

Filed April 18, 1972  
PSC 182, 185 4:15 P.M.

BEFORE THE  
PUBLIC SERVICE COMMISSION

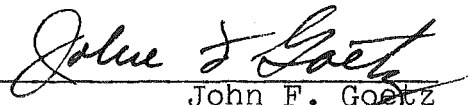
STATE OF WISCONSIN            )  
PUBLIC SERVICE COMMISSION    ) SS

I, John F. Goetz, Secretary of the Public Service Commission of Wisconsin and legal custodian of the official records of said Commission, do hereby certify under my signature and official seal of the Commission that the attached recreated rules, Chapter PSC 185, relating to standards for water public utility service, were duly approved and adopted by order of April 1, 1971 (2-U-7039) which also repealed Wis. Adm. Code Chapter PSC 182.

I further certify that the copy of the recreated rules attached hereto has been compared by me with the original on file in this Commission and that the same is a true copy thereof.

Dated at Madison, Wisconsin

April 18, 1972

  
John F. Goetz  
Secretary

ORDER OF THE  
PUBLIC SERVICE COMMISSION  
REPEALING AND RECREATING RULES

Pursuant to authority vested in the Public Service Commission by chapter 196 and section 337.014, Wis. Stats., the Public Service Commission hereby repeals and recreates rules as follows:

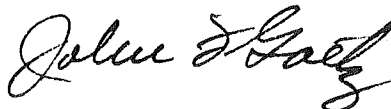
Chapter PSC 182 of the WISCONSIN ADMINISTRATIVE CODE is repealed.

Chapter PSC 185 of the WISCONSIN ADMINISTRATIVE CODE is repealed and recreated to read as shown on the attached sheets.

The repeal and the recreated rules contained herein shall take effect on June 1, 1972 as provided in section 227.026(1) (intro. par.), Wis. Stats.

Dated: April 18, 1972

PUBLIC SERVICE COMMISSION



John F. Goetz  
Secretary

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## CHAPTER PSC 185

### STANDARDS FOR WATER PUBLIC UTILITY SERVICE

#### Part 1. General

PSC 185.11 Authorization for an application of rules. (1) Wis. Adm. Code Chapter PSC 185 of the public service commission's departmental rules is part of the Wis. Adm. Code and constitutes a general order of the public service commission, the issuance of which is authorized by sections 227.014, 196.02, 196.06, 196.12, 196.15, 196.16, 196.17, 196.19, 196.37, Wis. Stats.

(2) The rules making up Wis. Adm. Code Chapter PSC 185 are designed to effectuate and implement sections 196.02, 196.03, 196.06, 196.12, 196.15, 196.16, 196.17, 196.19, 196.21, 196.22, 196.60, 196.62, 196.72 and parts of other sections of the Wisconsin Statutes.

(3) The requirements of Wis. Adm. Code Chapter PSC 185 shall be observed by all water public utilities except insofar as an exemption may be given by the commission as hereinafter mentioned. Nothing herein shall preclude special and individual consideration being given to exceptional or unusual situations and, upon due investigation of the facts and circumstances therein involved, the adoption of requirements as to individual utilities or services which shall be lesser, greater, other, or different than those provided in these rules and regulations.

(4) The manner of enforcing the rules in Wis. Adm. Code Chapter PSC 185 is prescribed in section 196.66, Wis. Stats., and such other means as provided in statutory sections administered by the public service commission.

(5) In case of emergency, where public interest requires immediate action without waiting for compliance with the specific terms of these rules, the rules shall not prevent immediate corrective action by the utility, which action, however, shall be subject to review by the public service commission.

PSC 185.12 Definitions. The following terms as used in this chapter mean:

(1) "Commission" - public service commission.

(2) "Customer" - Any person, owner or occupant, firm, partnership, corporation, municipality, cooperative organization, governmental agency, political entity, etc., provided with water service by any water public utility.

(3) "Meter" - An instrument installed to measure the volume and/or rate of flow of water delivered through it.

(4) "Percent registration" - The ratio of the meter registration divided by the actual volume or rate of flow, stated in percent. Stated more simply for domestic (volumetric) meters, this is the percent of the water delivered through a meter which the meter actually registers.

PSC 185.13 General requirement. Every utility shall furnish reasonably adequate service and facilities at the rates filed with the commission and subject to these rules and the rules of the utility (on file with the commission) applicable thereto and not otherwise.

PSC 185.14 Refusal or discontinuance of service.

(1) Service may be denied to any customer for failure to comply with applicable requirements of these rules or of the utility's rules (on file with the commission).

(2) The following shall not constitute sufficient cause for refusal of service to a present or prospective customer:

(a) Delinquency in payment for service of a previous occupant of the premises to be served.

(b) Failure to pay for a different type or class of utility service.

(c) Failure to pay the bill of another customer as a guarantor thereof.

(d) Failure to pay a charge billed pursuant to Wis. Adm. Code section PSC 185.35(5) because of an inaccurate meter.

(e) Failure to pay an estimated bill unless the customer, upon request, refuses to permit the reading of the meter during reasonable hours.

(f) Failure to pay a bill to correct previous underbilling due to misapplication of rates.

(3) Service to an existing customer will not be discontinued unless written notice of at least 5 days is given except that (a) service may be discontinued without advance notice in case of emergency where the public interest requires immediate action, and (b) service may be discontinued with a written 24-hour notice for non-payment of a bill covering surreptitious use of water if so provided in the filed tariff of the utility. (See also Wis. Adm. Code section PSC 185.36(2)(b) for discontinuance of service for insufficient deposit and Wis. Adm. Code section PSC 185.36(4)(a) for discontinuance of service for failure to pay current bill.)

**PSC 185.15 Free or discriminatory service prohibited.**

(1) No utility shall provide water service free or at a rate different than provided for in its rates. (See sections 196.62 and 196.63, Wis. Stats.) Such prohibition shall include, among others, water service for all non-utility municipal purposes such as street and sewer flushing and service to non-utility public buildings.

**PSC 185.16 Protection of utility facilities.** A water public utility upon receipt of written notice as required by section 66.047(2), Wis. Stats., from the property owner or from a contractor of work which may affect its facilities used for serving the public:

(1) Shall investigate and decide what action, if any, must reasonably be taken to protect or alter utility facilities, in order to protect service to the public and to avoid unnecessary damage, such as identifying in a suitable manner the location of any underground utility facilities which may be affected by the work.

(2) The utility shall take such action as is reasonably and legally necessary to protect, remove, alter, or reconstruct its facilities, and shall perform such work with reasonable dispatch taking into account the conditions to be met, provided that nothing in this rule shall be deemed to affect any right which the utility may have to require advance payment or adequate assurance of payment of the reasonable cost thereof to the utility by the property owner or contractor.

(3) The utility may, in order to protect its interests, require that the owner or contractor perform certain work upon that part of the service piping on or being removed from the property upon which the excavating, building, or wrecking operations are being performed.

(4) This rule is not intended to affect the responsibility of the contractor or owner, or the liability or legal rights of any party.

PSC 185.17 Interference with public service structures.

(1) No utility having any work upon, over, along, or under any public street or highway or upon, over, along, or under any private property shall interfere with, destroy, or disturb the structures of any other public service corporation or railroad encountered in the performance of such work so as to interrupt, impair, or affect the public service for which such structures may be used, without first reaching an agreement concerning the location and the nature of the proposed work.

(2) A utility shall exercise care when working in close proximity of existing facilities. When the facilities are underground and are to be exposed or possibly may be exposed, hand-digging shall be employed. In these cases, such support as may be reasonably necessary for protection of the facilities shall be provided in and near the construction area. When backfilling an excavation such procedures and materials will be employed to provide reliable support for existing underground facilities in and near the construction area.

(3) A utility shall, in the absence of working arrangements, give at least 3 days' written notice (not counting Saturdays, Sundays, and legal holidays) to all utilities or railroads and to those who may have facilities in and near the construction area which may be affected by the proposed work. The utility proposing to work shall obtain from the affected party the location of the existing facilities determined to be affected or to be in and near the construction area.

(4) A utility upon receiving a notice of proposed construction shall furnish in 3 days detailed information relative to location and type of facilities that are present in the proposed construction area. Where practical in those cases where the facilities are underground, they shall be marked physically in the field relative to location.

(5) Nothing in the above shall prevent a utility from proceeding as quickly as possible with any emergency construction work which might interfere with existing facilities. However, all reasonable precautions shall be taken to avoid or minimize damage or interference to the other facilities and notification shall be given as soon as possible to the utilities which have facilities in the construction area.



