

Using PSC Annual Report Data in the M36 Audit Process

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Public Service Commission of Wisconsin

Role of Financial Regulator

Prevent Discrimination in Rates and Service



Valuation of
utilities - rates

- Rates are “**just and reasonable**”
- Have sufficient financial capacity to support necessary operating and capital requirements



Establish service
standards

- Provide adequate customer service
- Provide service in efficient manner
- Adopt industry-accepted practices

Example: Financial Outreach Program



- Metrics
 - Fewer than 90 days' cash on hand, AND
 - Two consecutive years of operating losses, AND
 - No rate case within last year
- In 2017, 14 utilities were on the list for a second year
- Of those 14, all but 2 had high non-revenue water

SERVICE DATE
Nov 09, 2017

PSC REF#: 333296

PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of the Village of La Valle, Sauk County, Wisconsin, as
a Water Public Utility, for Authority to Adjust Water Rates

3080-WR-103

FINAL DECISION

This is the Final Decision in the Class 1 proceeding conducted by the Public Service Commission (Commission) on the application of La Valle Municipal Water Utility (applicant) for approval to increase water rates. This application is APPROVED, subject to conditions.

Public Service Commission of Wisconsin
RECEIVED: 11/09/2017 11:35:01 AM

Current Water Loss Control Requirements

- Conduct an annual water audit
- Maintain and verify the accuracy of customer and production meters
- Identify and repair leaks in the distribution system to the extent that it is reasonable
- Control water usage from hydrants
- Maintain records of water pumped and water sales

Volume From Own Sources (corrected for known errors)	System Input Volume	Water Exported (corrected for known errors)	Billed Water Exported			Revenue Water
		Water Supplied	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	
Water Losses	Unbilled Authorized Consumption			Billed Unmetered Consumption		Non-Revenue Water
		Unbilled Metered Consumption				
	Unbilled Unmetered Consumption					
	Customer Metering Inaccuracies					
Water Imported (corrected for known errors)	System Input Volume	Water Supplied	Water Losses	Apparent Losses		Non-Revenue Water
				Unauthorized Consumption		
				Systematic Data Handling Errors		
Water Imported (corrected for known errors)	System Input Volume	Water Supplied	Water Losses	Real Losses		Non-Revenue Water
				Leakage on Transmission and Distribution Mains		
				Leakage and Overflows at Utility's Storage Tanks		
Water Imported (corrected for known errors)	System Input Volume	Water Supplied	Water Losses	Real Losses		Non-Revenue Water
				Leakage on Service Connections up to the Point of Customer Metering		

Chapter PSC 185

STANDARDS FOR WATER PUBLIC UTILITY SERVICE

Subchapter I — General

- PSC 185.11 Authorization for and application of rules.
- PSC 185.12 Definitions.
- PSC 185.13 General requirement.
- PSC 185.15 Free or discriminatory service prohibited.
- PSC 185.16 Protection of water utility facilities.
- PSC 185.17 Interference with public service structures.
- PSC 185.18 Location of records.
- PSC 185.19 Retention of records.

Subchapter II — Rate Schedules and Rules

- PSC 185.21 Schedules to be filed with the commission.
- PSC 185.22 Information available to customers.

Subchapter III — Service and Billing

- PSC 185.30 Application for residential and multifamily service.
- PSC 185.305 Application for nonresidential service.
- PSC 185.31 Metered service.
- PSC 185.32 Meter readings and billing periods.
- PSC 185.33 Billing.
- PSC 185.34 Adjustment of bills (ROM).
- PSC 185.35 Adjustment of bills.
- PSC 185.36 Deposits for residential service.
- PSC 185.361 Deposits for nonresidential service.
- PSC 185.37 Disconnection and refusal of service.
- PSC 185.38 Deferred payment agreement.
- PSC 185.39 Dispute procedures.

Subchapter IV — Records

- PSC 185.41 Employees authorized to enter a customer's premises.
- PSC 185.42 Customer complaints.
- PSC 185.43 Construction records.
- PSC 185.44 Records and reports of service interruptions.
- PSC 185.45 Pumpage records.
- PSC 185.46 Metering equipment records.
- PSC 185.47 Other records.

Subchapter V — Engineering

- PSC 185.51 Requirement for good engineering practice.

- PSC 185.52 General construction requirements.

- PSC 185.53 Metering configuration.

Subchapter VI — Customer Meters, Accuracy Requirements

- PSC 185.61 Meters.

- PSC 185.65 Accuracy requirements for meters.

Subchapter VII — Meter Testing

- PSC 185.71 Meter testing facilities and equipment.

