

# **ATTACHMENT 1**

## **Proposed Changes to GO 103**

[Additions to the existing General Order are in italics, deletions are stricken-out, comments are in square brackets.]

## PROPOSED GENERAL ORDER 103

### RULES GOVERNING WATER SERVICE, INCLUDING MINIMUM STANDARDS FOR OPERATION, MAINTENANCE, DESIGN AND CONSTRUCTION

#### TABLE OF CONTENTS

I.	GENERAL.....	1
1.	Intent.....	1
	A.a. Purpose .....	1
	<i>B. Limits of Order</i> .....	1
	<i>C. Expiration of economic utilization</i> .....	1
2.	<del>b.</del> Absence of Civil Liability.....	1
	A. Establishment shall not impose civil liability.....	1
	B.2. Applicability.....	2
3.	Definitions.....	2
4.	Information Available to Public.....	6
	A. <i>Location</i> .....	6
	B. <i>Pertinent information</i> .....	6
5.	Access to Property.....	6
	A. <i>When</i> .....	6
	B. <i>Secure access</i> .....	7
	C. <i>Proper Identification</i> .....	7
6.	<del>Discontinuance of Service</del> [delete entire section, See Tariff Rules No. 8 and 11].....	7
7.	<del>Refusal to Serve</del> [delete entire section. See Tariff Rule No. 11].....	7
6.8.	Complaints. ....	7
7.	Accidents/Acts of Terror.....	8
8.e.	Reports to the Commission. ....	9
9.	Deviations from <del>Any of These Rules</del> .....	9
II.	Standards of Service .....	10
1.	General .....	10
2.	Water Supply Requirements. ....	10
	A.1. <i>Quality of Water</i> .....	10
	B. <i>Quantity of Water</i> .....	12

## I. General

C.e. Testing of Water .....	14
3.2. Continuity of Service .....	15
A.a. Emergency Interruptions.....	15
B.b. Scheduled Interruptions.....	15
C.c. Records of Interruptions.....	16
D.d. Reports to Commission,.....	16
4. Water Supply Measurement.....	17
A.a. Measuring Devices .....	17
B. Records. ....	17
III. Standards of Design and Construction .....	18
1. General. ....	18
2. Application for Certificate of Public Convenience and Necessity .....	18
3.5. Materials and Specifications .....	20
A.a. Qualification.....	20
4.3. Mains-Distribution System.....	21
A.a. Depth of Mains.....	21
B. Layout of Water Mains. ....	21
C. Minimum Water Main Diameter and Length of Run.....	22
D. Minimum Pipe Sizes.....	22
E. Water Main Separations. ....	22
F. Water Main Valves.....	27
G. Water Main Valve Construction Standards:.....	27
5. Materials Standards for Water Mains .....	27
6.4. Service Connections pipe and fittings.....	28
A. General.....	28
B. Conditions for Adding Service Connections and Pipes.....	28
C.a. Size of Service Pipe-User Service Line.....	28
D.b. Depth of User Service PipeLine.....	29
7. Distribution Reservoirs. ....	29
8. Subsurface Distribution Reservoirs .....	31
9. Recycled water and reservoirs. ....	31
10. Reliability Factors for Surface Treatment Plants and Energy Supplies.....	31
11.. Sewer Systems.....	34
A. Mains and submains.....	34
B. Service Laterals.....	34
V. Extension of Service [deleted in its entirety see Tariff Rule 16].....	35
IV.VI. Measurement of Service .....	35
1. Method of Measuring Service.....	35
A.a. Metering. ....	35

## I. General

B.b.	Registration of Meter.....	35
C.e.	Irrigation Meters.....	35
d.	<del>Charge for Meter Installation.....</del>	<del>36</del>
D.e.	<i>Report to the Commission of Meter Readings.....</i>	<i>36</i>
2.	Meter Test Facilities and Equipment. ....	36
A.a.	Test Facilities. ....	36
B.b.	Shop Equipment. ....	36
C.e.	Test Measurement Standards. ....	37
3.	Accuracy Requirements of Water Meters.....	38
A.a.	General. ....	38
B.b.	Test Flows. ....	38
C.	Determination of Accuracy.....	39
D.d.	Sealing of Meter. ....	40
E.e.	Record of Test. ....	40
4.	Initial Tests and Storage of Meters. ....	40
5.	Repaired or Tested Meters. ....	40
6.	Periodic Tests of Water Meters.....	41
A.a.	General. ....	41
B.	<i>Frequency of periodic tests.....</i>	<i>41</i>
C.e.	Report of Periodic Tests of Meters. ....	42
7.	<del>Tests on Customer Request. [delete in its entirety. See Tariff Rule No. 18]</del>	<del>42</del>
7.	Meter Records. ....	42
V.VII.	Rates and Billing.....	43
1.	Filing of Tariffs. ....	43
2.	Information on Bills. ....	43
3.	<del>Adjustment of Bills for Meter Error. [delete in its entirety. See Tariff Rule 18].</del>	<del>43</del>
VI.VIII.	Fire Protection Standards ....	43
1.	Design Requirements. ....	43
A.	<i>Standards of Local Fire Protection Agency's Govern. ....</i>	<i>43</i>
B.	<i>Application of the Utility's Main Extension Rule. ....</i>	<i>43</i>
2.a.	Initial Construction, Extension, or Modification. ....	44
A.	<i>Fire Flow Table ....</i>	<i>44</i>
B.	<i>Grandfathering ....</i>	<i>45</i>
3.(b)	Replacement of Mains ....	45
4.2.	Flow Tests. ....	46
5.3.	Fire Hydrants.....	46
6.	Fire Protection Service Agreement. ....	46

## I. General

VII.	Operations and Maintenance. ....	48
1.	Operations and Maintenance Plan (O&M Plan). ....	48
A.	<i>All water and sewer systems should have an O&amp;M Plan.</i> .....	48
B.	<i>The O&amp;M Plan shall include at a minimum the following:</i> .....	48
C.	<i>Updates</i> .....	49
2.	Emergency/Disaster Response Strategy (E/DRS).....	49
3.10	Records and Reports .....	50
A.	<i>System Maps.</i> .....	50
B.	<i>Results of laboratory analyses.</i> .....	51
C.	<i>Updated records.</i> .....	51
4.	Flushing the System. ....	52
5.	Water Treatment Operators. ....	52
A.	<i>General.</i> .....	52
B.	<i>Treatment Facility Operator Certification:</i> .....	53
C.	<i>Distribution System Operator Certification.</i> .....	53
6.3.	Pressures.....	53
B.	<i>New Systems</i> .....	54
C.	<i>Changes in distribution systems</i> .....	54
D.	<i>Waivers</i> .....	54
E.	<i>Hydraulic Analysis of the Transmission and Distribution System.</i> .....	55
F.	<i>Delineation of Minimum Normal Operating Pressures.</i> .....	55
G.d.	<i>Pressure Gauges.</i> .....	55
H.e.	<i>Pressure Surveys</i> .....	55
7.	Relations with Customers.....	56
A.	<i>General.</i> .....	56
B.	<i>Reporting</i> .....	57
C.	<i>Telephone Performance Standards</i> .....	59
D.	<i>Response to consumer and regulatory complaints:</i> .....	61
E.	<i>Billing Performance Standards</i> .....	62
F.	<i>Meter Reading Performance Standards</i> .....	63
G.	<i>Work Completion Performance Standards</i> .....	63
H.	<i>Customer Satisfaction Measures</i> .....	66
I.	<i>Worker Safety Performance Measures:</i> .....	67
J.	<i>Reliability Performance Standards</i> .....	68
K.	<i>Service Guarantees</i> .....	69
L.	<i>Asset management requirements</i> .....	70
M.	<i>Customer Service Conditions</i> .....	71
Appendix A	Non Potable Water Systems .....	72
Appendix B	Records Retentions Schedules.....	73

## I. General

Appendix C	Calculation of System Demands .....	78
Appendix D	Calculation of System Supply .....	79
Appendix E	TMF Criteria Checklists.....	80
Appendix F	Report Card Billing .....	83

# I. GENERAL

## 1. Intent

### A.a. Purpose

The purpose of these rules is to ~~promote good public utility practices, to encourage efficiency and economy and to establish~~ minimum standards to be hereafter ~~observed~~ *practiced* in the design, construction, *maintenance* and operation of ~~waterworks facilities by~~ *water and sewer system* utilities operating under the jurisdiction of the Commission.