PSC 185.18 Location of records. All records required by these rules or necessary for the administration thereof, shall be kept within this state unless otherwise authorized by the commission. These records shall be available for examination by the commission or its authorized representative at all reasonable hours. (See section 196.06(6), Wis. Stats.)

PSC 185.19 Retention of records. The following records shall be preserved and kept available for inspection by the commission for the period indicated. The list is not to be taken as comprehending all types of utility records.

Description of Record	Period to be Retained
(1) Maps showing the location and physical characteristics of the utility plant.	Until map is superceded or 6 years after plant is retired provided mortality data are retained.
(2) Engineering records in connection with construction projects.	Until record is superceded or 6 years after plant is retired provided mortality data are retained.
(3) Operating records: Station pumpage records	15 years or 3 years after the source is abandoned, whichever is shorter
Interruption records	6 years
Meter test records	(See Wis. Adm. Code section PSC 185.46)
Meter history record*	Life of meter
Annual meter accuracy summary	10 years
Pressure records	6 years
(4) Customer records: Complaint records	3 years
Customer deposit	6 years after refund
Meter reading sheets or cards	**
Billing record	**
(5) Filed rates and rules	Permanently

\* Where practicable should be placed in mortality study before destroying.

\*\* Where machine billing is used and meter readings recorded on tabulated cards the register sheets may be considered to be "meter reading sheets" and the "billing records". "Meter reading sheets" and

"billing records" or the "register sheets" shall be kept 6 years or until they are no longer needed to adjust bills. This means that the records must be kept 6 years or from the date of one meter test to the next, whichever is longer.

Note: See also "Regulations to Govern the Preservation of Records of Electric, Gas and Water Utilities" adopted by the Commission in docket 2-U-5005, April 27, 1961 for more comprehensive listing of retention periods of specific records.

## Part 2. Rate Schedules and Rules

PSC 185.21 Schedules to be filed with the commission. The schedules of rates and rules shall be filed with the commission by the utility and shall be classified, designated, arranged and submitted so as to conform to the requirements of the current tariff or rate schedule circulars and the special instructions which have been and may from time to time be issued by the commission. Provisions of the schedules shall be definite and so stated as to minimize ambiguity or the possibility of misinterpretation, and shall include, together with such other information as may be deemed pertinent, the following:

(1) All rates for service with indication for each rate of the class of customers to which it applies. There shall also be shown any limitations on the service furnished under such rate, the prices per unit of service, and the number of units per billing period to which the prices apply, the period of billing, the minimum bill, method of measuring demands (where applicable) and consumptions, and any special terms and conditions applicable. The discount for prompt payment or penalty for late payment, if any, and the period during which the net amount may be paid shall be specified.

(2) If service to other utilities or municipalities for resale is furnished at a standard filed rate, either a copy of each contract or the standard contract form with a summary of the provisions of each signed contract.

(3) Extension rules for extending service to new customers indicating what portion of the extension or cost thereof will be furnished by the utility, and if the rule is based on cost, the items of cost included.

(4) Designation of such portion of the service facilities as the utility furnishes, owns and maintains.

(5) Rules with which prospective customers must comply as a condition of receiving service, and the terms of any contracts required.

(6) Rules governing the establishing of credit by customers for payment of service bills.

(7) Rules governing disconnecting and reconnecting service.

(8) Notice required from customer for having service discontinued.

(9) Rules governing temporary, emergency, auxiliary, and standby service.

(10) Rules governing any limitations on the type of equipment which may or may not be connected.

(11) A list of the municipalities in which service is rendered.

PSC 185.22 Information available to customers. The business office of each utility shall keep available a copy of the complete tariff and rules of the utility applicable in such locality.

### Part 3. Service and Billing

PSC 185.31 Metered service. (1) Except where otherwise authorized by the commission, all water sold by a utility shall be on the basis of meter measurement except that water used for street or sewer flushing, construction, or similar purposes where metering is not practicable may be estimated (See Wis. Adm. Code section PSC 185.15).

(2) Wherever practicable, consumption of water within the utility itself, or by administrative units associated with it or with the municipality shall be metered.

PSC 185.32 Meter readings and billing periods. Readings of all meters used for determining charges to customers shall be taken by the utility monthly, bi-monthly, quarterly, semi-annually or for such other period or in such other manner as may be authorized by the commission. An effort shall be made to read meters on corresponding days of each meter-reading period. The meter reading date may be advanced or postponed not more than 10 days without adjustment of the billing period. Bills for service shall be rendered within 50

days from the reading of the meter except as may be otherwise specifically authorized by the commission.

PSC 185.33 Billing. (1) Each bill, including the customer's receipt, shall show the present and last preceding meter readings, the date of the present reading, the number of units used, the net and gross amount of the bill or the net amount with late payment penalty, the date after which the gross amount must be made, and the rate schedule under which the bill is computed. In lieu of including the rate schedule on the bill, the utility may, whenever a rate change becomes effective and at least once each year, supply each customer with the schedule of rates at which the bills are computed and any other rates that might be applicable. Minimum and estimated bills shall be distinctly marked as such.

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(2) (a) If the billing period is longer or shorter than allowed in Wis. Adm. Code section PSC 185.32, the bill shall be prorated on a daily basis unless other provision is made in the utility's filed rules.

(b) If the utility reads the meters at the end of each billing period, the utility may leave the meter reading forms when access to meters cannot be gained. If requested by the customer, the utility shall provide such forms. If no form is left or the form is not returned in time for the billing operation, a minimum or estimated bill may be rendered. In cases of emergency, the utility may render minimum or estimated (average) bills without reading meters or supplying meter reading forms to customers. Only in unusual cases or when approval is obtained from the customer, shall more than 3 consecutive estimated bills be rendered where bills are rendered monthly and there shall be not more than 2 consecutive estimated bills where the billing period is 2 months or more.

(c) If an estimated bill appears to be abnormal when a subsequent reading is obtained, the bill for the entire period shall be computed at a rate which contemplates the use of service during the entire period and the estimated bill shall be deducted. If there is reasonable evidence that the use occurred during only one billing period, the bill shall be so computed.

(3) (a) Credits due a customer because of meter inaccuracies, errors in billing, or misapplication of rates shall be shown separately and identified.

(b) The original billing rendered because of meter inaccuracy, or error in billing, shall be separated from

(6) Subject to the utility's rules setting forth the method of determining a reduced rate herein authorized, if a leak unknown to the customer is found in an appliance or the plumbing, the utility may estimate the water so wasted and bill for it at a reduced rate not less than the utility's cost thereof. No such adjustment shall be made for water supplied after the customer has been notified and has had an opportunity to correct the condition.

(7) Where, because of some deficiency in the utility's portion of the facilities and at the request of the utility, a customer permits a stream of water to flow to prevent freezing of the service or main the utility shall adjust his bill for the excess consumption which results.

(8) A classified record shall be kept of the number of refunds and charges made because of inaccurate meters, misapplication of rates, and erroneous billing. A summary of the record for the previous calendar year shall, upon request, be submitted to the commission by April 1.

PSC 185.36 Deposit, guarantee and service discontinuance rules. For the treatment of delinquent accounts by municipal utilities, see also section 66.069(1)(b), Wis. Stats. (1) Deposit rule. (a) If the credit of an applicant for water service has not been established satisfactorily to the utility, he may be required to deposit a sum not exceeding the estimated gross bills for all water service, both billed and unbilled, which can be supplied before the utility's filed disconnect rule becomes applicable. The amount to be deposited may be a minimum of \$1 per month for each class of water service furnished. Deposits shall bear simple interest at the rate of 5% per annum payable from the date of the deposit to the date of refund or discontinuance of service, whichever is earlier.

(b) The deposit shall be refunded upon request of the customer after 2 years' service with payments within the prompt payment period, and, without such request, shall be refunded voluntarily by the utility after 3 years' service with payments within the prompt payment period. In no case, however, will a deposit be refunded if the customer's credit standing is not satisfactory to the utility.

(c) If the rules of the utility permit a customer to pay the net rate after the discount date once within a limited number of consecutive billing periods, such payment shall be regarded as "prompt payment" in the application of paragraph (b) above.

the regular bill and the charges explained in detail. Subsequent to the first billing, the amount may be shown as a separate item on the regular bills.

PSC 185.35. Adjustment of bills. (1) Whenever a positive displacement meter is found upon test to have an average percent registration of more than 102 and whenever a compound or current type meter is found upon test to have an average percent registration of more than 103, a recalculation of bills for service shall be made for the period of inaccuracy assuming an inaccuracy equal to the average percent error in excess of 100.

