr(s)	Prop Comp	required each year according to the schedule found in the "WET Testing" footnote.

### 6.1.1 Changes from Previous Permit

The monitoring frequency and limits for **CBOD5, Suspended Solids, Chlorine, Fecal Coliform** and **pH** have not changed from the previous permit term. All categorical limits are based on NR 104.02 Wis Adm Code. More information on calculating limits for these parameters as well as **Ammonia, Phosphorus, Temperature, Mercury, and WET Testing** can be found in the "Effluent Limits Recommendations – City of Merrill (WI-0020150)" memo dated February 21, 2013.

**Ammonia** – Using ammonia toxicity criteria and limit calculating procedures found in NR 105 and 106, Wis. Adm. Code (both effective March 1, 2004). Ammonia limitations were calculated for the facility and effluent ammonia limits are not needed this permit term because all calculated limits exceed the 20/40 mg/L (summer/winter) threshold values applicable to municipal wastewater treatment facilities (NR 106.33(2) Wis. Adm. Code).

**Phosphorus** - Currently in NR 217 Wis Adm Code there are two methods used to determine if a phosphorus limit is needed: a technology based limit and a water quality based limit. A technology based limit of 1 mg/L is needed if the facility discharges more than the threshold of 150 pounds per month. The facility discharges over the threshold; therefore a technology based limit is needed. Based on the size and classification of the stream, the water quality criteria for the Wisconsin River is 100 ug/L and the calculated water quality based limit (WQBEL) is 11 mg/L. The technology based limit is more restrictive than the WQBEL and will be required again this permit term.

The Merrill wastewater treatment plant is a well operated and maintained facility. This was verified by a June 19, 2012 site visits by Steve Ohm, DNR wastewater engineer. The discharge has consistently been in compliance with the required limitations.

**Thermal** – Using the administrative rules for thermal discharges detailed in NR 102 Wis Adm Code effective October 2010, effluent thermal limits were calculated. The calculated thermal limits for Wisconsin River indicate a daily temperature limit of 120 degrees F. Effluent temperatures are not expected to reach this level and there is a significant dilution ratio (greater than 40:1), therefore, limits are not required this permit term.

**Mercury** - Previous testing for mercury demonstrated a monthly average mercury limit of 1.3 ng/L is necessary according to ch. NR 106, Wis. Admin. Code. The levels of mercury in the background receiving water are higher than the water quality criterion of 1.3 ng/L, so the more restrictive criterion becomes the limit. The permittee has applied for and been granted an alternate mercury effluent limit of 15 ng/L as a daily maximum. This variance limit becomes effective on the effective date of the permit.

**Zinc** - Monthly monitoring was required during the last permit term to assist in identifying when influent contributions occurred. The City worked with local industries to better control zinc discharged to their collection system and has been able reduce levels below the calculated limit (340 ug/L). Monitoring has been kept but reduced to quarterly to check effluent levels.

**WET Testing** - A Whole Effluent Toxicity (WET) screening worksheet that takes into consideration the toxicity of a facility's effluent on the receiving water over the short (acute) and long (chronic) term was completed. Based on the total points accumulated annual acute WET Tests are required in rotating quarters over the permit term.

- 2013 October 1<sup>st</sup> through December 31<sup>st</sup> (fourth quarter)
- 2014 July 1<sup>st</sup> thorough September 30<sup>th</sup> (third quarter)
- 2015 April 1<sup>st</sup> through June 30<sup>th</sup> (second quarter)

- 2016 July 1<sup>st</sup> through September 30<sup>th</sup> (third quarter)
- 2017 October 1<sup>st</sup> through December 31<sup>st</sup> (fourth quarter)
- 2018 January 1<sup>st</sup> through March 31<sup>st</sup> (first quarter)

## 7 Land Application - Proposed Monitoring and Limitations

Municipal Sludge Description						
Sample Point	Sludge Class (A or B)	Sludge Type (Liquid or Cake)	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed (Dry Tons/Year)
002	B	Cake	Anaerobic Digestion	Volatile Solids Reduction	Land Apply	175
003	B	Liquid	Anaerobic Digestion	Volatile Solids Reduction	Land Apply	3
004	B	Liquid	Anaerobic Digestion	Volatile Solids Reduction	Land Apply	2.5
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No, the highest result in the most recent monitoring data was 0.1 pCi/liter (2009).						
If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility						
Is a priority pollutant scan required? No						
Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