### B. *Limits of Order*

The standards herein ~~prescribed are intended as minimum standards applicable after adoption and continued full utilization of existing facilities is contemplated. These rules do not supersede the filed tariff rules of the water and sewer system utilities.~~

### C. *Expiration of economic utilization*

~~Nothing contained in any of the these rules herein promulgated shall be construed to require the replacement or abandonment prior to the expiration of their economic utilization of facilities in use at the time of adoption of these rules, prior to the expiration of their economic utilization, unless the Commission, after hearing, shall enter an orders directing the abandonment or replacement of particular facilities found to be inadequate for the rendition of proper public utility service.~~

## 2.b. *Absence of Civil Liability.*

### A. Establishment shall not impose civil liability

These rules are adopted by the Commission to establish minimum standards in ~~relation to~~ the design, construction, maintenance and operation of ~~waterworks facilities by~~ *water and sewer system* utilities operating under the jurisdiction of the Commission. Such establishment shall not impose upon these

## I. General

utilities, and these utilities shall not be subject to, any civil liability for damages, if liability would not exist had these rules not been adopted.

### **B.2. Applicability.**

These rules are designed for primarily for utility systems sewer system and for water utilities supplying potable water under pressure, but shall also apply insofar as they may be when appropriate, to *sewer systems and* utility systems supplying water not intended or claimed to be potable from ditches, canals or other conduits. The paragraphs of these rules applicable to utility systems supplying such non-potable water are set forth in Appendix A ~~hereto~~.

### **3. Definitions**

- Aa. Commission. ~~In the interpretation of these rules, the word “Commission” shall mean~~ The Public Utilities Commission of the State of California.
- Bb. Utility. ~~Any person, firm, or corporation, their leasees, trustees, receivers or trustees appointed by any court, owning, controlling, operating, or managing any water system within this State, who sells water to any person, firm corporation, municipality, or any other political subdivision of the State, whether under contract or otherwise, is a public utility, except as provided in Sections 2704, 2705, and 2706 of the Public Utilities Code.~~ Commission-regulated water or sewer system utility.
- Ce. Customer. ~~The word “customer” shall be construed to mean a~~ Any person, firm, association, corporation or governmental agency supplied or entitled to be supplied with water *or sewer* service for compensation by a utility.
- D. Corporation. *A corporation, a company, an association, and a joint stock association.*
- E. Department. *The Department of Public Health, Field Operations Drinking Water Branch or the County Department of Environmental Health*

## I. General

- ~~F.d.—~~ Meter. ~~The word “meter” shall mean a~~ Any device used for the purpose of measuring the quantity of water delivered ~~by a utility to a customer.~~
- G. *Person.* An individual, a firm, or a partnership.
- H. *Sewer system.* All real estate, fixtures, and personal property owned, controlled, operated, or managed in connection with or to facilitate sewage collection, treatment, or disposition for sanitary or drainage purposes, including any and all lateral and connecting sewers, interceptors, trunk and outfall lines and sanitary sewage treatment or disposal plants or works, and any and all drains, conduits, and outlets for surface or storm waters, and any and all other works, property or structures necessary or convenient for the collection or disposal of sewage, industrial waste, or surface or storm waters.
- I. *Sewer system utility.* A Commission-regulated utility that provides sewer service.
- ~~J.e.~~ Service Pipe. ~~The term “service pipe” shall mean t~~ The connection between the utility’s mains and the service connection. ~~It and shall~~ includes all of the pipe, fittings and valves necessary to make the connection.
- K. *Service Connection.* The point of connection to the customer’s piping or ditch with the meter, user service line or ditch owned by the utility.
- L. *Source Capacity.* The total amount of water supply available from all sources permitted for use by the water system, including approved surface water, groundwater, and purchased water.
- M. *Storage Capacity.* The total amount of water supply available from used and useful storage tanks or reservoirs designated as an active part of the utility’s water system.
- N. *Tariff Rule.* A Rule in the tariffs that has been approved by the Commission.
- O. *User Service Line.* The pipe, tubing, and fittings connecting a water main to an individual water meter or service connection.
- P. *Utility.* A water or sewer system utility.
- Q. *Water Main.* Any pipeline, except for user service lines, within the distribution system.

## I. General

- R. *Distribution System. All physical parts of the water system, including, but not limited to: Pipes, valves, pumping stations, storage tanks or reservoirs, and user service lines, that are located between the water treatment plant, or the source if there is no treatment, and the consumer's service connection.*
- S. *Water Utility. A Commission-regulated utility that provides water service.*
- T. *Water System. The interconnected reservoirs, pipes, and sources of supply, and all other real estate, fixtures, used to provide water service to a particular set of customers.*
- U. *Recycled water. Sewage water that, because of treatment, is suitable for a direct beneficial use or a controlled use that would not otherwise occur.*
- V. *Water treatment operator. A person who has met the requirements for a specific water treatment operator grade pursuant to the Department.*
- W. *Water treatment operator-in-training. A person who has applied for and passed the written examination given by the department but does not yet meet the experience requirements for a specific water treatment operator grade pursuant to the rules of the Department.*
- X. *Water distribution operator. A person who has met the requirements for a specific water distribution operator grade pursuant to the Department.*
- Y. *Water treatment plant. A group or assemblage of structures, equipment, and processes that treat, blend, or condition the water supply of a public water system for the purpose of meeting primary drinking water standards.*
- Z. *As used in this order, "person" and "corporation" include the lessees, trustees, receivers or trustees appointed by any court whatsoever, of the person or corporation.*
- AA. *Secondary drinking water standards. Standards that specify maximum contaminant levels that, in the judgment of the Department, are necessary to protect the public welfare. Secondary drinking water standards may apply to any contaminant in drinking water that may adversely affect the odor or appearance of the water and may cause a substantial*

## I. General

*number of persons served by the public water system to discontinue its use, or that may otherwise adversely affect the public welfare. Regulations establishing secondary drinking water standards may vary according to geographic and other circumstances and may apply to any contaminant in drinking water that adversely affects the taste, odor, or appearance of the water when the standards are necessary to assure a supply of pure, wholesome, and potable water.*

- AB. Bill: Bills for water and sewer service. Exclude final bills and bills for maintenance or repair service.*
- AC. Escalation: An escalation is a complaint to the utility or to the CPUC that, following investigation, is determined to be something the utility reasonably could or should have done to satisfy the consumer and thereby prevent the complaint from arising. Each party's discretion shall determine whether or not a complaint to it is classified as an escalation.*
- AD. Normal Business Hours: 8 a.m. to 5 p.m., Monday through Friday, excluding Utility holidays.*
- AE. Outside of Normal Business Hours: weekends, utility holidays and 5 p.m. to 8 a.m. Monday through Friday.*

### *Acronyms:*

- A. AWWA. American Water Works Association.*
- B. CCR. California Code of Regulations.*
- C. DPH. Department of Public Health of the State of California.*
- D. MDD. Maximum Day Demand. The actual, estimated or projected amount of water utilized by consumers during the highest day of use, excluding fire flow.*
- E. PHD. Peak Hour Demand. The actual, estimated or projected amount of water utilized by consumers during the highest hour of use during the maximum day, excluding fire flow.*
- F. psi. pressure measurement of "pounds per square inch" as registered on a gauge.*

**4. Information Available to Public.**

**A. Location**

The utility shall maintain and make available for public inspection at one or more of the utility's commercial offices, pertinent information regarding the service rendered including the following:

**B. Pertinent information**

~~(1)~~a. Characteristics of Water.