(2) For the purposes of this rule, the average percent registration shall be the average percent registration for those normal test points which are within the normal test flow limits of the meter, except that the test point within the "change-over" range for compound meters shall be ignored. (For positive displacement meters the light flow test point would not be considered.)

(3) If the period of inaccuracy cannot be determined, it shall be assumed that the full amount of inaccuracy existed during the last half of the period since the meter was installed or last tested; however, the period of accuracy shall not exceed one-half the required test period.

(4) If the recalculated bills indicate that more than \$1 is due an existing customer or \$2 is due a person no longer a customer of the utility, the full amount of the calculated difference between the amount paid and the recalculated amount shall be refunded to the customer. The refund to an existing customer may be in cash or as credit on a bill. If a refund is due a person no longer a customer of the utility, a notice shall be mailed to the last known address and the utility shall, upon request made within 3 months thereafter, refund the amount due.

(5) Where a meter in service is found not to register or is found to have an average percent registration of less than 97, the utility may bill the customer for the amount the test indicates has been undercharged for the period of inaccuracy, which period shall not exceed the last 6 months the meter was in service unless otherwise authorized by the commission after investigation. This limitation does not apply in the case of wholesale customers. No back bill will be sanctioned if the customer has called to the company's attention his doubts as to the meter's accuracy and the company has failed within a reasonable time to check it.

(d) A new or additional deposit may be required upon reasonable written notice of the need for such a requirement in any case where a deposit has been refunded or is found to be inadequate to cover the estimated bills for the period provided in paragraph (a), or where a customer's credit standing is not satisfactory to the utility. The water service of any customer who fails to comply with these requirements may be discontinued upon 5 days' written notice.

(2) Guarantee rule. (a) The utility may accept in lieu of a cash deposit, a contract signed by a guarantor satisfactory to the utility, whereby payment of a specified sum not exceeding the cash deposit requirement is guaranteed. The term of such contract shall be indeterminate, but it shall automatically terminate when the customer gives notice to the utility of discontinuance of service at the location covered by the guarantee agreement or 6 months after discontinuance of service, or at the guarantor's request upon 30 days' written notice to the utility.

(b) Upon termination of a guarantee contract or whenever the utility deems same insufficient as to amount or surety, a cash deposit or a new or additional guarantee may be required upon reasonable written notice to the customer. The water service of any customer who fails to comply with these requirements may be discontinued upon 5 days' written notice.

(c) The guarantor shall receive copies of all final disconnect notices sent to the customer whose account he has guaranteed.

(3) Scope of deposit and guarantee rules. (a) Where an applicant or customer is unable to furnish either the required cash deposit or a satisfactory guarantor, or where the customer's business is of a hazardous or temporary nature, the utility may at its option bill such applicant or customer on other than a standard billing period basis with a corresponding adjustment in the deposit or guarantee requirement and disconnect procedure.

(b) The above rules are not applicable to deposits or guarantees made in connection with the financing of extensions or other equipment.

(4) Service discontinuance rule. (a) Service may be discontinued if a customer's current bill for service is not paid within a reasonable period set forth in the filed rules of the utility. (See Wis. Adm. Code sections PSC 185.14(3) and PSC 185.21(7)).

(b) The utility may at its option continue service beyond the period provided under its filed disconnect rules under the following conditions: If the utility has a deposit or guarantee on the account, such deposit or guarantee shall be considered as applying against the bill which first becomes delinquent. If the utility has no deposit or guarantee on the account or if the delinquent bill exceeds the deposit or guarantee, service may not be discontinued or refused for non-payment of a bill which is delinquent for a period longer than that permitted under the filed disconnect rule.

(c) Subsection (4)(b), above, shall apply in all cases unless the customer is willing to enter into a special agreement with the company, a written memorandum of which shall be made by the utility, providing for a specified extension of time and/or an extension of a specified amount of credit, and providing further for the disconnection of such customer upon failure to comply with the terms of such extension agreement.

Note: Some utilities have rules or practices that are more liberal to customers in some particulars than the rules enumerated above. It is not the intention of the commission to require the abandonment of these practices, except that it is believed that a standardization of interest on customers' prompt payment deposits will avoid confusion and misunderstanding. With this exception, a utility of the classes here involved may establish uniform, nondiscriminatory rules and practices more favorable to its customers than those herein established. The purpose herein is rather to set forth a reasonable basis for standardizing these rules.

#### Part 4. Records

PSC 185.41 Employees authorized to enter customers' premises. The utility shall keep a record of its employees authorized pursuant to section 196.171, Wis. Stats., to enter customers' premises.

PSC 185.42 Customer complaints. Each utility shall investigate and keep a record of complaints received by it from its customers in regard to safety, service, or rates, and the operation of its system. The record shall show the name and address of the complainant, the date and nature of the complaint, and its disposition and the date thereof.



PSC 185.43 Construction records. Every water utility shall prepare, or cause to be prepared, and shall keep on file, permanent and adequate records in the form of maps or clearly descriptive tabular statements, or both, showing the size, kind, and location of all its underground main and service pipe lines and other construction, and definite locations of all valves and shut-off cocks. The records shall also show date of construction by year and month. The maps may be part of the continuing property records if they show the size, kind and location of the facilities and the date of construction by month and year.

PSC 185.44 Records and reports of service interruptions. (See also Wis. Adm. Code section PSC 185.88, Interruptions of service.) (1) Each utility shall notify the commission as soon as possible of any unusual occurrence which has caused or is expected to cause an interruption of service for one hour or longer to all of the customers or 500 (or more) customers, whichever number is the smaller. (This supplements but does not preempt the requirements of Wis. Adm. Code Chapter PSC 104.)

(2) Each utility shall maintain a record of interruptions showing for each the date and time it began, the duration, the cause, and the approximate number of customers affected.

PSC 185.45 Pumpage records. A permanent record shall be kept of the amount of water pumped into the distribution system each day from each station. The daily pumpage shall be summarized by months and such daily records and monthly summaries kept on file.

PSC 185.46 Metering equipment records. (1) A test record shall be made whenever a unit of metering equipment is tested but need not be retained after the equipment is again tested if a complete history record is maintained. The test record shall identify the unit and its location, date of test, reason for test, readings before and after test, a statement of "As Found" and "As Left" accuracies, a statement of test conditions sufficiently complete to permit checking the calculations employed, identification of the testing standard and the person making the test, and the results of the check or test of any associated remote register device. (See Wis. Adm. Code section PSC 185.19 for record retention period.)

(2) Each utility shall keep a history record for each unit of metering equipment showing when the unit was purchased, its cost, utility's identification, associated remote register or other equipment, essential

nameplate data, dates and results of all "As Found" and "As Left" tests unless separate records are kept of each test, and locations where installed with dates of installation and removal. (See Wis. Adm. Code section PSC 185.19 for record retention period.)

(3) Each utility shall summarize the meter tests made during each calendar year. When requested, a copy of such summary shall be filed with the commission by April 1 of the following year. The summary shall be in such detail as may be prescribed by the commission from time to time.

PSC 185.47 Other records. Other required records which are referred to elsewhere in these rules include records of adjustment of customers' bills (Wis. Adm. Code section PSC 185.35(7)), main flushing (Wis. Adm. Code section PSC 185.86), valve and hydrant operations (Wis. Adm. Code section PSC 185.87), pumpage--metered consumption (Wis. Adm. Code section PSC 185.85(2)), and service interruptions (Wis. Adm. Code section PSC 185.88).

#### Part 5. Engineering

PSC 185.51 Requirement for good engineering practice. The design and construction of the utility's water plant shall conform to good standard engineering practice and shall conform to the requirements of these rules and the requirements of the Wisconsin Department of Natural Resources.

PSC 185.52 Construction standards. (1) Mains. (a) Installed Depth. Mains shall be placed at such depth below ground level, or otherwise protected, as will prevent freezing during the coldest weather experienced in the community in which laid.

(b) Dead-ends. Insofar as practicable, the utility shall design its distribution system so as to avoid dead-end mains. Where dead-ends are necessary, appropriate hydrants shall be provided to permit flushing. (See Wis. Adm. Code section PSC 185.86.)

(c) Grid systems. Wherever feasible, the distribution system shall be laid out in a grid.

(d) Segmentation of system. Valves shall be provided at reasonable intervals and at appropriate locations so that repairs to or maintenance of the mains will interrupt service to not more than a reasonable number of customers.

(e) Disinfection of mains. When main additions are made or other work is done on the distribution system the utility shall comply with the requirements of the Wisconsin Department of Natural Resources for disinfecting the facilities involved.

