

# Water Quality Report 2008

Three Rivers Filtration Plant  
Fort Wayne City Utilities  
Fort Wayne, IN



*Our mission:*

*“To provide our customers with an adequate supply of water that meets all state and federal drinking water regulations at a fair price.”*

**Three Rivers Filtration Plant  
1100 Griswold Drive  
Fort Wayne, IN 46805-4100**

## **Three Rivers Filtration Plant Fort Wayne, IN**

### **History:**

The Three Rivers Filtration Plant was erected in 1933 with a capacity of 24 million gallons of drinking water per day. This capacity was increased to 48 million gallons per day in 1955, and further increased in 1979 to 72 million gallons per day. Today the facility produces an average of 28 million gallons of drinking water each day. Surface water from the St. Joseph River is pumped from the North Anthony reservoir to the Filtration Plant located 2.5 miles south of the reservoir. The storage capacity of the North Anthony reservoir is about 250 million gallons. Additional reservoir storage for the Fort Wayne water supply is located in the Saint Joseph River above Cedarville Dam, and at the Hurshtown reservoir. The Cedarville Dam holds approximately 550 million gallons of raw water while the Hurshtown reservoir holds approximately 1.8 billion gallons of raw water. During periods of severe drought, water from the upstream reservoirs can be released into the river to ensure that the Filtration Plant has an adequate supply of raw water for an extended period of time.

### **Source of water:**

The quality of the raw water from the Saint Joseph River is extremely variable due to rapid changes that occur during runoffs. Runoffs occur when saturated soil can no longer absorb excessive rain or melting snow. Consequently, the rain or melting snow runs off into the river carrying with it dirt, sticks, pesticides and other debris. Water conditions are monitored constantly so that the treatment process produces water that is compliant with drinking water regulations as well as consistent in quality, taste and odor.

### **Treatment Process:**

Our treatment process utilizes lime to soften water, iron sulfate to coagulate suspended solids, disinfectants to control pathogens and other microorganisms, carbon dioxide to adjust pH, and powdered activated carbon for pesticide removal and taste and odor control. In addition, fluoride is added to our finished water in small amounts to help reduce tooth decay. After chemical treatment and clarification, water is filtered to remove fine particles and microorganisms.

### **Testing:**

With the use of on-line analyzers, samples are monitored continuously at every stage of the treatment process. This ensures that the proper amounts of chemicals are added to produce high quality finished water.

In the analytical lab, chemists sample finished water to test for several inorganic parameters. Additional samples are collected and sent to private labs to test for metals, disinfection by-products, volatile organic compounds, synthetic organic compounds and pesticides. Finished and raw water samples are also collected for cryptosporidium and giardia. In all, over 120 different contaminants are monitored, logged and reported to various state and federal regulatory agencies.

Representative samples of the distribution system are tested daily for disinfectant residual, absence of Coliform, and absence of E. Coli. Approximately forty random samples are collected and tested each week for this purpose. Additionally, in 2008, 58 samples were collected from the distribution system to test for lead and copper. Currently, Fort Wayne water meets the standards for lead and copper. Additional lead and copper testing will be required in the future.

### **Extra Initiatives:**

A great number of factors, both internal and external, affect the quality of water that is produced at the Three Rivers Filtration Plant. While many of these factors are outside the control of operating personnel, we realize that our ultimate goal must be to strive for continuous improvement of water quality as a whole. Consequently, we are participating in programs to address issues that impact raw water quality. These programs also utilize innovative technology to measure the amount of pathogens and pesticides in both raw and finished water.

## Three Rivers Filtration Plant Fort Wayne, IN

In order to address issues affecting the raw water quality, we are participating in the Saint Joseph River Watershed Initiative. The Watershed initiative consists of a group of stakeholders from the six counties in Indiana, Ohio and Michigan that influence the quality of the Saint Joseph River. The initiative has a monitoring program in place that collects samples from various points in the watershed. These samples are analyzed in our lab for pesticides and pathogens. One particular pesticide called atrazine is very common in Northern Indiana. The EPA standard only requires that we monitor quarterly for atrazine in drinking water. However, the filtration plant has opted to monitor atrazine in drinking water on a daily basis during the time period that the river is susceptible to excessive levels of atrazine.

The Filtration Plant currently utilizes powdered activated carbon to reduce atrazine in finished water to its lifetime maximum contaminant level. It is important to note that activated carbon can remove most of the pesticides found in raw water, however, it is unable to remove all of the pesticides especially when source water pesticide levels are elevated. In 2008 there were only nine days when the atrazine levels exceeded the MCL of 3.0 mg/L.

The Three Rivers Filtration Plant has voluntarily joined with over 300 United States water utilities of similar size, along with the American Water Works Association and the United States Environmental Protection Agency in a Partnership for Safe Water. This program involves a comprehensive plant specific look at treatment processes and water quality assessment to optimize water quality. Fort Wayne has completed three of four phases of this partnership and has had phase three certification for the past ten years.

### System Highlight:

Annual Production	10.95 Billion Gallons
Population Served (approximate)	250,000
Metered Customers (active)	77,450
Distribution System	1,150 miles
Number of Plant Employees	39
Number of Fire Hydrants	9,018
Number of Valves	12,024

### Legend for Charts

MCL – Maximum Contaminant Level  
CFU – Colony Forming Units  
NTU – Nephelometric Turbidity Unit  
Ppm – Parts per Million (Milligrams per Liter)  
Ppb – Parts per Billion (Micrograms per Liter)  
umho/cm – Micromhos per Centimeter

Note: Milligrams and Micrograms per Liter are expressed in terms of specific gravity of water.