A description in writing of the kind of water to be furnished, whether filtered or unfiltered and whether treated or untreated and the extent thereof.

~~(2)~~b. Rates and Rules.

A copy of the tariff schedules consisting of rates, general rules of the utility, service area maps and forms of contracts and applications applicable to the territory served from that office..

~~(3)~~c. Reading Meters.

Information about method of reading meters.

~~(4)~~d. Bill Analysis.

A statement of the past readings of the meters serving a customer's own premises for a period of two years.

~~(5)~~ *Consumer Confidence Report.*

Each water system must annually mail or deliver a copy of the Consumer Confidence Report to each customer.

**5. Access to Property.**

**A. When**

The utility shall at all reasonable hours have *safe* access to meters, service connections and other ~~property owned by it~~ ~~which may be utility-owned~~ property located on *the* customer's premises for the purposes of installation, maintenance, operation, or removal. ~~of its property at the time service is to be terminated.~~

## I. General

### B. **Secure access**

*The utility may request the customer to secure any animals on the customer's property to ensure the safety of the utility's representative or the utility may enlist the aid of appropriate agencies, if required, to ensure safe access, particularly when animals on the customer's premises prevent access in times of an emergency. The customer's system should be open for inspection at all reasonable times to authorized representatives of the utility.*

### C. **Proper Identification**

*Any utility ~~employee of the utility~~ representative whose duties require ~~him to enter the customer premises~~ entering the customer's premises shall wear a distinguishing uniform or other insignia, identifying ~~him~~ the utility representative as an employee of the utility, or carry ~~on his person a badge or other identification which will identify him as an employee of the utility,~~ other identification such as a badge to verify employment by the utility, ~~the same~~ to be shown by ~~him~~ the utility representative upon request. The utility shall inform the customer in such a manner that the utility can prove the customer was aware of impending access of utility-owned property, except in events associated with the safety of the water supply. This requirement includes language barriers or issues covered by the Americans with Disabilities Act.*

~~6. **Discontinuance of Service.** [delete entire section, See Tariff Rules No. 8 and 11]~~

~~7. **Refusal to Serve** [delete entire section. See Tariff Rule No. 11]~~

### ~~6.8. **Complaints.**~~

- A. Upon complaint to the utility by a customer ~~either~~ at its office, by letter, ~~or~~ by telephone, or by email to the utility's internet web page if it supplies a site for customer service, the utility ~~shall promptly~~ will contact the customer within 72 hours and make a suitable investigation. ~~and~~ The utility will advise the complainant of the ~~results thereof~~ investigation's results.

## I. General

- B. *A complaint is a request requiring an investigation or action on the part of the utility. A customer that makes an inquiry to the utility requiring neither investigation nor action is therefore not making a complaint.*
- C. ~~‡~~ *The utility shall keep a record of all complaints, categorized by the nature of the complaint, which shall that shows the name and address of the complainant, the date and nature of the complaint, and the adjustment or disposition thereof for a period of two years lasting from the time the complaint is filed with the utility until issuance of its next general rate case final decision.*
- D. *After two years issuance of the general rate case final decision subsequent to the filing of the complaint, the utility shall keep, at its option, either the original complaints or a summary of such complaints. for an additional three years. Complaints Inquiries with reference to rates or charges, which require no further action by the utility, need not be recorded. Complaints that are determined to be out of the direct control of the utility (including but not limited to natural disasters) may be recorded in a summary list only.*

### 7. **Accidents/Acts of Terror.**

- A. The utility shall cooperate with the Commission to promote a reduction in hazards within the industry and to the public.
- B. The utility shall keep a record of any accident endangering the public in general, or its employees, or disrupting the facilities for supplying water to the public which may have caused substantial property damage, serious personal injury or death, which shall be available for inspection by the Commission for the period prescribed by the California Code of Civil Procedure, or as proscribe by the Federal Department of Homeland Security, for the commencement of actions thereon but in no instance less than five years. The utility shall assist fully cooperate with the Commission in the event of an investigation by the Commission staff.

(10 Records and Reports parts a. and b. moved to Rule VIII)

## I. General

### **8.6. Reports to the Commission.**

The utility shall furnish to the Commission, at such times and in such form as the Commission may require, results or summaries of any tests required by these rules. The utility shall also furnish the Commission with any information concerning the utility's facilities or operations which the Commission may request and need for determining rates or judging the practices of the utility.

### **9. Deviations from ~~Any of These Rules.~~**

- A. In those cases where the application of any of the rules ~~incorporated herein~~ *in this General Order* results in unreasonable and undue hardship or expense to the utility, it may request specific relief by filing a formal application in accordance with the Commission's Rules of Procedure, except that where the relief to be requested is of minor importance or temporary in nature (*six months or less*), the Commission may accept an application and showing of necessity by *advice* letter.
- B. *All requested deviations from any of these rules must be noticed to the public at least 20 days in advance except in deviations due to an emergency or natural disaster. Any utility that proposes to use an alternative to the requirements in this General Order must demonstrate to the Commission how it will ensure that the proposed alternative would not result in an increased in risk to public health, decreased service quality or higher rates.*

## II. Standards of Service

## II. Standards of Service

### 1. General

- A. *Each Utility shall ensure that its system does all of the following:*
- (1) *Complies with primary and secondary drinking water standards.*
  - (2) *Is not subject to backflow under normal operating conditions.*
  - (3) *Provides a reliable and adequate supply of pure, wholesome, healthful, and potable water.*
  - (4) *Employs or utilizes only water distribution system operators who have been certified by the Department at the appropriate grade for positions in responsible charge of the distribution system.*
  - (5) *Places the direct supervision of the water system, including water treatment plants, water distribution systems, or both under the responsible charge of an operator or operators holding a valid certification equal to or greater than the classification of the treatment plant and the distribution system.*
  - ~~5.~~(6) *Source of Supply. Each separately operated water system shall have no less than two independent sources of supply.*

### 2. Water Supply Requirements.

#### A.1. Quality of Water

- (1)a. General. Any utility serving water for human consumption or for domestic uses shall provide water that is wholesome, potable, in no way harmful or dangerous to health and, insofar as practicable, free from objectionable odors, taste, color and turbidity. Any utility supplying water for human consumption shall hold or make application for a permit as provided by the Health and Safety Code of the State of California and

## II. Standards of Service

shall comply with the laws and regulations of the ~~state or local~~ Department of Health Services. It is not intended that any rule contained in this ~~paragraph II-1~~ General Order shall supersede or conflict with the regulations of the ~~State Department of Health Services~~. A compliance by a utility with the regulations of the ~~State Department of Health Services~~ on a particular subject matter shall constitute a compliance with such of these rules as relate to the same subject matter except as otherwise ordered by the Commission.