(2) Service pipes. (a) Under normal circumstances no customer shall be supplied through the service pipe or building plumbing of another. This does not apply in the case of multi-occupancy premises such as condominiums and shopping centers.

(b) Size. The size, design, and material and installation of service pipes shall conform to such reasonable rules and regulations as may be filed with this commission. The minimum size shall be not less than 3/4-inch nominal size except under unusual circumstances which shall be clearly defined. A larger minimum size may be necessary in some locations so that the minimum pressure standard may be met. (See Wis. Adm. Code section PSC 185.82.)

(c) Depth. All service pipes shall be laid at such depth as will prevent freezing.

(d) Inspection. When a service pipe is installed, the customer shall leave the trench open and pipe uncovered until it has been inspected by the utility or other authorized agent and shown to be properly installed at proper depth.

(3) Construction and maintenance. (a) Pipe on a bridge shall be located so as to reduce hazard to a minimum and be protected from freezing.

(b) Pipe shall be tested and made tight before being placed in service.

(c) The trench under, around, and over the pipe shall be backfilled with good material, well tamped.

(d) The service connection at the main and the run of service pipe shall allow for a reasonable amount of flexibility to prevent fracture or leaks.

Part 6. Customer Meters, Accuracy Requirements

PSC 185.61 Meters. (1) All meters used for measuring the quantity of water delivered to a customer shall be in good mechanical condition and shall be adequate in size and design for the type of service measured and shall be accurate to the standards specified herein. Cold water meters of the current type shall be used for metered service only where the actual flow rates fall entirely within the normal test flow limits of the meter. Flow meters, including magnetic and ultrasonic meters, may be used for customer metering only with the specific approval of the commission.

(2) Meters and remote reading devices shall be owned and maintained by the utility except where otherwise authorized by the commission.

(3) Metering installations shall be properly sealed.

PSC 185.65 Accuracy requirements for customer meters. (1) For the purpose of these rules the minimum test flow and normal test flow limits for the more commonly used sizes of positive displacement, compound, and current meters shall be as follows:

Positive Displacement Meters

<u>Meter Size (in.)</u>	<u>Min. Test Flow (g.p.m.)</u>	<u>Normal Test Flow Limits (g.p.m.)</u>
5/8	1/4	1-20
3/4	1/2	2-30
1	3/4	3-50
1-1/2	1-1/2	5-100
2	2	8-160

Compound Meters

<u>Meter Size (in.)</u>	<u>Min. Test Flow (g.p.m.)</u>	<u>Normal Test Flow Limits (g.p.m.)</u>
2	1/2	2-160
3	1	4-320
4	1-1/2	6-500
6	3	10-1,000
8	4	16-1,600
10	8	32-2,300
12	14	32-3,100

Current Meters\*

<u>Meter Size</u> <u>(in.)</u>	<u>Min. Test Flow</u> <u>(g.p.m.)</u>	<u>Normal Test</u> <u>Flow Limits</u> <u>(g.p.m.)</u>
2	10	16-160
3	15	24-350
4	20	40-600
6	30	80-1,400
8	50	144-2,500
10	75	224-3,800
12	100	320-5,800
16	150	400-11,500

Note: See AWWA Standards C-700 (Positive Displacement Meters), C-702 (Compound Meters), and C-701 (Current Meters).

\* See Wis. Adm. Code section PSC 185.61(1).

(2) Positive displacement meters shall have a percent registration between 98.5 and 101.5 within the range of normal test flow limits before being placed in service. In addition, these meters shall have a percent registration at the minimum test flow between 95 and 101.5 if new and between 90 and 101.5 otherwise before being placed in service. (See Appendix to this chapter.)

(3) Compound meters shall have a percent registration between 97 and 103 throughout the range of normal test flow limits except at flows within the "change-over" flow range where the percent registration shall not be less than 90 percent.

(4) Current meters shall have a percent registration between 97 and 103 throughout the range of normal test flow limits and a percent registration of at least 95 percent at the minimum test flow.

(5) For meter installations with remote reading registers, the above accuracy requirements apply to the metering accuracy of the complete installation.

## Part 7. Meter Testing

### PSC 185.71 Meter testing facilities and equipment.

(1) Each utility furnishing metered water service shall provide adequate equipment and facilities for testing all of its water meters in compliance with these rules. For utilities having 250 or more meters, minimum testing equipment shall consist of one or more test benches with appropriate calibrated tanks (or tank with scale) all located in a suitable shop or work area. For utilities having less than 250 meters, minimum test equipment shall consist of a 10-gallon or a 1-cubic foot calibrated tank or such other test equipment as may be approved by the commission. For the testing of large meters, each utility shall either provide adequate facilities or make such other arrangements as may be approved by the commission.

(2) The utility's meter test shop shall insofar as practicable simulate the actual service condition of inlet pressure and outlet pressure. It shall be provided with the necessary fittings, including a quick acting valve for controlling the starting and stopping of the test, and a device for regulating the flow of water through the meter under test within the requirements of these rules and regulations.

(3) The over-all accuracy of the test equipment and test procedures shall be sufficient to enable the testing of service meters within the requirements of these rules and regulations. In any event, the inherent over-all accuracy of the equipment shall permit tests with an over-all error of not to exceed 0.5 percent at normal test flows and 1.0 percent at the stated minimum test flow.

### PSC 185.72 Calibration of meter testing equipment.

(1) Volumetric standards shall be accompanied by a dated certificate of accuracy from a laboratory or agency as may be approved by the commission. For any weight standard used, the scales shall be tested periodically by an approved agency and a record maintained of the results of the test.

(2) A reference or test meter used for testing domestic or larger meters shall not be so used unless it has been tested and calibrated during the preceding 6 months. A record of the two latest tests of said reference or test meter shall be maintained. (See also Wis. Adm. Code section PSC 185.73(1).)

PSC 185.73 Testing of customer meters. (1) The test of any unit of metering equipment shall consist of a comparison of its accuracy with that of a standard of known accuracy. Where the test standard consists of a previously calibrated test meter or service meter, the test results for the service meter under test shall be adjusted to compensate for the inaccuracies of the test standard at the particular flow rates.

(2) Meters shall be tested before repair ("As Found") and, if repaired or cleaned, after repair ("As Left").

(3) The volume of water passed at each test point must be sufficient to produce at least one revolution of the test dial except at the "minimum test flow" point when said volume of water must produce at least one-half revolution of the test dial.

(4) Meters not meeting the accuracy or other requirements of Wis. Adm. Code sections PSC 185.61 or 185.65 shall be repaired or rebuilt to meet those requirements.

PSC 185.74 Test flows. (1) The "minimum test flow" and "normal test flow limits" as used herein refer to those listed in Wis. Adm. Code section PSC 185.65. The stated test flows apply for both "As Found" and "As Left" tests.

(2) Positive displacement meters. (See Appendix to this chapter.) For each test, the percent registration shall be determined at each of the following test flows:

(a) The minimum test flow.

(b) Two test flows within the normal test flow limits, one to be approximately at the point of maximum registration and the other to be at a flow as high as practicable within the normal test flow limits.

(3) Compound meters. For each test it shall be determined whether or not the by-pass unit operates at the minimum test flow and, in addition, the percent registration shall be determined at each of the following test flows as determined from accuracy curves for the particular type and size of meter:

(a) The flow for maximum registration of the by-pass unit.

(b) A flow near the point of minimum registration within the "change-over" range.

(c) At least 3 flows within the normal test flow limits of the current unit, one of which is to be at the flow for maximum registration, one at approximately 50 percent of such flow but above the "change-over" range, and one at as high a flow as practicable.

(4) Current meters. For each test the percent registration shall be determined at each of the following test flows:

(a) The minimum test flow.

(b) At least 3 flows within the normal test flow limits, one of which is to be at or near the lower limit, another as near as practicable to the upper limit, and one at an intermediate flow rate.

PSC 185.75 Required tests of customer meters. Meters shall be tested by the utility at the following times:

(a) Before use (new or rebuilt meters).

(b) Periodically to insure accuracy. (See Wis. Adm. Code section PSC 185.76.)

(c) Upon customer request or complaint. (See Wis. Adm. Code section PSC 185.77.)

(d) When damaged or otherwise suspected of being inaccurate.

(e) Upon removal.

PSC 185.76 Periodic tests. (1) Customer meters shall be tested as frequently as is necessary to maintain their accuracies within requirements set forth in Wis. Adm. Code section PSC 185.65. Unless otherwise authorized by the commission, each utility shall observe a test schedule such that the intervals between tests do not exceed the following:

Meter Test Intervals

<u>Meter Size - In.</u>	<u>Test Interval - Yr.</u>
5/8, 3/4, 1	8
1-1/2 and 2	4
3 and 4	2
6 and over	1



(2) Where local water conditions are such that meters will not retain the required accuracy for the periods indicated, appropriate shorter test intervals shall be observed and may be specifically required by the commission.