## Three Rivers Filtration Plant Fort Wayne, IN

Three Rivers Filtration Plant	General Purification Summary			2008
	Raw Million Gallons	Raw Million Liters	Filtered Million Gallons	HSD Million Gallons
Plant # 1	3,865.06	14,629.26	3,576.29	
Plant # 2	4,657.07	17,627.02	3,633.97	
Plant # 3	3,319.80	12,565.44	3,743.96	
Million Gallons Total	11,841.94		10,954.22	10,413.15
Million Liters Total		44,821.72	41,461.72	39,413.76
<b><u>Chemical Application</u></b>	<b><u>Total pounds</u></b>	<b><u>Pounds per MG</u></b>	<b><u>PPM</u></b>	<b><u>GPG</u></b>
Lime to Raw	18,542,399.40	1,566	187.43	10.96
Ferric Sulfate to Raw	3,277,860.08	277	33.13	1.94
Liquid Carbon Dioxide	3,116,918.00	263	31.51	1.84
Carbon to Raw	408,350.75	34	4.13	0.24
Sodium Chlorite	502,000.90	46	5.49	0.32
Fluoride to Filter	294,663.75	27	3.22	0.19
Ammonia to Filter	22,650.45	2	0.25	0.01
Chlorine ro Generox	37,391.40	3	0.38	0.02
Chlorine to Chloramine	90,121.06	8	0.98	0.06
Total Chlorine	233,365.82	11	1.36	0.08
<b><u>Chemical Cost</u></b>	<b><u>Total \$</u></b>	<b><u>Per MG Filtered</u></b>	<b><u>% of Total</u></b>	
Lime to Raw	\$ 1,186,713.56	\$ 108.33	53.74%	
Ferric Sulfate to Raw	\$ 386,787.49	\$ 35.31	17.52%	
Liq. Carbon Dioxide	\$ 104,416.75	\$ 9.53	4.73%	
Carbon to Raw	\$ 171,915.67	\$ 15.69	7.79%	
Sodium Chlorite	\$ 219,374.39	\$ 20.03	9.94%	
Fluoride to Filter	\$ 70,514.47	\$ 6.44	3.19%	
Ammonia to Filter	\$ 10,985.47	\$ 1.00	0.50%	
Chlorine	\$ 57,352.13	\$ 5.24	2.60%	
Total Chemical Cost	\$ 2,208,059.93	\$ 201.57	100.00%	
<b><u>Filter Operation</u></b>				
Average Runs, Hour	91.75			
Numbers of Runs Completed	2,198.00			
Number of Filters Washed	2,241.00			
Wash Water, Gallons	448,600,000.00			
Average Gallons per wash	200,178.49			
% Wash Water	4.10%			
	<b><u>Liquid CO(2)</u></b>	<b><u>Liquid CO(2)</u></b>	<b><u>Liquid CO(2)</u></b>	
<b><u>Recarbonation</u></b>	<b><u>Plant # 1</u></b>	<b><u>Plant # 2</u></b>	<b><u>Plant # 3</u></b>	
	-	-	-	
Total Pounds of CO(2)	1072236.5	1269976.7	774704.8	
Pounds CO(2) Per Fuel Unit	0.1145	0.1145	0.1145	
Pounds CO(2) Per MG	277	273	233	
Primary Settled, OH-	44	45	36	
Secondary Settled, HCO(3)-	29	31	29	
Total Recarbonation	73.17	75.45	65.01	
CO(2) Per MG Per PPM	3.79	3.61	3.59	

## Three Rivers Filtration Plant Fort Wayne, IN

### Draft of Operational Cost and Service Report for: 2008

<u>Chemical</u>	<u>Used</u>		<u>Unit Cost</u>		<u>Usage</u>		<u>Balance On Hand</u>	
Lime	9,271	TON @	\$ 128.00	/TON	= \$ 1,186,713.56		<b>Lime</b>	\$ 79,895.04
Ferric Sulfate	3,277,860	LBS @	\$ 0.118	/LBS	= \$ 386,787.49		<b>Ferric Sulfate</b>	\$ 23,066.77
Carbon	204	TON @	\$ 842.00	/TON	= \$ 171,915.67		<b>Carbon</b>	\$ 17,450.03
Sodium Chlorite	5,020	CWT @	\$ 43.70	/CWT	= \$ 219,374.39		<b>Sodium Chlorite</b>	\$ 19,635.57
Fluoride	147	TON @	\$ 478.33	/TON	= \$ 70,514.47		<b>Fluoride</b>	\$ 5,229.59
Chlorine	2,543	CWT @	\$ 24.05	/CWT	= \$ 61,169.12		<b>Chlorine</b>	\$ 2,984.61
Ammonia	227	CWT @	\$ 48.50	/CWT	= \$ 10,985.47		<b>Ammonia</b>	\$ 1,395.62
Liq. Carbon Dioxide	1,558	TON @	\$ 67.00	/TON	= \$ 104,416.75		<b>Liq. Carbon Dioxide</b>	\$ 1,206.00
							<b>Total</b>	\$ 150,863.22
					<b>Total Chemical Cost =</b>	\$ 2,211,876.91		

#### Natural Gas Usage

Filtration Plant	244,948	CCF =	\$ 261,464.36
St. Joe Dam	9,785	CCF =	\$ 11,601.25
Northwest Station	2,522	CCF =	\$ 2,256.53
East Side Station	2,286	CCF =	\$ 2,834.98
Southwest Station	3,867	CCF =	\$ 4,741.73
West Side Booster	2,193	CCF =	\$ 2,666.08
Miscellaneous	-	CCF =	\$ -
<b>Total Natural Gas Usage</b>	<b>265,601</b>	<b>Natural Gas Cost</b>	<b>\$ 285,564.93</b>

#### Electric Power Usage

Filtration Plant	18,030,806	KWH Used =	\$ 532,742.71
St. Joe Dam	3,009,406	KWH Used =	\$ 144,041.18
Hursttown	25,111	KWH Used =	\$ 2,162.82
Cedarville Dam	15,520	KWH Used =	\$ 1,268.52
West Side	165,300	KWH Used =	\$ 8,984.84
Northwest Station	776,600	KWH Used =	\$ 41,109.53
Southwest Station	266,640	KWH Used =	\$ 14,301.15
Miscellaneous	321,822	KWH Used =	\$ 23,900.54
<b>Total Electric Usage</b>	<b>22,611,205</b>	<b>Electric Cost</b>	<b>\$ 768,511.29</b>

(All Totals Expressed In Million Gallons)

<u>Water Totals</u>		<u>High Service Discharge</u>			
Raw Water	11,841.94	Average HSD	28.44	Monroe Street	4,861
Filtered water	10,954.22	Max. Day HSD	42.79	Superior Street	1,010
Filter Wash Water	448.60	Min. Day HSD	18.13	St. Mary's Main	2,375
Plant Service Water	165.76	Max. Hour HSD	58.30	St. Joseph main	2,167
		Min. Hour HSD	4.10		
				<b>Total HSD</b>	<b>10,413.15</b>
<b>Total Operational Cost</b>	<b>\$ 3,265,953.13</b>				
<b>Cost per Million Gallons of Water Filtered</b>	<b>\$298.15</b>				
<b>Chemical Cost. MG Filtered</b>	<b>\$201.92</b>				