- (2) *The Presiding Officer in each General Rate Case (GRC) shall appoint a water quality expert to assist the Commission in making specific findings and recommendations concerning a utility's water quality compliance unless good cause exists to forego such appointment. Initially, all GRCs will be referred to a water quality expert soon after the GRC is filed, and the water quality expert will provide a preliminary review of a utility's water quality and address the water quality aspects of this general order and other applicable law. We further anticipate that the water quality expert will provide an informal report to the Presiding Officer prior to the pre-hearing conference. If the Presiding Officer determines that a more extensive report is required, the Presiding Officer will order a report and testimony by the same or a different water quality expert in a ruling with the scoping memo. If a water quality expert submits testimony, the expert will be subject to cross-examination. Parties will be permitted to file responses to this aspect of the scoping memo.*
- (3) *In the situation that the utility has met all sampling and testing requirements, has no test results on facilities in active service that exceed certain maximum contaminant levels (MCLs), and no party raises concerns of merit, then no appointment of a water quality expert may be necessary.*

## II. Standards of Service

### B. Quantity of Water

(1).~~b. Water Supply.~~ In the absence of comparable requirements of the ~~State Department of Health Services~~, the following general rules shall apply:

(a)~~(1)~~ Source. Water supplied by any utility shall be:

- ~~(a)~~ Obtained from a source free from pollution; or obtained from a source adequately purified by natural agencies; or adequately protected by artificial treatment.
- ~~(b)~~ From a source reasonably adequate to provide a continuous supply of water.
- ~~(c)~~ Of such quality as to meet the United States Environmental Protection Agency Drinking Water Standards *and the State of California Safe Drinking Water Act Standards*.

(2) Operation of Supply System.

- ~~(a)~~ The water supply system, including wells, reservoirs, pumping equipment, treatment and filtration works, mains, meters and service pipes shall be free from sanitary defects.
- ~~(b)~~ No physical connection between the distribution system of a public potable water supply and that of any other water supply shall be permitted except in compliance with the Regulations Relating to Cross Connections of the ~~State Department of Health Services~~ contained in Title 17 of the California Administrative Code.
- ~~(c) The presence of algae, crenothrix and other growths in the water shall be controlled by proper treatment. The presence of algae and other growths in the water shall be controlled so as to allow the delivery of water that meets all primary and secondary California Safe Drinking Water Standards, including the secondary standards for color of 15 units and odor threshold of 3 units.~~

(3) *A system's facilities shall have the capacity to meet the system's MDD, PHD plus any required fire flow in the system as a whole and in each individual pressure zone. If, at any time, the system*

## II. Standards of Service

*does not have this capacity, the system shall request a service connection moratorium until such time as it can demonstrate the source capacity has been increased to meet system requirements.*

- (4) *Requirements for an individual public water system shall be determined from the total source capacity, total storage volume and the total number of service connections.*
- (5) *Requirements for a particular pressure zone shall be determined from the total water supply available from the water sources and interzonal transfers directly supplying the zone, from the total storage volume within the zone and from the number of service connections within the zone.*
- (6) *To determine the system's MDD and PHD See Appendix C of this General Order.*
- (7) *If the system supports fire service, see Section VI of this General Order for fire flow guidelines.*
- (8) *Upon formal complaint by the Commission or the Department alleging that additional facilities are necessary to provide the users of a water utility under the jurisdiction of the Commission with a continuous and adequate supply of water or to bring the water system into conformity with secondary drinking water standards, the Commission may, after hearing, direct the utility to make the changes in its procedures or additions to its facilities as the Commission shall determine are necessary.*
- (9) *Water Supply Requirements for Anticipated Growth. Requirements for planning new source capacity for anticipated growth can be found in the Health and Safety Code.*
- (10) *Service area extensions.*
  - (a) *Service area extension requests should be limited to the lands for which specific requests for service have been received. The utility must include the following data to assure the Commission that:*
    - *Fire flows are in conformance with local requirements;*

## II. Standards of Service

- *The Commission can certify to the Department of Real Estate that a subdivision receiving service from a regulated utility has an adequate water supply; and*
  - *The requesting utility can prove due-process requirement of informing customers of actions that could affect water bills or other costs.*
- (b) *All filings for contiguous extension of service should, in addition to the specific material required by GO 96-B (or its successor) and notwithstanding other sections of this General Order, include the following information:*
- *A statement confirming that a copy of the filing was sent to the appropriate Local Agency Formation Commission,*
  - *Documentation that the requested service has at least preliminary approval of the local permitting agency,*
  - *Documentation (normally in the form of a letter) from the jurisdictional local fire protection entity showing it is satisfied with the water supply capability of the system planned for the new area,*
  - *A fully completed and executed water supply and certification questionnaire form supplied by the Commission, and*
  - *In the event the service area extension will include land for which the owner has not requested service, documentation that the owner has been informed that the property is being included in the utility's service area*

### **C.e. Testing of Water**

- (1) Test. Each utility shall have representative samples of the water supplied by it examined by the ~~state or local~~ Department of Health Services or by an approved water laboratory as defined in Title 17 of the California Administrative Code, at intervals specified by the ~~state or local~~ Department of Health Services, in accordance with the United-

## II. Standards of Service

~~States Environmental Protection Agency Drinking Water Standards.~~

(2) Reports of Tests. The Commission shall be promptly notified in writing by the utility and supplied with a preliminary report describing the situation when matters of water quality are under review by the ~~state or local Health Department as a result of not meeting the United States Environmental Protection Agency Drinking Water Standards.~~ A final report shall be submitted to the Commission within a reasonable time after final disposition of the matter.

### **3.2. Continuity of Service**

#### **A.a. Emergency Interruptions.**

Each utility shall make all reasonable efforts to prevent interruptions to service and when such interruptions occur shall ~~endeavor to~~ reestablish service with the shortest possible delay consistent with the safety to its customers and the general public. Where an emergency interruption of service affects the service to any public fire protection device, *within 60 minutes of discovery of the interruption*, the utility shall ~~promptly endeavor to~~ notify the Fire Chief or other public official responsible for fire protection of such interruption and of subsequent restoration of normal service.

#### **B.b. Scheduled Interruptions.**

Whenever any utility finds it necessary to schedule an interruption to its service, it ~~will~~ ~~shall, where feasible,~~ notify all customers to be affected by the interruption, stating the approximate time and anticipated duration of the interruption. Scheduled interruptions shall be made at such hours as will provide least inconvenience to the customers consistent with reasonable operations. Where public fire protection is provided by the mains affected by the interruptions, *the interruption will be reported as soon as the utility knows of the scheduled interruption* ~~to the utility shall promptly endeavor to notify the~~ Fire Chief or other officials responsible for fire protection, stating the approximate time and anticipated duration. In

## II. Standards of Service

addition, the Fire Chief or other official responsible for fire protection shall be notified *within 60 minutes promptly* upon restoration of service.

### **C.e. Records of Interruptions.**

Each utility shall keep a complete record of all ~~major~~ interruptions, both emergency and scheduled. This record shall show the cause for interruption, date, time, duration, location, approximate number of customers affected and in cases of emergency interruptions, the remedy and steps taken to prevent recurrence. *These records of interruptions are to be kept with the utilities permanent records in accordance with the retentions schedule listed in Appendix B.*

*The record of the outage shall include:*

*Date and time of Service Interruption*

*Date and Time Service is Restored*

*Number of Customers Affected and Who*

*Environmental Conditions at Onset of Outage*

*Equipment that Operated or Failed*

*Cause of Outage*

*Actions Required to Restore Service*

*Identification of Person Reporting*

### **D.d. Reports to Commission,**

All emergency interruptions involving an entire system, an entire separately operated system of a multi-system utility or a major portion of an entire or separately operated system shall be reported to the Commission by the utility as soon as possible after occurrence by telephone or ~~telegraph~~ *e-mail* stating the cause, date, time, estimated duration, location, approximate number of customers affected and remedial steps being taken to restore service. ~~Written reports thereof shall be submitted to the Commission within 48 hours after restoration of service giving the information outlined in subparagraph c. above, together with such other data as may be appropriate under the circumstances.~~