(3) Where local water conditions permit and with specific commission approval, the test interval for 5/8-, 3/4-, and 1-inch meters may be extended to 10 years. This contemplates that the utility will demonstrate that the accuracy of its meters will be retained for such period.

(4) For 3-inch and 4-inch meters the above test interval may be extended to 4 years where it is the practice of the utility to remove the meter to a test shop at time of test, open the case, and perform such maintenance and repair as may be indicated.

PSC 185.77 Complaint tests. Each utility shall promptly make an accuracy test without charge of any metering installation upon request of the customer if 24 months or more have elapsed since the last complaint test of the meter in the same location, and for a charge of \$2 per inch of nominal size or fraction thereof, payable in advance, if less than 24 months have elapsed. Said amount shall be refunded if the test shows the meter to be over-registering by more than 2%. A report giving the results of such test shall be made to the customer and the complete, original test record shall be kept on file in the office of the utility. The test shall be made in the presence of the customer if he desires. (See also Wis. Adm. Code PSC 185.35, Adjustment of bills.)

PSC 185.78 Referee tests. Any customer may have an official test of his meter made by the commission upon request, accompanied by a deposit of a meter-test fee of \$4 per inch of nominal size or fraction thereof, and upon payment of meter transportation expense, if any. In such case, the meter test fee deposited by the customer will be refunded to him by the utility if the test shows the meter to have an average percent registration of more than 102 for a positive displacement meter or 103 for a compound meter.

PSC 185.79 Testing of metering installations having remote registers. (1) The remote register unit shall be tested each time the associated meter is tested.

(2) The test of these metering installations shall be sufficiently complete to demonstrate that the accuracy of the complete meter-register combination meets the accuracy requirements of Wis. Adm. Code PSC 185.65.

(3) Metering installation with pulse-driven remote register unit. The test of such installation shall include the following:

(a) The complete test of the metering unit at all prescribed test flows (using a substitute register if necessary).

(b) A test of the generator to assure that it sends out a pulse for the prescribed volume of water or number of disc rotations.

(c) A test of the wiring and remote register unit to assure that the pulses are properly received and recorded by the remote register. Where the reading of the remote register continues to agree with the reading of the register in the meter head this requirement shall be considered to be complied with.

PSC 185.795 Jumpering meter settings. Under certain abnormal conditions, a dangerous voltage may appear across the meter setting when the water line is electrically opened as by removal of the meter. Before a water meter is removed (or the interior piping leading to the service otherwise opened) an appropriate electrical jumper should be connected across the meter setting or proposed opening in the piping to maintain electrical continuity. The connection should be maintained until a meter is again set or the piping closed.

### Part 8. Operating Requirements

PSC 185.81 Quality of water. (1) Every water public utility shall provide water of such quality as will comply with the requirements for drinking water as prescribed by the Wisconsin Department of Natural Resources (Wis. Adm. Code Chapters NR 102, NR 103, NR 104, NR 108, NR 111, and NR 112) and with those portions of the (U.S.) Public Health Service Drinking Water Standards--1962--pertaining to Part 3. Bacteriological Quality, Part 4. Physical Characteristics, Part 5. Chemical Characteristics, and Part 6. Radioactivity. These requirements are subject to change by action of the commission at such time as the water quality requirements of either of the above-named agencies are updated or otherwise changed.

Note: Entitled Excerpts from the PHS Drinking Water Standards (PHS Publication 956), copies of those portions of the (U.S.) Public Health Service Drinking Water Standards--1962--pertaining to Part 3. Bacteriological Quality, Part 4. Physical Characteristics, Part 5. Chemical Characteristics, and Part 6. Radioactivity, are on file

in the offices of the secretary of state, the revisor of statutes, and the public service commission, and may be obtained from the public service commission, Hill Farms State Office Building, 4802 Sheboygan Avenue, Madison, Wisconsin 53702.

(2) In addition, each water utility system shall be designed and operated so that the water supplied all customers shall be free from objectionable taste, color, odor, and sand or other sediment.

PSC 185.815 Adequacy of water supply. Each utility shall exercise reasonable diligence to furnish a continuous and adequate supply of water to its customers. (See also Wis. Adm. Code section PSC 185.88.)

PSC 185.82 Pressure standards. (1) Under conditions of normal heavy system demand the residual pressure at the meter outlet shall not be less than 20 p.s.i.g. For typical residential customers, normal conditions of use shall mean a flow rate of not less than 12 gallons per minute. This standard assumes that the customer's portion of the service lateral is of normal, adequate design and in good condition. This standard will ordinarily require that the distribution main pressure at the corporation stop connection be at least 35 p.s.i.g. The utility should prescribe in its operating rules minimum specifications for the service lateral to assure that excessive pressure drop does not occur in the lateral because of its length or for other cause.

(2) The maximum pressure at the meter shall not exceed 125 p.s.i.g. For major additions to existing systems to the extent practicable, and for new systems, the maximum pressure at the meter shall not exceed 100 p.s.i.g.

(3) Each utility shall have at least one permanently installed pressure gauge on its system and shall own or have access to indicating and recording pressure gauges as may be needed to check pressure levels.

(4) Each utility shall annually make such pressure tests or surveys as are necessary to assure that the pressure limitations of subsections (1) and (2) of this section are being met.

PSC 185.83 Station meters. (1) Each pumping station shall be provided with station metering to accurately measure the water pumped into the distribution system. (See Wis. Adm. Code section PSC 185.45.)

(2) Station meters shall be maintained in a manner to insure reasonable accuracy, and shall be tested or the accuracy otherwise checked at least once each 2 years.

(3) Station meters shall be chosen such that the actual flow rates are entirely within the normal flow range for the particular meter. Such meters shall ordinarily be installed in the inlet rather than outlet line of pressure tank storage reservoirs.

PSC 185.84 Emergency operation. Each water utility shall make reasonable provision to meet emergencies resulting from failure of power supply or from fire, storm or similar emergencies. Employees shall be informed of procedures to be followed in the event of emergency so as to prevent or mitigate the interruption or impairment of water service.

PSC 185.85 System losses. For the purposes of this section, system losses are considered to be the difference between the metered pumpage into the distribution system and metered consumption.

(1) Each utility shall strive to keep its system losses at a minimum level. To accomplish this, it is necessary that, to the extent practicable, all consumption including that for municipal purposes be metered, that use of water from hydrants be controlled, that system leaks be reduced to a minimum, and that station and customer meters be adequately maintained to insure their accuracy.

(2) A continuing record comparing pumpage with metered consumption shall be maintained.

(3) Metered consumption should ordinarily be at least 75% of station pumpage for the smaller utilities (Class C and D) and at least 85% for the larger utilities.

PSC 185.86 Flushing mains. (1) Dead-end mains, or other portions of distribution systems, shall be flushed at sufficiently frequent periods as to eliminate or minimize complaints from consumers arising from an objectionable condition of water due to lack of circulation. Proper provisions must be made for flushing all parts of a system which need flushing.

(2) When practicable, public notice of proposed flushing will be given by radio or newspaper announcement or other appropriate means.

(3) Record shall be kept of all flushing of mains, showing date, place and estimated volume of water. Such record should be used as a guide to determine the necessary frequency of flushing and for an estimate of this unmetered use.

PSC 185.87 Operation of distribution system valves and hydrants. (1) To assure that valves and hydrants are operable when needed, a schedule shall be adopted and followed for operating each valve and hydrant at least once each 2 years. A record of such operations shall be kept.

(2) Procedures shall be adopted and observed for the draining of hydrants when necessary to avoid freezing.

PSC 185.88 Interruptions of service. (See also Wis. Adm. Code sections PSC 185.44, Records and reports of service interruptions and PSC 185.815.) (1) Each utility shall make all reasonable efforts to prevent interruptions of service and when such interruptions occur, shall endeavor to reestablish service with the shortest possible delay consistent with safety to its customers and the general public. Where an emergency interruption affects fire-protection service, the utility shall immediately notify the Fire Chief or other responsible local official.

(2) Each utility shall schedule planned interruptions for such hours as will cause the least customer inconvenience. All reasonable efforts shall be made to notify customers of the time and anticipated duration of a planned interruption.