- PSC 185.72 Calibration of meter testing equipment.

- PSC 185.73 Testing of customer meters.

- PSC 185.74 Test flows.

- PSC 185.75 Required tests of customer meters.

- PSC 185.751 Alternate sample-testing plan for "before-use" test for 5/8-, 3/4-, and 1-inch meters.

- PSC 185.76 Periodic tests.

- PSC 185.761 Alternative sample-testing plan for in-use meters.

- PSC 185.77 Request and referee tests.

- PSC 185.79 Remote outside meter (ROM) and automatic meter reading (AMR) system tests.

- PSC 185.795 Electrical safety.

Subchapter VIII — Operating Requirements

- PSC 185.81 Quality of water.

- PSC 185.82 Pressure standards.

- PSC 185.83 Station meters.

- PSC 185.85 Water audits and water loss control.

- PSC 185.86 Flushing mains.

- PSC 185.88 Frozen laterals.

- PSC 185.89 Adequacy of Water Supply, Emergency Operations and Interruptions of Service.

- PSC 185.90 Water Supply Shortage.

Subchapter IX — Water Conservation and Efficiency

- PSC 185.95 Definitions.

- PSC 185.96 Customer Education Requirements.

- PSC 185.97 Voluntary Water Conservation Rebate or Incentive Programs.

Wisconsin Admin. Code ch. PSC 185.85

Subchapter VIII — Operating Requirements

PSC 185.81 Quality of water.

PSC 185.82 Pressure standards.

PSC 185.83 Station meters.

PSC 185.85 Water audits and water loss control.

PSC 185.86 Flushing mains.

PSC 185.88 Frozen laterals.

PSC 185.89 Adequacy of Water Supply, Emergency Operations and Interruptions of Service.

PSC 185.90 Water Supply Shortage.

- Control real losses to extent “it is reasonable”
- Conduct annual water balance/audit
- Calculate annual non-revenue water and water loss
 - Control plans may be required
 - Leak detection may be required

Wisconsin Admin. Code ch. PSC 185.76

Subchapter VII — Meter Testing

PSC 185.71	Meter testing facilities and equipment.
PSC 185.72	Calibration of meter testing equipment.
PSC 185.73	Testing of customer meters.
PSC 185.74	Test flows.
PSC 185.75	Required tests of customer meters.
PSC 185.751	Alternate sample-testing plan for “before-use” test for 5/8-, 3/4-, and 1-inch meters.
PSC 185.76	Periodic tests.
PSC 185.761	Alternative sample-testing plan for in-use meters.
PSC 185.77	Request and referee tests.
PSC 185.79	Remote outside meter (ROM) and automatic meter reading (AMR) system tests.
PSC 185.795	Electrical safety.

- If system losses < prescribed percentages under PSC 185.85 **AND** Utility adopts a 20 year replacement program, Utility may be exempt from meter testing requirements
- Applies to testing requirements for 5/8, 3/4, and 1-inch meters

Proposed Revisions to Administrative Code

- Align PSC's program with industry practices
- Require use of AWWA free spreadsheet tool

~~Percentage Benchmarks~~

~~Unaccounted For Water~~

~~Leak Detection Fixes All NRW Problems~~

Annual Reporting Requirements → Solid Database

- Based on standard Uniform System of Accounts (USOA)
- Standard reporting format
- Since 1997, utilities have filed electronically
- New, web-based platform adopted in 2016

UTILITY NO. 320
Class C



**WATER, ELECTRIC, OR JOINT UTILITY
ANNUAL REPORT**

OF

BALDWIN MUNICIPAL WATER UTILITY
400 CEDAR ST PO BOX 97
BALDWIN, WI 54002

For the Year Ended: DECEMBER 31, 2015

TO

PUBLIC SERVICE COMMISSION OF WISCONSIN
P.O. Box 7854
Madison, WI 53707-7854
(608) 266-3766

This form is required under Wis. Stat. § 196.07. Failure to file the form by the statutory filing date can result in the imposition of a penalty under Wis. Stat. § 196.66. The penalty which can be imposed by this section of the statutes is a forfeiture of not less than \$25 nor more than \$5,000 for each violation. Each day subsequent to the filing date constitutes a separate and distinct violation. The filed form is available to the public and personally identifiable information may be used for purposes other than those related to public utility regulation.

I **Tracy Carlson, Administrator/Clerk-Treasurer** of BALDWIN MUNICIPAL WATER UTILITY, certify that I am the person responsible for accounts; that I have examined the following report and, to the best of my knowledge, information and belief, it is a correct statement of the business and affairs of said utility for the period covered by the report in respect to each and every matter set forth therein.