(3. Pressures. moved to the Operation Section)

## II. Standards of Service

### 4. **Water Supply Measurement**

#### **A.a. Measuring Devices**

~~Each utility shall install a suitable measuring device, or otherwise determine production, at each source of supply in order that a record may be maintained of the quantity of water produced by each source. Measuring devices known as source flow meters will be required for each water system, except at any inactive sources a system may have. Each water system shall:~~

- (1) Install a flow meter at a location between each water source and the entry point to the distribution system;*
- (2) Meter the quantity of water flow from each source to determine total production; and*
- (3) Each month, determine and record the total monthly production from each source.*

#### **B. Records.**

~~At least once each month, the quantity produced from each source of supply shall be determined. Twelve-month totals by sources shall be recorded and transmitted to the Commission in the utility's annual reports to the Commission.~~

### III. Standards of Design and Construction

### III. Standards of Design and Construction

#### 1. General.

- A. ~~The system shall be adequate to deliver~~ *All systems must supply the water requirements of for all customers and meet the pressure requirements of paragraph H-3 a. of this General Order.*
- (1) *A professional civil engineer registered in the State of California qualified in water supply engineering shall prepare all design and construction documents of a utility's water or sewer plant and must meet the design requirements of the Department (§64585).*
- (2) *The design and construction must conform to the requirements of the Department with reference to sanitation and potability of water.*
- (3) *All new mains, pumps, tanks, wells and other facilities for handling potable water and repaired mains and other facilities, shall be thoroughly disinfected before being connected to the system. The method of disinfection must be as approved by the Department.*
- B. *For systems applying for federal funds (the Drinking Water State Revolving Fund or its successors), applicants must describe the design basis of all new facilities to be constructed using the criteria contained in the Technical, Managerial, and Financial requirements of the Department or its successor. See Appendix E for further information on these criteria.*

[2. Distribution System., 3. Transmission Systems. And 4. Water Supply Requirements are deleted.]

#### 2. **Application for Certificate of Public Convenience and Necessity**

- A. *All applicants must follow the requirements in §64552 of the Department's regulations, Permit for New Public Water System (or its successor)*
- B. *No public water system that was not in existence on January 1, 1998, shall be granted a permit unless the system demonstrates*

### III. Standards of Design and Construction

*to the Commission that the water supplier possesses adequate financial, managerial, and technical (TMF) capability to assure the delivery of pure, wholesome, and potable drinking water*

- C. *Criteria regarding adequate financial, managerial and technical capabilities shall also apply to any change of ownership of a public water system that occurs after January 1, 1998.*
- D. *See Appendix E for further information on the TMF criteria. The major provisions to be included are the following:*
- (1) A map and description of the entire existing and proposed service area.*
  - (2) The population, and number and type of residential, commercial, agricultural and industrial service connections in the projected service area of the water system.*
  - (3) Design drawings of proposed facilities drawn to scale, showing location, size, construction material; and as-built drawings and year of installation of any water main or other facility that has already been constructed.*
  - (4) The estimated MDD and PHD with the methods, assumptions, and calculations used for the estimations.*
  - (5) A description of the sources of water proposed to meet the estimated MDD and information demonstrating that the sources are adequate to do so, such as, but not limited to, well pump tests, the capacities of all pumping facilities, and the hydraulic capacity of surface water treatment facilities.*
  - (6) Information that demonstrates how the system proposes to reliably meet four times the PHD using, but not limited to, excess source capacity, distribution reservoirs, auxiliary power, and/or emergency source connections.*
  - (7) Information that demonstrates how the system proposes to reliably meet two consecutive days of MDD through a combined flow from sources of supply and storage capacity.*

### III. Standards of Design and Construction

#### 3.5. Materials and Specifications

##### A.a. Qualification.

(1) Metallic and nonmetallic materials may be used separately and in combination to construct component parts of a water system including, but not limited to, conduits, pipes, couplings, caulking materials, protective linings and coatings, services, valves, hydrants, pumps, tanks and reservoirs; provided:

~~(1)(a)~~ ~~The material shall have a reasonable useful service life.~~

~~(2)~~ *The material shall be capable of withstanding with ample safety factors the internal and external forces to which it may be subjected in service.*

~~(b)(3)~~ The material shall not cause the water to become impure, unwholesome, unpotable or unhealthful.

(c) *No person shall use any pipe, pipe or plumbing fitting or fixture, solder, or flux that is not "lead free" in the installation or repair of any water system, except when necessary for the repair of leaded joints of cast iron pipes.*

(d) *For the purposes of this section, "lead free" means not more than 0.2 percent lead when used with respect to solder and flux and not more than 8 percent when used with respect to pipes and pipe fittings. With respect to plumbing fittings and fixtures, "lead free" means not more than 4 percent by dry weight after August 6, 2002, unless the Department has adopted a standard, based on health effects, for the leaching of lead.*

~~(4)(e)~~ Materials and equipment shall be so selected as to mitigate corrosion, electrolysis and deterioration.

B.b. Specification. Materials and equipment shall be specified by a properly qualified person.

C.e. Newly Developed Materials and Equipment.

### III. Standards of Design and Construction

It is not the intention to prevent the use of newly developed materials and equipment that otherwise meet the requirements of paragraphs a and b. above *described above*.

[Section d. deleted in its entirety, See section 5 below for its replacement]

#### **4.3. ~~Mains-Distribution System.~~**

##### **A.a. ~~Depth of Mains.~~**

- (1) Water mains should be installed below the frost line or be otherwise protected to prevent freezing and shall not have less than 30-inches of cover over the top of the pipe in public streets or alleys except where it is necessary to avoid underground obstructions or rocky or hardpan conditions where such depth is not feasible.
- (2) *All non-ferrous pipe and service lines shall be installed with continuous tracer tape installed 12” to 18” under the final ground surface. The marker tape shall be 4” or wider non-biodegradable plastic with metal core or backing, marked and color coded corresponding to the utility to be marked and detectable by a standard metal detector. Tape shall be Terra Tape “D” or approved equal. In addition to tracer tape, force mains and curved mains shall also have a 14 gauge coated copper wire, wrapped around the pipe, brought up, coating stripped, and tied off at the valve stem or manhole ring.*

[Section IV. 3. b through d. removed and the following substituted]

##### **B. ~~Layout of Water Mains.~~**

*Water mains should be laid out only in segmented grids and loops; and should be located within streets. Dead-end water mains shall be installed only if:*

- (1) *Looping or gridding is impractical due to topography, geology, pressure zone boundaries, unavailability of easements or locations of users; or*
- (2) *The main is to be extended in the near future and the planned extension will eliminate the dead-end conditions.*

### **III. Standards of Design and Construction**

#### **C. Minimum Water Main Diameter and Length of Run.**

- (1) *Water mains shall have a nominal inside diameter of at least four inches.*
- (2) *Dead-end water mains exceeding 1,000 feet (300 meters) in length shall be constructed of pipe with a nominal inside diameter of at least 6 inches.*
- (3) *Dead-end water mains exceeding 2,000 feet (600 meters) in length shall be constructed of pipe with a nominal inside diameter of at least 8 inches.*
- (4) *The above length requirements may be deviated from if the installations designed under the direction of a qualified registered engineer meet the pressure requirements set forth in G.O. 103 or if the installation is approved by the Department.*

#### **D. Minimum Pipe Sizes.**

- (1) The distribution system shall be of adequate size, and so designed in conjunction with related facilities to maintain the minimum pressures requirements of ~~G.O. 103~~ *this General Order.*
- (2) In no event, however, should the minimum pipe size for new mains be less than six inches in diameter when used in conjunction with a fire protection system. Otherwise, no minimum pipe size for new mains shall be less than four inches in diameter.