**Three Rivers Filtration Plant  
Fort Wayne, IN**

**Chemical Cost Summary  
2008**

<b>Year</b>	<b>Chemical Cost</b>	<b>Water Filtered MGD</b>	<b>Cost per Million Gallons</b>
1934	\$35,381.81	3,154.55	\$11.22
1935	\$48,895.19	3,119.92	\$15.67
1936	\$57,585.15	3,984.47	\$14.45
1937	\$47,758.65	3,724.68	\$12.82
1938	\$47,809.07	3,619.82	\$13.21
1939	\$45,152.49	3,849.42	\$11.73
1940	\$57,569.98	4,059.02	\$14.18
1941	\$68,771.06	4,590.91	\$14.98
1942	\$106,715.84	4,679.19	\$22.81
1943	\$110,314.17	5,577.50	\$19.78
1944	\$126,496.16	6,457.60	\$19.59
1945	\$134,580.84	6,238.63	\$21.57
1946	\$126,966.58	6,082.70	\$20.87
1947	\$154,064.30	6,590.82	\$23.38
1948	\$180,123.24	6,746.65	\$26.70
1949	\$174,751.21	6,420.99	\$27.22
1950	\$158,011.01	6,398.35	\$24.70
1951	\$172,914.84	6,689.94	\$25.85
1952	\$184,820.20	6,981.70	\$26.47
1953	\$212,013.20	7,306.36	\$29.02
1954	\$237,588.42	7,249.82	\$32.77
1955	\$226,050.52	7,546.06	\$29.96
1956	\$235,953.22	7,570.78	\$31.17
1957	\$265,174.39	7,579.69	\$34.98
1958	\$251,313.38	7,321.75	\$34.32
1959	\$259,409.91	7,756.36	\$33.44
1960	\$230,564.26	7,519.68	\$30.66
1961	\$251,616.87	7,540.33	\$33.37
1962	\$275,123.25	8,210.13	\$33.51
1963	\$301,030.38	8,742.56	\$34.43
1964	\$200,003.41	9,001.75	\$22.22
1965	\$346,148.03	9,254.28	\$37.40
1966	\$344,808.34	9,892.96	\$34.85
1967	\$370,878.28	10,108.39	\$36.69
1968	\$339,457.32	10,035.63	\$33.83
1969	\$355,628.89	10,635.23	\$33.44
1970	\$402,529.59	10,885.04	\$36.98
1971	\$397,163.97	10,726.17	\$37.03
1972	\$453,786.88	11,046.13	\$41.08
1973	\$398,938.48	11,318.51	\$35.25
1974	\$464,426.09	11,344.83	\$40.94
1975	\$644,033.93	11,179.75	\$57.61
1976	\$679,380.47	11,437.47	\$59.40
1977	\$858,842.50	12,145.15	\$70.71
1978	\$863,162.38	11,788.24	\$73.22
1979	\$1,048,484.60	11,468.97	\$91.42
1980	\$1,131,610.15	11,407.74	\$99.20
1981	\$1,064,717.44	11,935.65	\$89.20
1982	\$1,119,039.76	11,567.06	\$96.74

**Three Rivers Filtration Plant  
Fort Wayne, IN**

**Chemical Cost Summary - continued  
2008**

<b>Year</b>	<b>Chemical Cost</b>	<b>Water Filtered MGD</b>	<b>Cost per Million Gallons</b>
1983	\$1,074,667.63	11,861.72	\$90.60
1984	\$1,051,105.78	11,181.24	\$94.01
1985	\$1,065,180.54	11,943.77	\$89.18
1986	\$1,039,292.63	11,479.10	\$90.54
1987	\$1,037,592.72	11,878.01	\$87.35
1988	\$1,152,506.09	12,351.24	\$93.31
1989	\$1,035,326.47	11,802.45	\$87.72
1990	\$1,019,260.62	11,330.28	\$89.96
1991	\$1,068,617.31	11,973.09	\$89.25
1992	\$1,330,435.40	11,283.26	\$117.91
1993	\$1,452,473.40	11,749.16	\$123.62
1994	\$1,408,240.15	12,254.47	\$114.92
1995	\$1,535,596.59	12,396.14	\$123.88
1996	\$1,886,445.94	12,236.84	\$154.16
1997	\$1,721,512.61	11,766.61	\$148.74
1998	\$1,638,423.17	12,359.77	\$132.56
1999	\$1,431,155.89	12,844.67	\$111.42
2000	\$1,306,744.47	12,138.85	\$107.65
2001	\$1,360,731.16	11,903.66	\$114.31
2002	\$1,324,804.59	12,090.42	\$109.57
2003	\$1,289,380.67	11,267.43	\$114.43
2004	\$1,389,033.95	11,030.51	\$125.93
2005	\$1,501,237.01	10,750.89	\$139.64
2006	\$1,746,343.12	10,162.64	\$171.84
2007	\$1,920,070.03	10,982.46	\$174.83
2008	\$2,211,876.91	10,954.22	\$201.92

# Three Rivers Filtration Plant Fort Wayne, IN

## Theoretical Lime, Soda Ash, and Sludge Annual- 2008

### I. Theoretical Lime

For Raw Water Free CO <sub>2</sub> =	5.74 mg/L		0.43 gpg CaO
For Raw Water Hypothetical CaCO <sub>3</sub>	166.15 mg/L		5.43 gpg CaO
For Raw Water Hypothetical MgCO <sub>3</sub>	21.94 mg/L		1.70 gpg CaO
For Noncarb Mg Reduction=	8.06 mg/L		1.09 gpg CaO
For Ferric Sulfate Application=	1.99 gpg		0.60 gpg CaO
For Primary Settled Hydroxide (OH <sup>-</sup> )	40.70 mg/L as CaCO <sub>3</sub>		1.33 gpg CaO
		Total=	10.58 gpg CaO

**Total Theoretical Lime(95.55% Purity)= 11.45 gpg versus 10.89 gpg CaO Applied**

### II. Theoretical Soda Ash

For Noncarb Hardness Reduction	(8.92) mg/L=		(0.55) gpg
For Ferric Sulfate Application	1.99 gpg=		1.13 gpg
		Total=	0.00 gpg
<b>Total Soda Ash=</b>	<b>0.00 gpg</b>	<b>versus</b>	<b>0.00 gpg Soda Ash Applied</b>