PSC 185.89 Thawing frozen services. (1) Frozen services shall be thawed by and at the entire expense of the utility except where the customer has been notified in advance of a corrective measure to follow or the freezing was caused by contributory fault or negligence on the part of the customer, such as reduction of the cover or undue exposure of the piping in the building or on the customer's property, or failure to comply with water department specifications and requirements as to depth of service, sufficient backfill, etc. (See Wis. Adm. Code section PSC 185.35(7) for adjustment of bill where utility requests customer to permit stream of water to flow to prevent freezing.)

(2) The thawing of frozen services or other underground pipes electrically may introduce hazards if proper precautions are not taken. Damage to buildings and to electrical facilities may result from high current flow in grounding conductors and neutrals. The electric current may reach the grounding conductor and the neutral which can be in parallel with the pipe, or reach the conductor because of physical contact between the interior water piping and the metallic tubing or conduit of the interior wiring.

(3) It is recommended that when service pipes are being thawed electrically, the water meters be removed and that experienced personnel familiar with the above hazards be asked to disconnect the grounding conductors and to suggest a safe place to connect the conductors used for thawing the pipe.

APPENDIX TO WIS. ADM. CODE CHAPTER PSC 185

Summary of Test Conditions and Accuracy Requirements  
for Positive Displacement Meters

Size in.	Maximum Rate				Intermediate Rate				Minimum Rate			
	Rate of Flow gpm	Test Quantity		Accuracy Limits Per cent	Rate of Flow gpm	Test Quantity		Accuracy Limits per cent	Rate of Flow gpm	Test Quantity <sup>a</sup>		Accuracy L per cen New Meters
		gal	cu ft			gal	cu ft			gal	cu ft	
5/8	15	100	10	98.5-101.5	2	10	1	98.5-101.5	1/4	10	1	95-101.5
3/4	25	100	10	98.5-101.5	3	10	1	98.5-101.5	1/2	10	1	95-101.5
1	40	100	10	98.5-101.5	4	10	1	98.5-101.5	3/4	10	1	95-101.5
1-1/2	80	1,000	100	98.5-101.5	8	100	10	98.5-101.5	1-1/2	100	10	95-101.5
2	120	1,000	100	98.5-101.5	15	100	10	98.5-101.5	2	100	10	95-101.5

\* Section PSC 185.73(3) provides that at this flow rate the test quantity may be reduced to that equivalent to one-half revolution of the test dial. For the typical 5/8-inch meter the minimum test quantity would, therefore, be 5 gal. or 1/2 cu. ft.



The State of Wisconsin  
Department of Justice  
Madison  
53702

ROBERT W. WARREN  
ATTORNEY GENERAL

ARVID A. SATHER  
DEPUTY ATTORNEY GENERAL

March 27, 1972

PUBLIC SERVICE COMM.  
OF WISCONSIN

1972 MAR 30 PM 3 03

Mr. John F. Goetz, Secretary  
Public Service Commission  
Hill Farms State Office Building  
Madison, Wisconsin 53702

Dear Mr. Goetz:

By letter dated March 16, 1972, you request our consent pursuant to sec. 227.025, Stats., for the Public Service Commission to incorporate by reference in proposed Rule PSC 185.81, the standards of technical societies and organizations of recognized national standing, namely, portions of the (U.S.) Public Health Service Drinking Water Standards-1962.

The names of the technical societies, their addresses and specific publications are indicated in such proposed rule. These materials are considered and utilized essentially by people dealing in the field of water distribution and, therefore, meet the statutory language of "limited public interest." Copies of the publication as listed in the proposed rule are readily available, and are on file in the offices of the Public Service Commission, Secretary of State and Revisor of Statutes. The Public Service Commission has found this organization to be a technical society of recognized national standing.

If there are any secondary references by incorporation, other than scientific or objective standards, within these reference publications, such incorporated substantive references or materials must specifically or conspicuously be deleted. If they are essential or necessary, they must be promulgated as a specific rule as required by ch. 227, Stats. Because these references by incorporation materials are subject to revision or amendment beyond your control, they are only valid as they now exist.

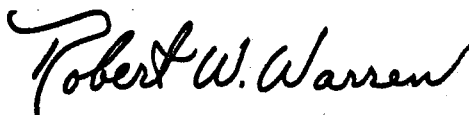


Mr. John F. Goetz, Secretary

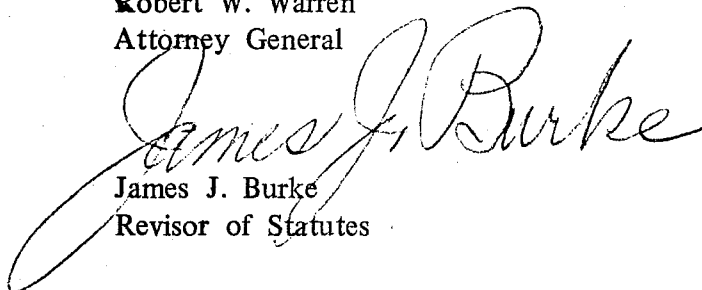
Page 2

It appears that your proposed rule is of limited public interest, that such incorporation by reference will avoid unwarranted expense, and the reference materials are a publication of a technical society of recognized national standing and said materials are readily available. Accordingly, I hereby consent to the incorporation by reference the material described herein to your proposed rule, sec. PSC 185.81, Wis. Adm. Code.

Sincerely yours,



Robert W. Warren  
Attorney General



James J. Burke  
Revisor of Statutes

RWW/vmz



State of Wisconsin \ PUBLIC SERVICE COMMISSION

March 14, 1972

WILLIAM F. EICH, CHAIRMAN  
ARTHUR L. PADRUTT, COMMISSIONER  
MICHAEL P. KOMAR, COMMISSIONER  
JOHN F. GOETZ, SECRETARY  
HILL FARMS STATE OFFICE BUILDING  
MADISON, WISCONSIN 53702

FILE NO.

The Honorable Robert W. Warren  
Attorney General  
State Capitol  
Madison, Wisconsin 53702

Mr. James J. Burke  
Revisor of Statutes  
State Capitol  
Madison, Wisconsin

Gentlemen:

The Public Service Commission proposes to repeal Wis. Adm. Code Chapter PSC 182 and repeal and recreate Chapter PSC 185, Standards for Water Public Utility Service, containing the following:

PSC 185.81 Quality of water. (1) Every water public utility shall provide water of such quality as will comply with the requirements for drinking water as prescribed by the Wisconsin Department of Natural Resources (Wis. Adm. Code Chapters NR 102, NR 103, NR 104, NR 108, NR 111, and NR 112) and with those portions of the (U.S.) Public Health Service Drinking Water Standards--1962--pertaining to Bacteriological Quality, Physical Characteristics, Chemical Characteristics, and Radioactivity. These requirements are subject to change by action of the commission at such time as the water quality requirements of either of the above-named agencies are updated or otherwise changed. (Emphasis supplied)

Note: Entitled Excerpts from the PHS Drinking Water Standards (PHS Publication 956), copies of those portions of the (U.S.) Public Health Service Drinking Water Standards--1962--pertaining to Bacteriological Quality, Physical Characteristics, Chemical Characteristics, and Radioactivity, are on file in the offices of the secretary of state, the revisor of statutes, and the public service commission, and may be obtained from the public service commission, Hill Farms State Office Building, 4802 Sheboygan Avenue, Madison, Wisconsin 53702.

This letter is a request, under the provisions of section 227.025, Wisconsin Statutes, for consent to incorporate by reference those Drinking Water Standards named in section PSC 185.81 and Note, above. The standards are nationally recognized and of such limited public interest as not to warrant the expense of printing in full in the Wisconsin Administrative Code. The standards (a copy enclosed) are readily available from the Public Service Commission which, as section PSC 185.81 (emphasis supplied) clearly indicates, retains complete control over any revision or change.

Upon receipt of consent to incorporate by reference the standards herein referred to, revised Wis. Adm. Code Chapter PSC 185, together with copies of the material incorporated by reference, will be filed with the Secretary of State and the Revisor of Statutes, as required by section 227.025, Wisconsin Statutes.

Very truly yours,

  
\_\_\_\_\_  
John F. Goetz  
Secretary

EXCERPTS FROM THE  
PHS DRINKING WATER STANDARDS  
(PHS PUBLICATION 956)

for use with

"A GUIDE TO THE INTERSTATE CARRIER  
WATER SUPPLY CERTIFICATION PROGRAM"

ENVIRONMENTAL PROTECTION AGENCY  
Office of Water Programs  
Division of Water Hygiene

3. BACTERIOLOGICAL QUALITY

3.1 *Sampling.*

3.11 Compliance with the bacteriological requirements of these Standards shall be based on examinations of samples collected at representative points throughout the distribution system. The frequency of sampling and the location of sampling points shall be established jointly by the Reporting Agency and the Certifying Authority after investigation by either agency, or both, of the source, method of treatment, and protection of the water concerned.