#### **E. Water Main Separations.**

*The minimum separation distances set forth in this section separating pipes shall be measured from the nearest outside edge of each pipe or the distances specified separating pipes from other facilities shall be measured from the nearest edges of the facilities.*

- (1) *In relation to other parallel pipelines. New water mains shall be installed at least 10 feet horizontally from, and one foot vertically above, any parallel pipeline conveying untreated, primary or secondary treated sewage, disinfected*

### III. Standards of Design and Construction

*secondary-2.2 recycled water disinfected secondary-23 recycled water, disinfected tertiary recycled.*

- (2) *In relation to other water-related hazards. No public water system shall install a new water main within 100 horizontal feet of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or within 25 feet of any cesspool, septic tank, sewage leach field, seepage pit, or groundwater recharge project site. New water mains crossing lines conveying sewage or recycled water shall be constructed perpendicular to and at least one foot above the sewage or recycled water line. No connection joints shall be made in the water line within eight horizontal feet of the wastewater or recycled water line.*
- (3) *Where the above requirements cannot be met due to topography, inadequate right-of-way or easements or conflicts with other provisions of these regulations, lesser separation is permissible if:*
  - (a) *The water main and the sewer are located as far apart as feasible within the conditions listed above.*
  - (b) *The water main and the sewer are not installed within the same trench.*
  - (c) *The water main is appropriately constructed to prevent contamination of the water in the main by sewer leakage.*
- (4) *Water mains shall be disinfected according to AWWA Standard C601-81 before being placed in service.*
- (5) *Installation of water mains near the following sources of potential contamination shall be subject to written approval by the Department on a case-by-case basis:*
  - (a) *Storage ponds or land disposal sites for waste water or industrial process water containing toxic materials or pathogenic organisms.*
  - (b) *Solid waste disposal sites.*

### **III. Standards of Design and Construction**

- (c) *Facilities such as storage tanks and pipelines where malfunction of the facility would subject the water in the main to toxic or pathogenic contamination.*

### III. Standards of Design and Construction

- (6) *Section 64572. Water Main Separation.*
- (a) *New water mains shall be installed at least 10 feet horizontally from, and one foot vertically above, any parallel pipeline conveying:*
    - (1) *Untreated sewage,*
    - (2) *Primary or secondary treated sewage,*
    - (3) *Disinfected secondary-2.2 recycled water (defined in section 60301.220),*
    - (4) *Disinfected secondary-23 recycled water (defined in section 60301.225), and*
    - (5) *Hazardous fluids such as fuels, industrial wastes, and wastewater sludge.*
  
  - (b) *New water mains shall be installed at least 4 feet horizontally from, and one foot vertically above, any parallel pipeline conveying:*
    - (1) *Disinfected tertiary recycled water (defined in section 60301.230),*
    - (2) *Raw water, and*
    - (3) *Storm drainage.*
  
  - (c) *New raw drinking water supply lines shall be installed at least 4 feet horizontally from, and one foot vertically above, any parallel pipeline conveying a liquid.*
  
  - (d) *New water mains crossing lines conveying sewage or recycled water shall be constructed perpendicular to and at least one foot above the sewage or recycled water line. No connection joints shall be made in the water line within eight horizontal feet of the wastewater or recycled water line.*
  
  - (e) *New water mains shall not be installed within 100 horizontal feet of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or*

### **III. Standards of Design and Construction**

*within 25 feet of any cesspool, septic tank, sewage leach field, seepage pit, or groundwater recharge project site.*

- (f) *The minimum separation distances set forth in this section shall be measured from the nearest outside edge of each pipe.*

### III. Standards of Design and Construction

**F. Water Main Valves.**

- (1) *Sufficient valves shall be provided on water mains to minimize inconvenience and sanitary hazards during repairs.*
- (2) *In general, valves on water mains of 12 inches and smaller diameter should be located such that water main lengths of not more than 1,000 feet can be isolated by valve closures.*
- (3) *A valve box shall be installed over each valve stem to aid in locating and operating the valve.*

**G. Water Main Valve Construction Standards:**

<i>Type of Valve</i>	<i>Construction Standard</i>
<i>Gate</i>	<i>AWWA C550-80</i>
<i>Butterfly</i>	<i>AWWA C504-80</i>
<i>Ball</i>	<i>AWWA C507-73</i>
<i>Swing Check</i>	<i>AWWA C508-82</i>

**5. Materials Standards for Water Mains**

*All new water main materials used in the distribution system shall comply with the standards of the AWWA pursuant to the table shown below (or its successor):*

<i>Type of Material</i>	<i>Diameter of Main</i>	<i>Applicable Standard</i>
<i>PVC</i> .....	<i>4 in. through 12 in. ....</i>	<i>C900-97, C900a-92</i>
<i>PVC</i> .....	<i>14 in. through 36 in. ...</i>	<i>C905-97</i>
<i>Polyethylene (HDPE)</i> .....	<i>4 in. through 63 in. ....</i>	<i>C906-99</i>
<i>Fiberglass</i> .....	<i>All sizes .....</i>	<i>C950-95</i>
<i>Ductile Iron</i> .....	<i>All sizes .....</i>	<i>C150/A21.50-96</i>
<i>Ductile Iron, Centrifugally cast</i> .....	<i>All sizes .....</i>	<i>C151/A21.51-96</i>
<i>Steel</i> .....	<i>6 inches and larger ....</i>	<i>C200-97</i>
<b><u>Concrete</u></b>		
<i>Reinforced steel-cylinder</i> .....	<i>All sizes .....</i>	<i>C300-97</i>
<i>Prestressed steel-cylinder</i> .....	<i>All sizes .....</i>	<i>C301-99, C304-99</i>

### III. Standards of Design and Construction

<i>Reinforced noncylinder</i> .....	<i>All sizes</i> .....	C302-95
<i>Bar wrapped/steel cylinder</i> .....	<i>All sizes</i> .....	C303-95
<i>PVC, Molecularly oriented PVC</i> .....	<i>All sizes:</i> .....	C909-98

[IV. Standards of Construction, 1, 2 and 3 are deleted in their entirety]

#### 6.4. Service Connections *pipe and fittings*

##### A. General

- (1) *Service connection pipe and fittings shall be designed for cold water working pressures of not less than 150 psi.*
- (2) *Copper tubing shall be commercial designation of type K or L. Plastic tubing and fittings shall be products tested and certified as suitable for use in potable water piping systems by ~~any testing agency acceptable to DHS, such as the National Sanitation Foundation Testing Laboratory~~ the National Foundation Testing Laboratory, the Canadian Standards Association Testing Laboratory or another testing agency acceptable to the Department.*

##### B. *Conditions for Adding Service Connections and Pipes*

A new service connection may be added to a water distribution system only if the water system will comply with *all other sections* of this General Order and, ~~after the new service connection is added and adding the new service connection~~ will not cause pressure at an existing service connection to be reduced below the standards set forth in ~~paragraph 3~~ *of this General Order.*

##### C.a. ~~Size of Service Pipe User Service Line.~~

- (1) The size, design, material and installation of the user service line shall conform to the reasonable requirements of the utility, provided, however, that the minimum size of the pipe shall not be less than ¾-inch nominal size. The utility may require the customer to provide such data as may be necessary for the utility to properly size a service larger than ¾-inch nominal size consistent with the requirements of fire flow, the utility in installing ¾-

### III. Standards of Design and Construction

inch and 1-inch services may use the following formula as a guide provided the requirement of paragraph II 3 a- are met:

¾-Inch Service
Residential Lot Area – Metered Service – 8,000 square feet
Flat Rate Service – 10,000 square feet
Business – Not over 10 outlets and only one flush-o-meter toilet.
1-Inch Service
Residential Lot Area – Metered Service – 8,000 to 20,000 square feet
Flat Rate Service – 10,000 to 25,000 square feet
Business – From 10 to 30 outlets and from 1 to 2 flush-o-meter toilets.