### III. Theoretical Sludge

#### A. From Precipitated Products of Chemical Reactions

1. Raw Water Free CO <sub>2</sub>	0.43 gpg=		0.76 gpg CaCO <sub>3</sub>	
2. Raw Water Hypothetical CaCO <sub>3</sub>	5.43 gpg=		19.39 gpg CaCO <sub>3</sub>	
3. Raw Water Hypothetical MgCO <sub>3</sub>	1.70 gpg=		3.04 gpg CaCO <sub>3</sub>	
4. Ferric Sulfate Application	0.60 gpg=		1.06 gpg CaCO <sub>3</sub>	
5. Soda Ash for Noncarbonate Reduction	(0.55) gpg=		0.00 gpg CaCO <sub>3</sub>	
6. Excess Lime Recarbonation	12.6 mg/L=		0.74 gpg CaCO <sub>3</sub>	84.07% CaCO <sub>3</sub>
7. Raw Water Hypothetical MgCO <sub>3</sub>	1.70 gpg=		0.61 gpg MgO	
8. Noncarb Mg Reduction	1.09 gpg=		0.78 gpg MgO	4.69% MgO
9. Ferric Sulfate Application	1.99 gpg=		0.57 gpg Fe <sub>2</sub> O <sub>3</sub>	1.91% Fe <sub>2</sub> O <sub>3</sub>
<b>Total Precipitated Products=</b>	<b>26.95 gpg</b>			

#### B. From Suspended Matter

1. Raw Water Turbidity	44.78	NTU =	2.62 gpg	8.80% Turbidity
2. Added Carbon Application	4.17	mg/L=	0.16 gpg	0.54% Carbon
<b>Total Suspended Matter=</b>			<b>2.78 gpg</b>	

### IV. Summary

<b>Total Precipitated Products, gpg =</b>	<b>26.95</b>
<b>Total Suspended Matter, gpg=</b>	<b>2.78</b>
<b>Total Theoretical Sludge, gpg=</b>	<b>29.73</b>
<b>Pounds of Sludge per MG of Raw Water</b>	<b>4,244.6</b>
<b>Tons of Sludge per MG of Raw Water</b>	<b>2.12</b>
<b>Raw Water Treated in MG</b>	<b>11,841.94</b>
<b>Tons of Sludge per Day</b>	<b>68.86</b>
<b>Total Tons of Sludge Generated in 2008</b>	<b>25,132</b>

**Three Rivers Filtration Plant  
Fort Wayne, IN**

**Rainfall Data**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Average</b>
<b>January</b>	3.96	2.78	1.25	0.74	2.46	1.30	2.43	4.96	3.01	3.74	2.23	2.62
<b>February</b>	1.44	2.51	1.57	2.73	1.80	1.39	0.54	2.47	1.64	0.96	4.73	1.98
<b>March</b>	4.61	1.14	2.01	0.48	2.56	2.43	2.79	1.46	1.98	3.39	3.82	2.42
<b>April</b>	5.00	6.37	2.09	3.59	3.70	2.35	1.15	2.15	4.26	3.47	1.98	3.28
<b>May</b>	2.10	3.94	4.63	2.56	6.29	6.94	6.71	1.70	5.04	1.10	4.95	4.18
<b>June</b>	4.83	1.07	8.55	4.26	3.13	3.66	5.30	2.13	3.36	3.04	5.55	4.08
<b>July</b>	8.30	1.07	2.18	6.70	2.40	9.80	5.51	5.19	5.41	1.82	3.15	4.68
<b>August</b>	3.84	3.10	3.68	4.56	2.79	4.08	5.19	1.95	3.11	9.69	2.06	4.00
<b>September</b>	1.31	1.03	4.61	4.04	2.54	5.44	1.75	3.97	2.03	2.47	1.83	2.82
<b>October</b>	1.10	2.32	1.78	7.40	1.58	2.01	1.73	0.51	4.35	1.91	2.32	2.46
<b>November</b>	1.65	1.00	2.12	2.30	2.27	2.42	3.39	3.29	2.39	4.21	2.03	2.46