### 7.1 Sample Point Number: 002- ANAEROBIC SLUDGE; 003- PRIMARY DIGESTER, and 004- SECONDARY DIGESTER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	

<b>Monitoring Requirements and Limitations</b>					
<b>Parameter</b>	<b>Limit Type</b>	<b>Limit and Units</b>	<b>Sample Frequency</b>	<b>Sample Type</b>	<b>Notes</b>
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	

### **7.1.1 Changes from Previous Permit:**

No changes from the previous permit. The requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis Adm Code. A one-time monitoring for PCBs in the sludge in 2015 is required.

Every five to six years, the primary (003) and secondary (004) sludge digester are emptied and cleaned out. Prior to land application of either digester sludge, monitoring is required for List 1, 2, 3, 4, and PCBs. The Department shall be notified prior to land application so characteristic forms can be generated and sent to the facility to complete.

## 8 Compliance Schedules

### 8.1 Operation and Needs Review

Required Action	Date Due
<p><b>Submit an Operation and Needs Review (ONR) report:</b> The report shall be prepared to assess and evaluate the following items:</p> <ol style="list-style-type: none"> <li>1. Conduct a design rating analysis.</li> <li>2. The ability of the treatment works to maintain effluent limits and meet permit conditions.</li> <li>3. The condition of existing physical structures and mechanicals within the context of an "Asset Management Plan". The Asset Management Plan shall identify the condition of existing mechanical assets, evaluate operational and maintenance procedures, identify repair and replacement schedules, and report deficiencies, and recommend corrective actions.</li> <li>4. Unit process design capacities, with recommended changes, and implementation schedules as appropriate.</li> </ol>	01/01/2018

### 8.2 Mercury Pollutant Minimization Program

The permittee shall implement or continue to implement a pollutant minimization program as defined in s. NR 106.145(7), Wis. Adm. Code.

Required Action	Date Due
<b>Submit Annual Status Report:</b> The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code.	01/01/2014
<b>Submit Annual Status Report:</b> The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code.	01/01/2015
<b>Submit Annual Status Report:</b> The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code.	01/01/2016
<b>Submit Annual Status Report:</b> The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code.	01/01/2017
<p><b>Submit Annual Status Reports:</b> The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code. Submittal of the first annual status report is required by the Date Due.</p> <p>Note: If the permittee wishes to apply for an alternative mercury effluent limitation, that application is due with the application for permit reissuance by 6 months prior to permit expiration. The permittee should submit or reference the PMP plan as updated by the Annual Status Report or more recent developments as part of that application.</p>	01/01/2018

### 8.3 Explanation of Compliance Schedules

An **Operation and Needs Review** is required to determine the design rating of the facility and to evaluate the performance of the system components.

The **Mercury Pollutant Minimization Program** compliance schedule requires the permittee to update and submit to the Department a plan for a pollutant minimization program and to provide a status report annually.

## **9 Attachments:**

Water Flow Schematic(s)

“Effluent Limits Recommendations – City of Merrill (WI-0020150)” memo dated February 21, 2013

## **10 Proposed Expiration Date:**

June 30, 2018

### **Prepared By:**

**Sheri A. Snowbank    Wastewater Specialist**

**Date:** February 27, 2013

**cc:** Steve Ohm, Rhinelander

## ACT 25 – MUNICIPAL UTILITY CUSTOMER PRIVACY LAW

- Will need to come up with authorization release form
  - Customers will need to sign a Release of Customer Information Authorization Form for such things as title companies/real estate offices to request final readings, balances on accts, etc.
  
- Potentially may need to “abandon” postcard billing and go to billings being mailed in envelopes
  - There is a possible amendment coming regarding this
  
- Still some gray areas that need to be addressed:
  - o Someone other than customer paying bill with no bill
  - o Information that can/cannot be given during telephone inquiries
  
- When the online payments is up & running there will need to be a few issues addressed

Because the law is new, no official guidance has been released by the Public Service Commission of Wisconsin as of the August 20, 2013