#### **D.b. Depth of User Service PipeLine.**

Except in unusual conditions all service pipes shall be laid at a depth sufficient to prevent freezing, except where services are not intended for use during freezing weather and are actually drained prior to such weather, and at a depth of not less than 18 inches except at its termination in connecting with the meter or customer's piping.

#### **7. Distribution Reservoirs.**

- A. *A distribution reservoir is a reservoir directly connected to the distribution system of the water system, used primarily to compensate for fluctuations in demand which occur over short periods of from several hours to several days, or as local storage in case of emergency such as a break in a main supply line or failure of pumping plant.*
- B. *Each distribution reservoir shall meet the following:*
- (1) Any reservoir coatings or linings shall be installed in accordance with manufacturer's instructions;*
  - (2) Vents and other openings shall be constructed and designed to prevent the entry of rainwater or runoff, and birds, insects, rodents, or other animals; and*
  - (3) At least one sampling tap shall be available to enable representative sampling of the water in the reservoir that*

### III. Standards of Design and Construction

*will be entering the distribution system; the tap shall be protected against freezing.*

C. *Each new distribution reservoir shall be:*

- (1) *Constructed of an impervious material that prevents the movement of water into or out of the reservoir;*
- (2) *Covered with*
  - (a) *A rigid structural roof made of impervious material; or*
  - (b) *Floating cover designed, constructed, and maintained in conformance with the AWWA California-Nevada Section "Reservoir Floating Cover Guidelines", April 1999;*
- (3) *Equipped with at least one separate inlet and outlet designed to minimize short-circuiting of the water flow through the reservoir;*
- (4) *Drainage facilities shall allow the tank to be completely drained, and the reservoir shall be equipped with an overflow device. The reservoir drainage facilities shall not be connected directly to a sewer or storm drain and shall be free of cross-connections;*
- (5) *Equipped with controls to automatically maintain and monitor reservoir water levels;*
- (6) *Equipped to prevent access by unauthorized persons;*
- (7) *Designed to allow authorized access for inspections, cleaning or repair;*
- (8) *Equipped with isolation valves, and a by-pass line sized to allow continued distribution of water to enable the reservoir to be removed from service. The isolation valves shall be located within 100 feet of the reservoir. For a reservoir used to meet CT requirements of chapter 17 (Surface Water Treatment), the bypass line shall be blind-flanged closed during normal operations;*
- (9) *Designed and constructed to prevent the entry of surface runoff, subsurface flow, or drainage into the reservoir;*

### **III. Standards of Design and Construction**

- (10) *Designed to prevent corrosion of the interior walls of the reservoir;*
- (11) *Sited not less than 20 feet from any tertiary treated recycled water reservoir;*

#### **8. Subsurface Distribution Reservoirs**

- A. *The reservoir and vents shall be protected against flooding;*
- B. *Equipped with underdrain facilities to divert any water in proximity to the reservoir away from the reservoir; and*
- C. *Sited a minimum of 50 feet from a sanitary sewer and 100 feet from any other waste facilities.*

#### **9. Recycled water and reservoirs.**

- A. *No utility may use a reservoir as a source of supply that is directly augmented with recycled water unless the utility documents that the Department has completed all of the following:*
  - (1) *Performs an engineering evaluation that evaluates the proposed treatment technology and finds that the proposed technology will ensure that the recycled water meets or exceeds all applicable primary and secondary drinking water standards and poses no significant threat to public health.*
  - (2) *Holds at least three duly noticed public hearings in the area where the recycled water is proposed to be used or supplied for human consumption to receive public testimony on that proposed use. The Department shall make available to the public, not less than 10 days prior to the date of the first hearing held pursuant to this subdivision, its evaluations and findings pursuant to subsection (1) above.*

#### **10. Reliability Factors for Surface Treatment Plants and Energy Supplies.**

- A. *Alternatives to the requirements specified herein shall be accepted provided the water supplier demonstrates to the*

### III. Standards of Design and Construction

*satisfaction of the Department that the proposed alternative will assure an equal degree of reliability.*

- B. The following reliability features shall be included in the design and construction of all new and existing surface water treatment plants:*
- (1) Alarm devices to provide warning of coagulation, filtration, and disinfection failures. All devices shall warn a person designated by the supplier as responsible for taking corrective action, or have provisions to shut the plant down until corrective action can be taken.*
  - (2) Standby replacement equipment available to assure continuous operation and control of unit processes for coagulation, filtration and disinfection.*
  - (3) A continuous turbidity monitoring and recording unit on the combined filter effluent prior to clearwell storage.*
  - (4) Multiple filter units which provide redundant capacity when filters are out of service for backwash or maintenance.*
- C. Each public water supply and wastewater utility first must determine the local probabilities of any type of electric utility power outages expressed in terms of frequency, duration, and percentage of requirements, and second, assess its own capabilities to provide water and wastewater utility service from storage, alternate supply, or other source, similarly expressed in terms of frequency, duration, and percentage of requirements, when there is an electric power interruption.*
- (1) Should a comparison of such indicate that water and wastewater utility service interruptions could be expected when there is an electric power interruption, standby electric service facilities or capabilities must be provided. In general, two separate and independent sources of electric power must be provided to the system; from either two separate substations or from a single substation and a works-based generator.*
  - (2) In lieu of constructing their own standby facilities, public water and wastewater utilities may properly contract*

### **III. Standards of Design and Construction**

*with the electric power utility for alternate electric service from a separate power supply source.*

- (3) *If such service requires unusual facilities or effort not supported by the water utilities regular tariffs, the water utility may be justified in charging special rates or use other regulatory accounting method as an incentive to meet this requirement.*

[3. Pressures. and 4. Water Supply Measurement. have been moved to the Operations Section]

### III. Standards of Design and Construction

#### 11. Sewer Systems

##### A. Mains and submains

- (1) *Sewer mains shall be sized for the ultimate development of the area. They should be designed for an average daily per capita flow of sewage of not less than 100 gallons per day.*
- (2) *The minimum size for mains and submains is eight inches in diameter.*
- (3) *Submains should be designed to carry, when running full, not less than 400 gallons daily per capita contributions of sewage.*
- (4) *New sewer mains shall be installed at least 10 feet horizontally from, and one foot vertically below, any parallel pipeline conveying potable water.*

##### B. Service Laterals

- (1) *Service laterals and submain sewers shall be designed to carry, when running full, not less than 400 gallons daily per capita contributions of sewage.*
- (2) *The minimum size for a service lateral shall be 6 inches.*
- (3) *The depth at the property line shall be five feet minimum.*

## IV. Measurement of Service

### ~~V. Extension of Service [deleted in its entirety see Tariff Rule 16]~~

### IV.VI. Measurement of Service

#### 1. Method of Measuring Service

##### ~~A.a. Metering.~~

All water sold by a utility ~~shall be upon the basis of~~ *should be* by metered volume sales except the utility may, after authorization has been obtained from the Commission, provide flat rate or estimated service for the following:

- (1) Residential, business, commercial, industrial (in special situations) and irrigation service ~~after authorization has been first obtained from the Commission.~~
- (2) Temporary service where the water use can be readily estimated.
- (3) ~~Public and p~~Private fire protection service.
- (4) Water used for street sprinkling and sewer flushing, when provided for by contract between the utility and the municipality or other local governmental authority.

##### ~~B.b. Registration of Meter.~~

All meters used for metered sales excluding sales from irrigation systems or other irrigation sales must have registration devices indicating the volume of water in either cubic feet or United States gallons. Where a constant or multiplier is necessary to convert the meter reading to cubic feet or gallons, the constant must be indicated on the meter or on the meter-reading sheet.