# Three Rivers Filtration Plant Fort Wayne, IN

Analysis for Year 2008

Physical and Chemical Characteristics	Raw Water Maximum	Raw Water Minimum	Raw Water Average	Finished Water Maximum	Finished Water Minimum	Finished Water Average	EPA Limit	Standard Type
Temperature, F	78.0	35.0	57.2	-----	-----	-----	-----	-----
Turbidity, NTU	319.00	4.00	45.00	0.24	0.04	0.05	0.30	Primary
Color, Cobalt Scale Unit	400.00	25.00	81.02	5.00	0.00	0.38	15.0	Secondary
pH	8.30	6.90	7.86	9.30	8.10	8.73	6.5-8.5	Secondary
Specific Conductance, Micromhos	544.00	203.00	416.92	312.00	160.00	246.41	-----	-----
Total Dissolved Solids, mg/L	357.00	212.60	300.80	257.60	166.40	201.93	500.0	Secondary
Total Alkalinity, mg/L as CaCO3	275.00	56.00	191.83	48.00	24.00	34.15	-----	-----
Noncarbonate Hardness,	191.00	25.00	64.58	133.00	46.00	73.45	-----	-----
Total Hardness,	350.00	96.00	256.42	173.00	81.00	107.60	-----	-----
Langlier's Index	-----	-----	-----	0.52	-0.32	0.04	Non-Corrosive	Secondary
Bicarbonate, HCO3	308.50	144.21	234.26	-----	-----	-----	-----	-----
Carbonate, CO3	-----	-----	-----	-----	-----	-----	-----	-----
Chloride, (Cl)	45.39	16.90	32.25	46.40	16.73	33.24	250.0	Secondary
Cyanide, (CN)	0.00	0.00	0.00	0.00	0.00	0.00	0.2	Primary
Fluoride, Fl	0.61	0.12	0.35	1.09	0.17	0.80	4.00	Primary
Nitrate, NO3	4.04	0.09	1.30	4.68	0.00	1.43	10.00	Primary
Nitrite, NO2	0.06	0.00	0.01	0.01	0.00	0.00	1.00	Primary
Phosphate, PO4	-----	-----	-----	-----	-----	-----	-----	-----
Sulfate, SO4	60.77	24.81	44.50	79.05	43.41	57.03	250.0	Secondary
Surfactants, MBAS	0.08	0.02	0.05	0.07	0.01	0.04	0.5	Secondary
Asbestos	-----	-----	-----	-----	-----	Not Detected	7 MFL	Primary
<b>Metals</b>								
Aluminum	3.200	0.374	1.083	0.160	0.000	0.015	0.05-0.2	Secondary
Antimony	0.000	0.000	0.000	0.000	0.000	0.000	0.006	Primary
Arsenic	0.003	0.001	0.002	0.000	0.000	0.000	0.010	Primary
Barium	0.089	0.045	0.072	0.020	0.000	0.007	2.00	Primary
Beryllium	0.000	0.000	0.000	0.000	0.000	0.000	0.004	Primary
Cadmium	0.002	0.000	0.000	0.000	0.000	0.000	0.005	Primary
Calcium	84.900	34.500	64.658	42.500	20.800	26.975	-----	-----
Chromium	0.020	0.010	0.015	0.000	0.000	0.000	0.10	Primary
Copper	0.190	0.190	0.016	0.000	0.000	0.000	Action Level 1.3*	Primary
Iron	7.590	0.465	1.894	0.030	0.000	0.003	0.3	Secondary
Lead	0.013	0.002	0.008	0.000	0.000	0.000	Action Level 0.015*	Primary
Magnesium	26.900	8.570	18.397	11.000	1.090	5.728	-----	-----
Manganese	0.170	0.051	0.089	0.000	0.000	0.000	0.050	Secondary
Mercury	0.000	0.000	0.000	0.000	0.000	0.000	0.002	Primary
Molybdenum	0.022	0.007	0.012	0.019	0.007	0.010	-----	-----
Nickel	0.030	0.014	0.007	0.000	0.000	0.000	-----	-----
Potassium	7.720	3.310	4.821	6.820	2.870	4.045	-----	-----
Selenium	0.000	0.000	0.000	0.000	0.000	0.000	0.05	Primary
Silicon	53.000	1.620	7.434	2.450	0.742	1.572	-----	-----
Silver	0.000	0.000	0.000	0.000	0.000	0.000	0.100	Secondary
Sodium	27.400	10.700	19.425	25.200	7.880	17.355	-----	-----
Thallium	0.000	0.000	0.000	0.000	0.000	0.000	0.002	Primary
Tin	0.013	0.000	0.003	0.006	0.000	0.001	-----	-----
Zinc	0.018	0.000	0.005	0.002	0.000	0.000	5	Secondary
Radioactivity (Radium 228) pCi/L	LAST TESTING PERIOD 2008			results pending from ISDH			5	Primary

All Constituents Expressed As mg/L (ppm) Unless Otherwise Noted

Lead-Copper In Distribution Samples	90 % Level	EPA Limit	Standard Type
Lead	0.014 mg/L	Action Level 0.015 mg/L*	Primary
Copper	0.225 mg/L	Action Level 1.3 mg/L*	Primary

**Three Rivers Filtration Plant  
Fort Wayne, IN  
2008 Purification Chemicals Summary**

**Lime Suppliers: Huron Lime**

**Slaking Analysis**

	%CaO	Rise In 3 Minutes °C	Maximum Temperature °C	Minimum Temperature °C	Minutes to Max. Temp.
<b>Maximum</b>	99.8%	95.00	95.00	27.00	7.00
<b>Minimum</b>	90.6%	38.00	64.00	18.00	3.00
<b>Average</b>	95.5%	60.18	74.69	21.53	3.96

**Principal Constituents, In mg/L**

	Maximum	Raw Minimum	Average	Maximum	H.S.D. Minimum	Average
Bicarbonate, HCO <sub>3</sub>	308.50	144.21	234.26	----	----	----
Sulfate, SO <sub>4</sub>	60.77	24.81	44.50	79.05	43.41	57.03
Chloride, Cl	45.39	16.90	32.25	46.40	16.73	33.24
Fluoride, F	0.61	0.12	0.35	1.09	0.17	0.80
Nitrate, NO <sub>3</sub> as N	4.04	0.09	1.30	4.68	0.00	1.43
Nitrite, NO <sub>2</sub> as N	0.06	0.00	0.01	0.01	0.00	0.00

**Special Analysis**

	<u>Maximum</u>	Raw <u>Minimum</u>	<u>Average</u>	<u>Maximum</u>	H.S.D. <u>Minimum</u>	<u>Average</u>
Langlier's Index	N/A	N/A	N/A	0.52	(0.32)	0.04
MBAS, mg/L	0.08	0.02	0.05	0.07	0.01	0.04

**Chlorine Residual**

	<u>Filter # 1</u>	<u>Filter # 2</u>	<u>Filter # 3</u>	<u>H.S.D</u>	<u>City Tap</u>
Number of Test days	357	365	366	366	251
Number of Tests	357	365	366	366	2,035
Average Residual, mg/L	1.60	1.80	1.61	1.40	0.86

**Temperature**

	<u>Maximum</u>	<u>Minimum</u>	<u>Average</u>	<u>Total</u>
Water Temperature, °F	74.61	37.79	57.15	
Weather Bureau Mean, °F	73.20	24.80	49.73	
Degree Days	1,192.00	0.00	522.67	
Rain Fall	5.55	1.83	3.25	38.99

**Three Rivers Filtration Plant  
Fort Wayne, IN**

**Annual 2008**

**SPECIAL SUMMARY**

LIME SOFTENING SUMMARY	T. ALK	HYDROXIDE	BICARBONATE (as CaCO3)
----- RAW	192.0	-	192.0
PLANT #1			
----- PRIMARY SETTLED		44.1	0.0
CARBONATED		0.0	30.7
SECONDARY SETTLED		0.0	29.4
PLANT #2			
----- PRIMARY SETTLED		44.8	0.0
CARBONATED		0.0	30.4
SECONDARY SETTLED		0.0	30.5
PLANT #3			
----- PRIMARY SETTLED		39.8	0.0
CARBONATED		0.0	29.0
SECONDARY SETTLED		0.0	29.3
H.S.D.	34.1		

NON-CARBONATE SUMMARY

COLOR SUMMARY

RAW	64.6	80.7
H.S.D.	73.5	0.4

	RAW	FILTER #1	FILTER #2	FILTER #3	H.S.D.	CITY TAP
# OF TEST DAYS	366	366	366	366	366	251
TURBIDITY	44.8	0.05	0.05	0.06	0.05	-
pH	7.9	-	-	-	8.7	-
T. HARD. mg/L	256.6	-	-	-	107.6	-
T. HARD. gpg	15.0	-	-	-	6.3	-
FLUORIDE	0.3				0.8	0.8

DISSOLVED SOLIDS (IN mg/L)

RAW

H.S.D.