Date Signed: 3/24/2016

Date Printed: 9/25/2016 3:39:34 PM PSCW Annual Report

PSC W-15:

Water Audit and Other Statistics

- Where possible, report actual metered values. If water uses are not metered, estimate values for each line based on best available information. For assistance, refer to AWWA M36 Manual – Water Audits and Loss Control Programs.
- For unbilled, unmetered gallons (line 16), include water used for system operation and maintenance and water used for non-regulated sewer utility.
- If gallons estimated due to theft, data, and billing errors is unknown, multiply net gallons entering distribution system (line 3) by .0025.

Description (a)	Value (b)
WATER AUDIT STATISTICS	
Finished Water pumped or purchased (000s)	360,453
Less: Gallons (000s) sold to wholesale customers (exported water)	0
Subtotal: Net gallons (000s) entering distribution system	360,453
Less: Gallons (000s) sold to retail customers - Billed Authorized Consumption	270,405
Gallons (000s) of Non-Revenue Water	90,048
Gallons (000s) of unbilled-metered (including customer use to prevent freezing)	0
Gallons (000s) of unbilled-unmetered (including unmetered flushing, fire protection)	1,160
Subtotal: Unbilled Authorized Consumption	1,160
Total Water Loss	88,888
Gallons (000s) estimated due to theft, data, and billing errors (default)	0
Gallons (000s) estimated due to customer meter under-registration	0
Subtotal Apparent Losses	0
Gallons (000s) estimated due to reported leakage (mains, services, hydrants, overflows)	243
Gallons (000s) estimated due to unreported and background leakage	88,645
Subtotal Real Losses (leakage)	88,888
Non-Revenue Water as percentage of net water supplied	25%
Total Water Loss as percentage of net water supplied	25%

Sources of Water Supply - Statistics

- For Raw Water Withdrawn, use metered volume of untreated water withdrawn from the source.
- For Finished Water Pumped, use metered volume of treated water entering the distribution network, adjusted for known meter errors.
- If Finished Water is not metered, use Raw Water Withdrawn and subtract estimated water used in treatment.

Month (a)	Sources of Water Supply (000's gal)						Total Gallons Entering Distribution System (h)
	Raw Water Withdrawn		Finished Water Pumped		Purchased Water (Imported)		
	Ground Water (b)	Surface Water (c)	Ground Water (d)	Surface Water (e)	Ground Water (f)	Surface Water (g)	
January		53,540		52,552			52,552
February		52,235		51,340			51,340
March		57,217		56,120			56,120
April		55,484		54,395			54,395
May		64,876		64,165			64,165
June		66,910		65,781			65,781
July		60,743		60,190			60,190
August		60,658		59,655	296		59,951
September		58,312		58,120	6		58,126
October		56,363		54,863			54,863
November		55,329		53,544			53,544
December		57,816		56,630			56,630
TOTAL	0	699,483	0	687,355	302	0	687,657

PSC W-14:

Sources of Water Supply (000's gal)			
Raw Water Withdrawn		Finished Water Pumped	
Ground Water (b)	Surface Water (c)	Ground Water (d)	Surface Water (e)
	53,540		52,552
	52,235		51,340
	57,217		56,120
	55,484		54,395
	64,876		64,165
	66,910		65,781
	60,743		60,190
	60,658		59,655
	58,312		58,120
	56,363		54,863
	55,329		53,544
	57,816		56,630
0	699,483		687,355

2017: Raw Water Pumped vs. Water Entering Distribution System

Surface Water Systems

- **21** systems
- **75%** reported some loss due to treatment, known meter errors

Groundwater Systems

- **515** systems
- **21%** reported some loss due to treatment, known meter errors