3.12 The minimum number of samples to be collected from the distribution system and examined each month should be in accordance with the number on the graph in Figure I, for the population served by the system. For the purpose of uniformity and simplicity in application, the number determined from the graph should be in accordance with the following: for a population of 25,000 and under—to the nearest 1; 25,001 to 100,000—to the nearest 5; and over 100,000—to the nearest 10.

3.13 In determining the number of samples examined monthly, the following samples may be included, provided all results are assembled and available for inspection and the laboratory methods and technical competence of the laboratory personnel are approved by the Reporting Agency and the Certifying Authority:

- (a) Samples examined by the Reporting Agency.
- (b) Samples examined by local government laboratories.

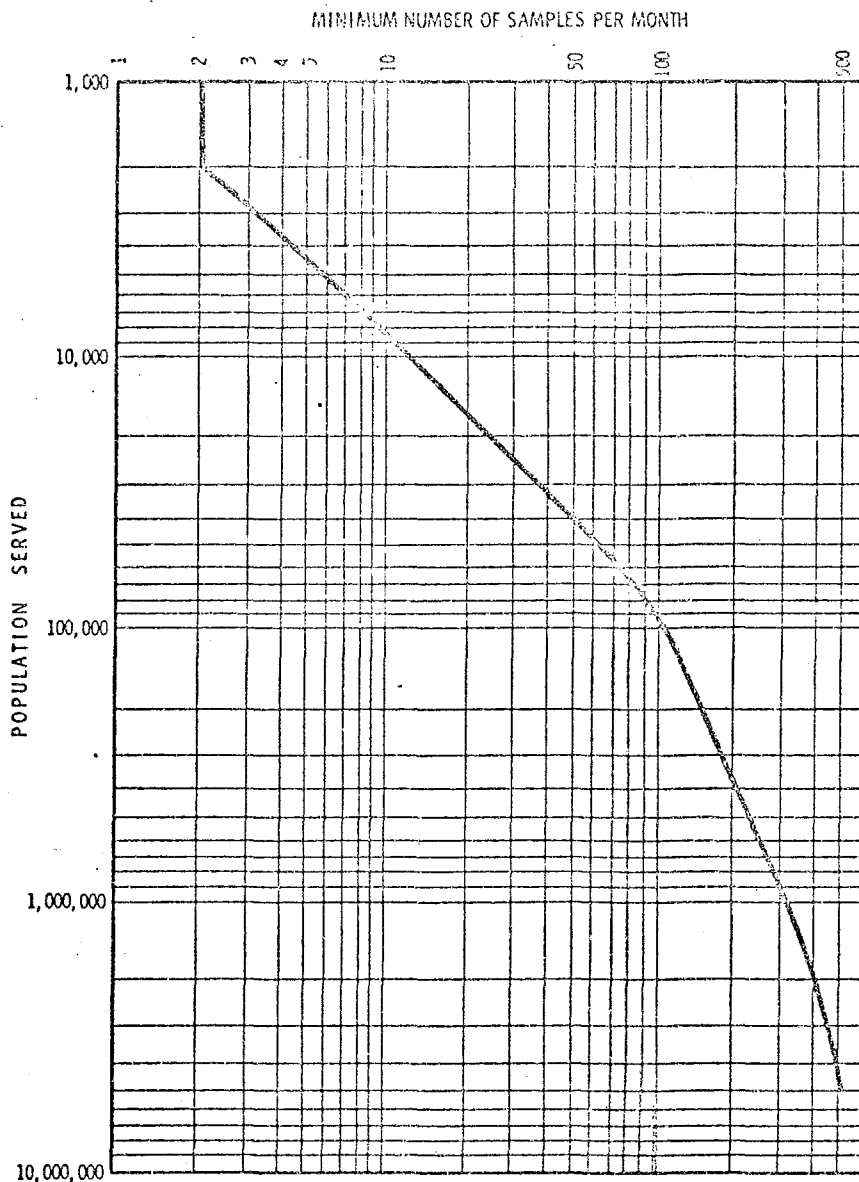


Figure 1

(c) Samples examined by the water works authority.

(d) Samples examined by commercial laboratories.

3.14 The laboratories in which these examinations are made and the methods used in making them shall be subject to inspection at any time by the designated representatives of the Certifying Authority and the Reporting Agency. Compliance with the specified procedures and the results obtained shall be used as a basis for certification of the supply.

3.15 Daily samples collected following a bacteriologically unsatisfactory sample as provided in sections 3.21, 3.22, and 3.23 shall be considered as special samples and shall not be included in the total number of samples examined. Neither shall such special samples be used as a basis for prohibiting the supply, provided that: (1) When waters of unknown quality are being examined, simultaneous tests are made on multiple portions of a

geometric series to determine a definitive coliform content; (2) Immediate and active efforts are made to locate the cause of pollution; (3) Immediate action is taken to eliminate the cause; and (4) Samples taken following such remedial action are satisfactory.

3.2 *Limits.*—The presence of organisms of the coliform group as indicated by samples examined shall not exceed the following limits:

3.21 When 10 ml standard portions are examined, not more than 10 percent in any month shall show the presence of the coliform group. The presence of the coliform group in three or more 10 ml portions of a standard sample shall not be allowable if this occurs:

- (a) In two consecutive samples;
- (b) In more than one sample per month when less than 20 are examined per month; or
- (c) In more than 5 percent of the samples when 20 or more are examined per month.

When organisms of the coliform group occur in 3 or more of the 10 ml portions of a single standard sample, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

3.22 When 100 ml standard portions are examined, not more than 60 percent in any month shall show the presence of the coliform group. The presence of the coliform group in all five of the 100 ml portions of a standard sample shall not be allowable if this occurs:

- (a) In two consecutive samples;
- (b) In more than one sample per month when less than five are examined per month; or
- (c) In more than 20 percent of the samples when five or more are examined per month.

When organisms of the coliform group occur in all five of the 100 ml portions of a single standard sample, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

3.23 When the membrane filter technique is used, the arithmetic mean coliform density of all standard samples examined per month shall not exceed one per 100 ml. Coliform colonies per standard sample shall not exceed 3/50 ml, 4/100 ml, 7/200 ml, or 13/500 ml in:

- (a) Two consecutive samples;
- (b) More than one standard sample when less than 20 are examined per month; or
- (c) More than five percent of the standard samples when 20 or more are examined per month.

When coliform colonies in a single standard sample exceed the above values, daily samples from the same sampling point shall be collected promptly and examined until the results obtained from at least two consecutive samples show the water to be of satisfactory quality.

#### 4. PHYSICAL CHARACTERISTICS

4.1 *Sampling.*—The frequency and manner of sampling shall be determined by the Reporting Agency and the Certifying Authority. Under normal circumstances samples should be collected one or more times per week from representative points in the distribution system and examined for turbidity, color, threshold odor, and taste.

4.2 *Limits.*—Drinking water should contain no impurity which would cause offense to the sense of sight, taste, or smell. Under general use, the following limits should not be exceeded:

Turbidity .....	5 units
Color .....	15 units
Threshold Odor Number .....	3

#### 5. CHEMICAL CHARACTERISTICS

##### 5.1 *Sampling.*

5.11 The frequency and manner of sampling shall be determined by the Reporting Agency and the Certifying Authority. Under normal circumstances, analyses for substances listed below need be made only semiannually. If, however, there is some presumption of unfitness because of the presence of undesirable elements, compounds, or materials, periodic determinations for the suspected toxicant or material, should be made more frequently and an exhaustive sanitary survey should be made to determine the source of the pollution. Where the concentration of a substance is not expected to increase in processing and distribution, available and acceptable source water analyses performed in accordance with standard methods may be used as evidence of compliance with these Standards.

5.12 Where experience, examination, and available evidence indicate that particular substances are consistently absent from a water supply or below levels of concern, semiannual examinations for those substances may be omitted when approved by the Reporting Agency and the Certifying Authority.

5.13 The burden of analysis may be reduced in many cases by using data from acceptable sources. Judgment concerning the quality of water supply and the need for performing specific local analyses may depend in part on information produced by such agencies as: (1) The U.S. Geological Survey, which determines chemical quality of surface and ground waters of the United States and publishes these data in "Water Supply Papers" and other reports, and (2) The U.S. Public Health Service which determines water quality related to pollution (or the absence of pollution) in the principal rivers of the Nation and publishes these data annually in "National Water Quality Network." Data on pollution of waters as measured by carbon chloroform extracts (CCE) may be found in the latter publication.