-----	Maximum	Minimum	Average	Maximum	Minimum	Average
TOTAL SOLIDS	357.0	212.6	300.8	257.6	166.4	201.9
FIXED SOLIDS	269.2	153.2	218.1	210.0	125.4	154.9
VOLATILE SOLIDS	126.0	49.8	82.7	62.8	37.6	47.0
SPECIFIC CONDUCTANCE	544.0	203.0	416.9	312.0	160.0	246.4

**Three Rivers Filtration Plant  
Fort Wayne, IN**

**Microbiological Summary  
2008**

**Heterotrophic Plate Count, CFU/mL**

	<u>Raw</u>	<u>Plant 1</u>	<u>Plant 2</u>	<u>Plant 3</u>	<u>Finished Water</u>
Primary Settled	—	88	110	75	
Secondary Settled	—	51	25	13	
Filtered	—	1	4	49	
Avg	8698	—	—	—	5
Max	25988	—	—	—	53
Min	980	—	—	—	0

**Coliform and Fecal Coliform, Most Probable Number Indices**

	<u>Raw</u>	<u>Plant 1 Primary</u>	<u>Plant 1 Secondary</u>	<u>Plant 2 Primary</u>	<u>Plant 2 Secondary</u>	<u>Plant 3 Primary</u>	<u>Plant 3 Secondary</u>
Coliform Index	3,112.7	22.2	1.5	18.9	1.4	24.6	0.3
Fecal Coliform Index	234.4	1.5	0.0	3.3	0.0	1.2	0.0
Raw Coli		Fecal					
Max	6,696.3	767.5					
Min	145.0	45.6					

**Post Coliaerogenes**

	<u>#1 Filter</u>	<u>#2 Filter</u>	<u>#3 Filter</u>	<u>Finished Water</u>	<u>City Tap</u>
Number of test Days	100	99	101	366	251
Number of Samples	100	99	101	1,464	2,035
Confirmed Coliform Samples	0	0	0	0	1
Coliform, % Positive	0.00	0.00	0.00	0.00	0.05

**Main and Service Samples**

114

**Other Microbial Contaminants**

	<u>Raw Water</u>	<u>No. of tests</u>	<u>Finished Water</u>	<u>No. of tests</u>
	AVE.		AVE.	
Cryptosporidium, oocyst/100 L	0.213	12	0.000	12
Giardia, cyst/ 100L	0.023	12	0.000	12

# Three Rivers Filtration Plant Fort Wayne, IN

Samples Analyzed By

Laboratory: Underwriters Laboratories  
Lab Cert #: C-71-01

## Volatile Organic Compounds (VOC)

Compound ID#	Sample Date Chemical Sample location; 1100 Griswold	Method	MCL ug/L	First Quarter 03-Jan-08 ug/L	Second Quarter 02-Apr-08 ug/L	Third Quarter 02-Jul-08 ug/L	Fourth Quarter 15-Oct-08 ug/L	2008 Average ug/L
<b>Regulated Contaminants</b>								
2990	Benzene	524.2	5	<0.5	<0.5	<0.5	< 0.5	< 0.5
2982	Carbon tetrachloride	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2989	Chlorobenzene	524.2	100	<0.5	<0.5	<0.5	<0.5	<0.5
2968	1,2-Dichlorobenzene	524.2	600	<0.5	<0.5	<0.5	<0.5	<0.5
2969	1,4-Dichlorobenzene	524.2	75	<0.5	<0.5	<0.5	<0.5	<0.5
2980	1,2-Dichloroethane	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2977	1,1-Dichloroethylene	524.2	7	<0.5	<0.5	<0.5	<0.5	<0.5
2380	1,2-Dichloroethylene, cis	524.2	70	<0.5	<0.5	<0.5	<0.5	<0.5
2979	1,2-Dichloroethylene, trans	524.2	100	<0.5	<0.5	<0.5	<0.5	<0.5
2964	Dichloromethane	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2983	1,2-Dichloropropane	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2992	Ethylbenzene	524.2	700	<0.5	<0.5	<0.5	<0.5	<0.5
2996	Styrene	524.2	100	<0.5	<0.5	<0.5	<0.5	<0.5
2987	Tetrachloroethylene	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2991	Toluene	524.2	1000	<0.5	<0.5	<0.5	<0.5	<0.5
2378	1,2,4-Trichlorobenzene	524.2	70	<0.5	<0.5	<0.5	<0.5	<0.5
2981	1,1,1-Trichloroethane	524.2	200	<0.5	<0.5	<0.5	<0.5	<0.5
2985	1,1,2-Trichloroethane	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2984	Trichloroethylene	524.2	5	<0.5	<0.5	<0.5	<0.5	<0.5
2976	Vinylchloride	524.2	2	<0.2	<0.2	<0.2	<0.2	<0.2
2955	Total Xylenes	524.2	10,000	ND	ND	ND	ND	ND
2995	1,3-Xylenes	524.2		<0.5	<0.5	<0.5	<0.5	<0.5
2997	1,2-Xylenes	524.2		<0.5	<0.5	<0.5	<0.5	<0.5
2962	1,4-Xylenes	524.2		<0.5	<0.5	<0.5	<0.5	<0.5
<b>Total regulated Contaminants</b>					<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt; 0.5</b>	<b>&lt; 0.5</b>
<b>Unregulated Trihalomethanes</b>								
2408	Dibromomethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2943	Bromodichloromethane	524.2		<0.5	<0.5	4.10	1.80	1.5
2942	Bromoform	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2944	Chlorodibromomethane	524.2		<0.5	<0.5	0.50	< 0.5	0.13
2941	Chloroform	524.2		4.60	3.00	41.00	15.00	15.90
<b>Total Trihalomethanes</b>			<b>80</b>	<b>4.60</b>	<b>3.00</b>	<b>45.60</b>	<b>16.80</b>	<b>17.50</b>
<b>Unregulated Contaminants</b>								
2993	Bromobenzene	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2214	Bromomethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2216	Chloroethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2210	Chloromethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2965	1,2-Chlorotoluene(o-)	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2966	1,4-Chlorotoluene(p-)	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2967	1,3-Dichlorobenzene	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2978	1,1-Dichloroethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2412	1,3-Dichloropropane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2416	2,2-Dichloropropane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2410	1,1-Dichloropropene	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2413	1,3-Dichloropropene (cis and trans)	524.2		ND	ND	ND	ND	ND
2986	1,1,1,2-Tetrachloroethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2988	1,1,2,2-Tetrachloroethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2414	1,2,3-Trichloropropane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2408	Dibromomethane	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
2251	Methyl-t-butyl ether (MTBE)	524.2		<0.5	<0.5	< 0.5	< 0.5	< 0.5
<b>Total Unregulated Contaminants</b>					<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt; 0.5</b>	<b>&lt; 0.5</b>