M36 Inputs – How They Tie to PSC Annual Report Data

AWWA M36

PSC W-14

WATER SUPPLIED

<----- Enter grading i

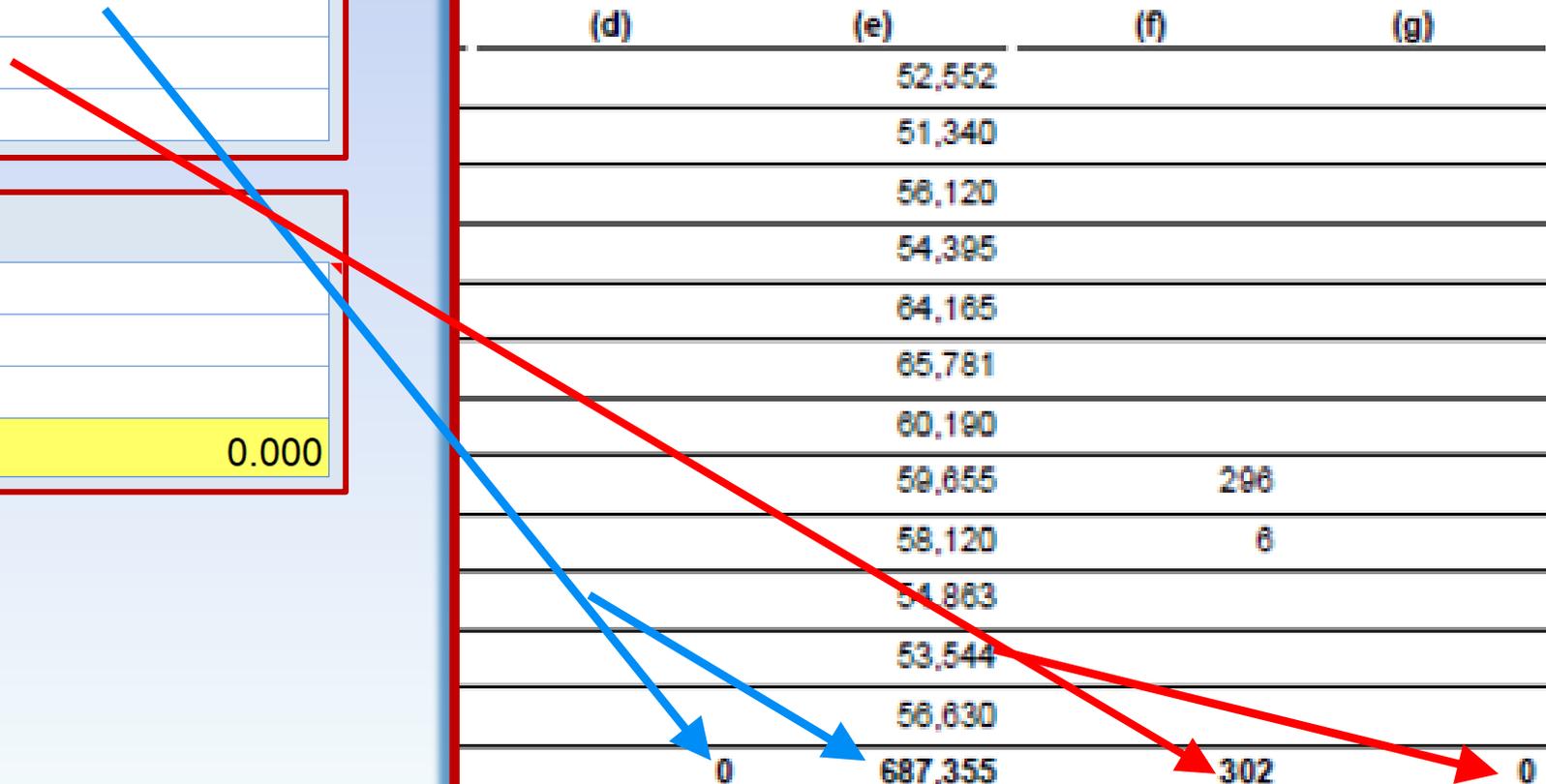
Volume from own sources:	+	?		
Water imported:	+	?		
Water exported:	+	?		

AUTHORIZED CONSUMPTION

Billed metered:	+	?		
Billed unmetered:	+	?		
Unbilled metered:	+	?		
Unbilled unmetered:	+	?		0.000

Sources of Water Supply (000's gal)

Finished Water Pumped		Purchased Water (Imported)	
Ground Water (d)	Surface Water (e)	Ground Water (f)	Surface Water (g)
	52,552		
	51,340		
	58,120		
	54,395		
	64,165		
	65,781		
	60,190		
	59,655	298	
	58,120	6	
	51,863		
	53,544		
	56,630		
0	687,355	302	0



M36 Inputs – How They Tie to PSC Annual Report Data

AWWA M36

PSC W-15

WATER SUPPLIED

<----- Enter grading i

Volume from own sources:	+	?		
Water imported:	+	?		
Water exported:	+	?		