5.2 *Limits.*—Drinking water shall not contain impurities in concentrations which may be hazardous to the health of the consumers. It should not be excessively corrosive to the water supply system. Substances used in its treatment shall not remain in the water in concentrations greater than required by good practice. Substances which may have deleterious physiological effect, or for which physiological

effects are not known, shall not be introduced into the system in a manner which would permit them to reach the consumer.

5.21 The following chemical substances should not be present in a water supply in excess of the listed concentrations where, in the judgment of the Reporting Agency and the Certifying Authority, other more suitable supplies are or can be made available.

Substance	Concentration in mg/l
Alkyl Benzene Sulfonate (ABS)-----	0.5
Arsenic (As)-----	0.01
Chloride (Cl)-----	250.
Copper (Cu)-----	1.
Carbon Chloroform Extract (CCE)-----	0.2
Cyanide (CN)-----	0.01
Fluoride (F)-----	(See 5.23)
Iron (Fe)-----	0.3
Manganese (Mn)-----	0.05
Nitrate <sup>1</sup> (No <sub>3</sub> )-----	45.
Phenols-----	0.001
Sulfate (SO <sub>4</sub> )-----	250.
Total Dissolved Solids-----	500.
Zinc (Zn)-----	5.

<sup>1</sup>In areas in which the nitrate content of water is known to be in excess of the listed concentration, the public should be warned of the potential dangers of using the water for infant feeding.

5.22 The presence of the following substances in excess of the concentrations listed shall constitute grounds for rejection of the supply:

Substance	Concentration in mg/l
Arsenic (As)-----	0.05
Barium (Ba)-----	1.0
Cadmium (Cd)-----	0.01
Chromium (Hexavalent) (Cr <sup>++</sup> )-----	0.05
Cyanide (CN)-----	0.2
Fluoride (F)-----	(See 5.23)
Lead (Pb)-----	0.05
Selenium (Se)-----	0.01
Silver (Ag)-----	0.05

5.23 *Fluoride.*—When fluoride is naturally present in drinking water, the concentration should not average more than the appropriate upper limit in Table I. Presence of fluoride in average concentrations greater than two times the optimum values in Table I shall constitute grounds for rejection of the supply.

Where fluoridation (supplementation of fluoride in drinking water) is practiced, the average fluoride concentration shall be kept within the upper and lower control limits in Table I.

TABLE 1.

Annual average of maximum daily air temperatures †	Recommended control limits— Fluoride concentrations in mg/l		
	Lower	Optimum	Upper
50.0-53.7-----	0.9	1.2	1.7
53.8-58.3-----	0.8	1.1	1.5
58.4-63.8-----	0.8	1.0	1.3
63.9-70.6-----	0.7	0.9	1.2
70.7-79.2-----	0.7	0.8	1.0
79.3-90.5-----	0.6	0.7	0.8

† Based on temperature data obtained for a minimum of five years.



In addition to the sampling required by paragraph 5.1 above, fluoridated and defluoridated supplies shall be sampled with sufficient frequency to determine that the desired fluoride concentration is maintained.

## 6. RADIOACTIVITY

### 6.1 *Sampling.*

6.11 The frequency of sampling and analysis for radioactivity shall be determined by the Reporting Agency and the Certifying Authority after consideration of the likelihood of significant amounts being present. Where concentrations of Ra<sup>226</sup> or Sr<sup>90</sup> may vary considerably, quarterly samples composited over a period of three months are recommended. Samples for determination of gross activity should be taken and analyzed more frequently.

6.12 As indicated in paragraph 5.1, data from acceptable sources may be used to indicate compliance with these requirements.

### 6.2 *Limits.*

6.21 The effects of human radiation exposure are viewed as harmful and any unnecessary exposure to ionizing radiation should be avoided. Approval of water supplies containing radioactive materials shall be based upon the judgment that the radioactivity intake from such water supplies when added to that from all other sources is not likely to result in an intake greater than the radiation protection guidance<sup>2</sup> recommended by the Federal Radiation Council and approved by the President. Water supplies shall be approved without further consideration of other sources of radioactivity intake of Radium-226 and Strontium-90 when the water contains these substances in amounts not exceeding 3 and 10  $\mu\mu\text{c/liter}$ , respectively. When these concentrations are exceeded, a water supply shall be approved by the certifying authority if surveillance of total intakes of radioactivity from all sources indicates that such intakes are within the limits recommended by the Federal Radiation Council for control action.

6.22 In the known absence<sup>3</sup> of Strontium-90 and alpha emitters, the water supply is acceptable when the gross beta concentrations do not exceed 1,000  $\mu\mu\text{c/liter}$ . Gross beta concentrations in excess of 1,000  $\mu\mu\text{c/liter}$  shall be grounds for rejection of supply except when more complete analyses indicates that concentrations of nuclides are not likely to cause exposures greater than the Radiation Protection Guides as approved by the President on recommendation of the Federal Radiation Council.



State of Wisconsin \ PUBLIC SERVICE COMMISSION

March 16, 1972

WILLIAM F. EICH, CHAIRMAN  
ARTHUR L. PADRUTT, COMMISSIONER  
MICHAEL P. KOMAR, COMMISSIONER  
JOHN F. GOETZ, SECRETARY  
HILL FARMS STATE OFFICE BUILDING  
MADISON, WISCONSIN 53702

The Honorable Robert W. Warren  
Attorney General  
State Capitol  
Madison, Wisconsin 53702

FILE NO.

Att. Mr. Warren Schmidt  
123 W. Washington Avenue  
Madison, Wisconsin 53702

Mr. James J. Burke  
Revisor of Statutes  
State Capitol  
Madison, Wisconsin 53702

Gentlemen:

In accordance with the suggestion made in your telephone conversation with Mr. Clarence Riederer on March 16, 1972, this letter supersedes our letter of March 14, 1972. The proposed Wis. Adm. Code section PSC 185.81 and the Note to that section now include the numerical designations of the parts of the Excerpts from the PHS Drinking Water Standards (PHS Publication 956) which we wish to incorporate by reference. This insertion of such numerical designation is the only revision of our previous (March 14, 1972) letter and, we trust, satisfactorily incorporates your suggestion.

The Public Service Commission proposes to repeal Wis. Adm. Code Chapter PSC 182 and repeal and recreate Chapter PSC 185, Standards for Water Public Utility Service, containing the following:

PSC 185.81 Quality of water. (1) Every water public utility shall provide water of such quality as will comply with the requirements for drinking water as prescribed by the Wisconsin Department of

Natural Resources (Wis. Adm. Code Chapters NR 102, NR 103, NR 104, NR 108, NR 111, and NR 112) and with those portions of the (U.S.) Public Health Service Drinking Water Standards--1962--pertaining to Part 3. Bacteriological Quality, Part 4. Physical Characteristics, Part 5. Chemical Characteristics, and Part 6. Radioactivity. These requirements are subject to change by action of the commission at such time as the water quality requirements of either of the above-named agencies are updated or otherwise changed. (Emphasis supplied)

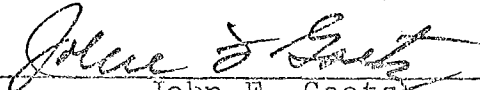
Note: Entitled Excerpts from the PHS Drinking Water Standards (PHS Publication 956), copies of those portions of the (U.S.) Public Health Service Drinking Water Standards--1962--pertaining to Part 3. Bacteriological Quality, Part 4. Physical Characteristics, Part 5. Chemical Characteristics, and Part 6. Radioactivity, are on file in the offices of the secretary of state, the revisor of statutes, and the public service commission, and may be obtained from the public service commission, Hill Farms State Office Building, 4802 Sheboygan Avenue, Madison, Wisconsin 53702.

This letter is a request, under the provisions of section 227.025, Wisconsin Statutes, for consent to incorporate by reference those Drinking Water Standards named in section PSC 185.81 and Note, above. The standards are nationally recognized and of such limited public interest as not to warrant the expense of printing in full in the Wisconsin Administrative Code. The standards (a copy enclosed) are readily available from the Public Service Commission which, as section PSC 185.81 (emphasis supplied) clearly indicates, retains complete control over any revision or change.

Upon receipt of consent to incorporate by reference the standards herein referred to, revised Wis. Adm. Code Chapter PSC 185, together with copies of the material incorporated by

reference, will be filed with the Secretary of State and the Revisor of Statutes, as required by section 227.025, Wisconsin Statutes.

Very truly yours,



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John F. Goetz  
Secretary