## Three Rivers Filtration Plant Fort Wayne, IN

Samples Analyzed By

Laboratory: Underwriters Laboratories

Lab Cert #: C-71-01

### Insecticides and Pesticides

Compound ID#	Sample Date Chemical	Method	MCL ug/L	First Quarter 12-Feb-08 ug/L	Second Quarter 12-May-08 ug/L	Third Quarter 12-Aug-08 ug/L	Fourth Quarter 12-Nov-08 ug/L	2008 Average ug/L
Regulated Contaminants								
2051	Alachlor	525.2	2	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2050	Atrazine	525.2	3	<0.1	<b>0.20</b>	<b>0.2</b>	< 0.1	<b>0.10</b>
2306	Benzo(A)pyrene	525.2	0.2	<0.02	<0.02	< 0.02	< 0.02	< 0.02
2046	Carbofuran	531.1	40	<0.9	<0.9	< 0.9	< 0.9	< 0.9
2069	Chlordane, (alpha+gamma)	505	2	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2105	2,4-D	515.3	70	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2031	Dalapon	515.3	200	<1.0	<1.0	< 1.0	< 1.0	< 1.0
2931	1,2-Dibromo-3-chloropropane-DBCP	504	0.2	<0.01	<0.01	< 0.01	< 0.01	< 0.01
2041	Dinoseb	515.3	7	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2063	2,3,7,8-TCDD(Dioxine)	1613b	3e=05	<5.0e-06	<5.0e-06	<5.0e-06	<5.0e-06	<5.0e-06
2032	Diquat	549.2	20	<0.4	<0.4	< 0.4	< 0.4	< 0.4
2035	DiI(2-ethylhexyl)adipate	525.2	400	<0.6	<0.6	< 0.6	< 0.6	< 0.6
2039	DiI(2-ethylhexyl)phthalate	525.2	6	<0.6	<0.6	< 0.6	< 0.6	< 0.6
2033	Endothall	548	100	<9.0	<9.0	< 9.0	< 9.0	< 9.0
2005	Endrin	525.2	2	<0.01	<0.01	< 0.01	< 0.01	< 0.01
2946	Ethylene Dibromide (EDB)	504	0.05	<0.01	<0.01	< 0.01	< 0.01	< 0.01
2034	Glyphosate	547	700	<6.0	<6.0	< 6.0	< 6.0	< 6.0
2065	Heptachlor	525.2	0.4	<0.04	<0.04	< 0.04	< 0.04	< 0.04
2067	Heptachlorepoxyde	525.2	0.2	<0.02	<0.02	< 0.02	< 0.02	< 0.02
2274	Hexachlorobenzene	525.2	1	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2042	Hexachlorocyclopentadiene	525.2	50	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2010	Lindane	525.2	0.2	<0.02	<0.02	< 0.02	< 0.02	< 0.02
2015	Methoxychlor	525.2	40	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2036	Oxamyl (Vydate)	531.1	200	<1.0	<1.0	< 1.0	< 1.0	< 1.0
2326	Pentachlorophenol	515.3	1	<0.04	<0.04	< 0.04	< 0.04	< 0.04
2040	Picloram(Tordon)	515.3	500	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2383	Polychlorinated Biphenyls-PCB	505.0	0.5	0.00	0.00	0.00	0.00	0.00
2037	Simazine	525.2	4	<0.07	<0.07	< 0.07	< 0.07	< 0.07
2110	2,4,5-TP (Silvex)	515.3	50	<0.1	<0.1	< 0.1	< 0.1	< 0.1
2020	Toxaphene	505	3	<1.0	<1.0	< 1.0	< 1.0	< 1.0
Unregulated Contaminants								
2047	Aldicarb	531.1	N/A	<0.5	<0.5	<0.5	<0.5	<0.5
2044	Aldicarb Sulfone	531.1	N/A	<0.7	<0.7	<0.7	<0.7	<0.7
2043	Aldicarb Sulfoxide	531.1	N/A	<0.5	<0.5	<0.5	<0.5	<0.5
2356	Aldrin	525.2	N/A	<0.1	<0.1	<0.1	<0.1	<0.1
2076	Butachlor	525.2	N/A	<0.1	<0.1	<0.1	<0.1	<0.1
2021	Carbaryl	531.1	N/A	<0.5	<0.5	<0.5	<0.5	<0.5
2440	Dicamba	515.3	N/A	<0.1	<0.1	<0.1	<0.1	<0.1
2070	Dieldrin	525.2	N/A	<0.1	<0.1	<0.1	<0.1	<0.1
2066	3-Hydroxycarbofuran	531.1	N/A	<0.5	<0.5	<0.5	<0.5	<0.5
2022	Methomyl	531.1	N/A	<0.5	<0.5	<0.5	<0.5	<0.5
2045	Metolachlor(Dual)	525.2	N/A	<0.1	<b>0.10</b>	<b>&lt;0.1</b>	< 0.1	0.03
2595	Metribuzin (Sencor)	525.2	N/A	<0.1	<0.1	<0.1	<0.1	<0.1
2077	Propachlor	525.2	N/A	<0.1	<0.1	<0.1	<0.1	<0.1