AUTHORIZED CONSUMPTION

Billed metered:	+	?		
Billed unmetered:	+	?		
Unbilled metered:	+	?		
Unbilled unmetered:	+	?		0.000

WATER AUDIT STATISTICS

Finished Water pumped or purchased (000s)
Less: Gallons (000s) sold to wholesale customers (exported water)
Subtotal: Net gallons (000s) entering distribution system
Less: Gallons (000s) sold to retail customers - Billed Authorized Consumption
Gallons (000s) of Non-Revenue Water
Gallons (000s) of unbilled-metered (including customer use to prevent freezing)
Gallons (000s) of unbilled-unmetered (including unmetered flushing, fire protection)
Subtotal: Unbilled Authorized Consumption

M36 Inputs – How They Tie to PSC Annual Report Data

AWWA M36

PSC W-02

WATER SUPPLIED

<----- Enter grading i

Volume from own sources:	+	?	<input type="text"/>	<input type="text"/>
Water imported:	+	?	<input type="text"/>	<input type="text"/>
Water exported:	+	?	<input type="text"/>	<input type="text"/>

AUTHORIZED CONSUMPTION

Billed metered:	+	?	<input type="text"/>	<input type="text"/>
Billed unmetered:	+	?	<input type="text"/>	<input type="text"/>
Unbilled metered:	+	?	<input type="text"/>	<input type="text"/>
Unbilled unmetered:	+	?	<input type="text"/>	0.000

Description (a)	Average No. Customer (b)	Thousand of Gallons of Water Sold (c)
Unmetered Sales to General Customers (460)		
Residential (460.1)	1	4
Commercial (460.2)		
Industrial (460.3)		
Public Authority (460.4)		
Multifamily Residential (460.5)		
Irrigation (460.6)		
Total Unmetered Sales to General Customers (460)	1	4

M36 Inputs – How They Tie to PSC Annual Report Data

AWWA M36

PSC W-15

Apparent Losses

Unauthorized consumption: + ? 0.000

Customer metering inaccuracies: + ? 0.000

Systematic data handling errors: + ? 0.000

Gallons (000s) estimated due to theft, data, and billing errors (default)
Gallons (000s) estimated due to customer meter under-registration
Subtotal Apparent Losses

M36 Inputs – How They Tie to PSC Annual Report Data

SYSTEM DATA

Length of mains:

Number of active AND inactive service connections:

Service connection density:

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line:

Average length of customer service line has been set to zero and a data grading score

Average operating pressure:

PSC W-21
PSC W-22

COST DATA

Total annual cost of operating water system:

Customer retail unit cost (applied to Apparent Losses):

Variable production cost (applied to Real Losses):

PSC W-05 (total O&M)
PSC W-05 (pumping, chemicals)

M36 Inputs – How They Tie to PSC Annual Report Data

SYSTEM DATA

Length of mains:	+	?	<input type="text"/>
Number of <u>active AND inactive</u> service connections:	+	?	<input type="text"/>
Service connection density:		?	<input type="text"/>
Are customer meters typically located at the curbside or property line?			<input type="text" value="Yes"/>
Average length of customer service line:	+	?	<input type="text"/>
Average length of customer service line has been set to zero and a data grading score			
Average operating pressure:	+	?	<input type="text"/>

COST DATA

Total annual cost of operating water system:	+	?	<input type="text"/>
Customer retail unit cost (applied to Apparent Losses):	+	?	<input type="text"/>
Variable production cost (applied to Real Losses):	+	?	<input type="text"/>



Optional: Utility billing data, PSC W-02

Water Audit and Other Statistics

OTHER STATISTICS

Maximum gallons (000s) pumped by all methods in any one day during reporting year	2,724
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Date of maximum	04/12/2017
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Cause of maximum

Day after maintenance

Minimum gallons (000s) pumped by all methods in any one day during reporting year	334
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Date of minimum	04/11/2017
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Total KWH used by the utility (including pumping, treatment facilities and other utility operations)	93,184
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If water is purchased:

Vendor Name	Central Brown County Water Authority
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Point of Delivery	Water Tower #4, 4165 Shawano Ave
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Source of purchased water	Surface
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Vendor Name (2)

Point of Delivery (2)

Source of purchased water (2)

Vendor Name (3)

Point of Delivery (3)

Source of purchased water (3)

Number of main breaks repaired this year	10
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Number of service breaks repaired this year	19
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Resources

Water Loss Control

<https://psc.wi.gov/Pages/ForUtilities/Water/WaterLoss.aspx>

Conservation and Efficiency Topics

Utility Conservation Programs

PSC's Water Loss Control Initiative

In order to protect natural and financial resources and encourage system efficiency, Wis. Admin. PSC 185 requires that every Wisconsin utility implement a water loss control program that includes the following components:

Water Utility Training

<https://psc.wi.gov/Pages/ForUtilities/Water/WaterUtilityTraining.aspx>

Resources and Training

Accounting

Customer-Related FAQs

Reports and Resources

Water Utility Financial Resiliency



Water Loss Control



Asset Management



PSC Presentations