**Three Rivers Filtration Plant  
Fort Wayne, IN**

**Disinfection Byproducts and Precursors**

	Sampling pt: 7936 W Jefferson Sample Date Chemical	Method	MCL ug/L	2008				Average ug/L
				03-Jan-08 ug/L	02-Apr-08 ug/L	02-Jul-08 ug/L	15-Oct-08 ug/L	
<u>Trihalomethanes (THM)</u>								
	Chloroform	524.2		5.4	2.8	25.0	13	11.6
	Bromoform	524.2		<0.5	<0.5	<0.5	<0.5	<0.50
	Bromodichloromethane	524.2		<0.5	<0.5	2	1.6	0.9
	Dibromochloromethane	524.2		<0.5	<0.5	<0.5	<0.5	<0.50
	Total Trihalomethanes		80	5.4	2.8	27.0	14.6	12.5
<u>HAA</u>								
	Monochloroacetic Acid	552.2		<2.0	<2.0	<2.0	<2.0	<2.0
	Dichloroacetic Acid	552.2		7.2	7.3	27.0	8.5	12.5
	Trichloroacetic Acid	552.2		<1.0	<1.0	3.7	1.6	1.3
	Monobromoacetic Acid	552.2		<1.0	<1.0	<1.0	<1.0	<1.0
	Dibromoacetic Acid	552.2		<1.0	<1.0	<1.0	<1.0	<1.0
	Total HAA=		60	7.2	7.3	30.7	10.1	13.8
<u>Inorganic Disinfection Byproducts</u>								
	Chlorite	300	1000	700	800	800	640	735.0

## Three Rivers Filtration Plant Fort Wayne, IN

### Sludge Data

Year of Record	Raw Water Pumpage MG	Tons per MG	Total Sludge Tons	Sludge Composition				
				CaCO(3) %	MgO %	Fe(2)O(3) %	Turbidity %	Carbon %
1953	7,431.55	2.65	19,694	85.39	4.48	0.35	9.02	0.76
1954	7,344.32	2.63	19,316	81.36	3.51	0.46	13.72	0.95
1955	7,594.29	2.51	19,062	85.33	3.57	0.34	9.73	1.03
1956	7,660.74	2.54	19,458	80.01	3.67	0.39	14.72	1.21
1957	7,728.25	2.53	19,552	82.14	3.75	0.42	12.81	0.88
1958	7,499.12	2.61	19,573	82.57	3.65	0.52	12.14	1.12
1959	7,982.38	2.36	18,838	81.31	3.69	0.55	12.66	1.79
1960	7,757.98	2.52	19,550	82.20	3.88	0.40	12.39	1.13
1961	7,763.23	2.49	19,330	84.01	4.07	0.37	10.29	1.26
1962	8,543.64	2.39	20,419	85.96	4.55	0.45	7.12	1.92
1963	8,911.06	2.62	23,347	86.37	5.08	0.30	6.50	1.75
1964	9,167.09	2.78	25,485	84.69	4.74	0.23	9.28	1.06
1965	9,419.50	2.82	26,563	79.20	3.93	0.33	15.22	1.32
1966	10,052.50	2.72	27,343	76.65	4.20	0.16	17.23	1.76
1967	10,259.84	2.51	25,752	83.49	4.24	0.28	10.85	1.14
1968	10,205.78	2.57	26,229	80.52	3.72	0.31	14.12	1.33
1969	10,898.68	2.44	26,592	82.23	1.14	2.25	13.15	1.23
1970	11,329.55	2.46	27,870	82.04	4.37	0.23	12.05	1.31
1971	11,249.67	2.32	26,099	82.24	4.22	0.25	11.87	1.42
1972	11,332.68	2.73	30,938	76.73	3.10	0.26	18.57	1.34
1973	11,732.16	2.54	29,800	76.46	3.69	0.25	18.50	1.10
1974	11,833.83	2.43	28,756	75.87	3.88	0.21	19.13	0.91
1975	11,548.48	2.62	30,257	70.30	3.89	0.23	24.73	0.85
1976	11,872.06	2.24	26,593	82.60	5.34	0.14	11.12	0.80
1977	12,574.05	2.61	32,818	80.16	5.00	0.22	13.83	0.79
1978	12,097.31	2.57	31,090	85.57	4.70	0.31	8.67	0.75
1979	11,422.65	2.63	30,022	82.51	4.71	0.49	11.26	1.03
1980	10,845.22	2.75	29,824	75.10	3.82	0.42	19.49	1.17
1981	11,550.48	2.82	32,572	77.11	4.23	0.48	17.42	0.76
1982	11,748.08	2.63	30,897	73.20	3.77	0.52	21.50	1.01
1983	12,004.75	2.50	30,012	80.22	4.52	0.32	14.14	0.80
1984	11,526.26	2.43	28,009	80.33	4.54	0.41	13.75	0.97
1985	12,073.02	2.48	29,941	78.17	4.04	0.49	16.41	0.89
1986	11,432.38	2.60	29,724	76.58	3.44	0.50	18.52	0.96
1987	11,763.80	2.64	31,056	84.07	4.47	0.22	10.40	0.84
1988	12,657.76	2.76	34,952	81.95	3.65	0.39	12.84	1.17
1989	11,802.45	2.62	30,922	77.13	4.99	0.35	16.88	0.65
1990	11,281.23	2.37	26,681	83.17	3.64	0.33	11.74	1.12
1991	11,883.10	2.40	28,462	86.89	4.21	0.39	7.70	0.81
1992	11,218.54	1.92	21,520	83.49	3.35	1.10	10.91	1.14
1993	11,666.67	2.16	25,206	87.62	2.64	1.23	7.22	1.29
1994	12,244.40	2.49	30,478	89.19	4.72	1.05	3.69	1.34
1995	12,300.68	2.36	28,995	88.28	4.42	1.18	4.89	1.23
1996	12,744.18	2.35	29,866	83.05	4.75	2.12	8.03	2.04
1997	12,349.40	2.34	28,931	81.48	3.37	2.67	10.73	1.75
1998	13,078.29	3.49	45,605	80.90	5.18	2.68	10.47	0.77
1999	13,684.57	2.26	30,902	84.87	5.54	1.98	7.12	0.50
2000	13,377.92	2.37	31,687	87.49	4.67	1.65	5.71	0.48
2001	12,725.04	2.24	28,534	85.07	4.11	2.21	8.12	0.49
2002	12,909.75	2.41	28,647	86.51	4.46	1.49	7.07	0.47
2003	12,040.46	2.27	27,355	85.21	3.87	2.61	7.81	0.50
2004	11,898.44	2.19	26,001	84.49	5.15	2.31	7.53	0.52
2005	12,142.29	2.16	26,215	87.29	5.13	2.17	4.89	0.53
2006	11,429.44	2.05	23,473	84.47	4.32	2.11	8.54	0.56
2007	12,254.23	2.22	27,217	85.42	4.49	1.66	7.90	0.51
2008	11,841.94	2.12	25,132	84.07	4.69	1.91	8.80	0.54