##### ~~C.c. Irrigation Meters.~~

Irrigation service may be provided with meters that measure in acre-feet or miner's inch days. This service may also be rendered on a volume basis by the use of a calibrated orifice

## IV. Measurement of Service

such as the miner's inch box, by the use of weirs or otherwise measured as provided in applicable tariff schedules.

### ~~d. Charge for Meter Installation.~~

~~No utility shall charge for its installation of any devices for metering service to a customer, except if irrigation service is rendered through more than one outlet for the convenience of the customer, or if, on and after January 1, 1992 a new water service connection is made, a utility may charge all new customers the cost of meter and meter installation as separate meter installation charges limiting such charges to cost of meter and cost of installing the meter, or as provided in Section IV.2. (a) (1).~~

### **D.e. Report to the Commission of Meter Readings.**

All utilities that provide water service to customers that have a metered service connection shall read each customer's meter *according to the utility's tariff schedules* and report in the annual report submitted to the ~~California Public Utilities~~ Commission water quantities used, by classification of service, in each service territory or separate district.

## **2. Meter Test Facilities and Equipment.**

### **A.a. Test Facilities.**

Each utility furnishing metered water service shall provide the necessary standard facilities, instruments and other equipment for testing its meters in compliance with these rules. Any utility may be excepted from this requirement provided that satisfactory arrangements are made for test of its meters by another utility or agency equipped to test meters in compliance with these rules.

### **B.b. Shop Equipment.**

The meter test shop shall be provided with the necessary equipment to test up through 2-inch displacement *and/or multi-jet meters, whichever are used by the utility*, including a quick acting valve for controlling the starting and stopping of the test

#### IV. Measurement of Service

and a device for regulating the flow of water through the meter under test. The accuracy of the test equipment and test procedures shall be sufficient to enable shop test of the meter type used by the utility with an error not to exceed ~~0.3 of~~ ~~1%~~  $0.003\%$ .

##### **C.e. Test Measurement Standards.**

Measuring devices for test of meters shall consist of calibrated tanks for volumetric measurement, tanks mounted upon scales for weight measurement or standard meters.

##### (1) Basic Standards.

- (a) When a volumetric tank is used, it shall be accompanied by a certificate of accuracy acceptable to the Commission from a County Sealer of Weights and Measures or from a DEPARTMENT approved standards laboratory.
- (b) When a weight standard is used, the scales shall be tested and calibrated at least once every year by such approved laboratory, or County Sealer of Weights and Measures and a record maintained of the results of the test.
- (c) Standard meters may be used for field tests of meter accuracy provided they are tested and calibrated to permit the test of meters within the limits of accuracy required by these rules, either by the utility with its volumetric or weight standard equipment or by an approved laboratory at least once every 60 day while the standard meter is in use and a record of such tests shall be kept by the utility for a period of not less than five years.

##### (2) Size of Basic Standards.

- (a) When basic standards are used for meter tests, they shall be of a capacity sufficient to insure accurate determinations.
- (b) The minimum requirement for testing disc meters from  $5/8$  x  $3/4$ -inch through 2 inches in

## IV. Measurement of Service

size shall include a 10 and a 1 cubic-foot tank for meters registering in cubic feet or a 100- and a 10-gallon tank for meters registering in gallons.

### 3. Accuracy Requirements of Water Meters.

#### A.a. General.

All meters used for measuring quantities of water delivered to customers shall be in good mechanical condition, shall be adequate in size and design for the type of service which each measures and shall be accurate to within generally accepted standards. The standards of accuracy for displacement meters are set forth in paragraphs ~~Bb~~ and ~~Ce~~, following.

#### B.b. Test Flows.

For determination of minimum test flow and normal test flow limits, the Commission adopts as a guide the appropriate standard specifications of the ~~American Water Works Association~~ AWWA for the various types of meters.

- (1) ~~These~~ Test flows for *new, rebuilt and repaired* displacement type cold-water meters are as follows:

Nominal Meter Size Inches	Minimum Test Flow (Gallons per Minute)	Maximum Test Flow (Gallons per Minute)
5/8 or 5/8x3/4	1/4	<del>1-20</del> 15
3/4	1/2	<del>2-30</del> 25
1	3/4	<del>3-50</del> 40
1-1/2	1 1/2	<del>5-100</del> 50
2	2	<del>8-160</del> 100
3	4	<del>16-300</del> 150
4	7	<del>28-500</del> 200
6	12	<del>48-1000</del> 500

#### IV. Measurement of Service

(2) *Test flows for new, rebuilt and repaired multi-jet type cold-water meters are as follows:*

<i>Nominal Meter Size Inches</i>	<i>Minimum Test Flow (Gallons per Minute)</i>	<i>Maximum Test Flow (Gallons per Minute)</i>
<i>5/8 or 5/8x3/4</i>	<i>1/4</i>	<i>15</i>
<i>3/4</i>	<i>1/2</i>	<i>25</i>
<i>1</i>	<i>3/4</i>	<i>35</i>
<i>1-1/2</i>	<i>1 1/2</i>	<i>70</i>
<i>2</i>	<i>2</i>	<i>100</i>

#### C. Determination of Accuracy.

(1) Displacement *and multi-jet* meters shall be tested at three or more test flows:

- (a) one at the minimum test flow,
- (b) one at 10% of the maximum normal test flow limit and
- (c) one at a rate over ~~35%~~ 25% of the maximum normal test flow limit.

(2) A meter shall not be placed in service if it registers less than 95% of the water passed through it at the minimum test flow or over or under registers more than 1.4/25% in the normal test flow limits; with the exception that a repaired meter shall register not less than ~~the following appropriate percentage~~ 90% of the water passed through it at the minimum test flow, and shall not over or under register more than 2% in the normal test flow limits.

~~If manufactured on or after January 1, 1947 ..... 90%~~

~~If manufactured prior to January 1, 1947 ..... 85%~~

(3) *Accuracy and flow requirements for testing other types of meters are given in the American Water Works Association manual M6.*

## IV. Measurement of Service

### D.d. Sealing of Meter.

Upon completion of adjustment and test of any water meter under the provisions of these rules, the utility shall affix ~~thereto~~ a suitable seal in such a manner that adjustment or registration of the meter cannot be tampered with without breaking the seal.

### E.e. Record of Test.

- (1) A complete record of all ~~displacement and other~~ mechanical meter tests and data sufficient to allow checking of test calculations; shall be recorded by the meter tester.
- (2) Such record shall include: the identifying number of the meter; the type and size of the meter; the constant of the meter; the date and kind of test made; the reading of the meter before making any test; the error as found at each test; and, if readjusted, the percentage of registration as left after each test.
- (3) The complete record of test of each meter shall be retained for at least five years.

## 4. Initial Tests and Storage of Meters.

- A. Every water meter shall be tested as required by these rules prior to its installation either by the manufacturer, the utility or any reliable organization equipped for meter testing.
- B. Each meter should be stored in an inverted position or utilize a type of intermediate gear train lubricant ~~which~~ *that* will not flow into the measuring chamber during storage, and unless so stored or lubricated it shall be ~~so~~ tested immediately before installation.

## 5. Repaired or Tested Meters.

All water meters removed from service for repair or tested in accordance with these rules shall be restored to the prescribed limits of accuracy as required by these rules before again being placed in service.

## IV. Measurement of Service

### 6. Periodic Tests of Water Meters.

#### A.a. General.

The length of time that a meter shall be allowed to remain in service before being tested, or overhauled and tested, should be determined from an economic analysis *according to the following rules:*

#### ~~VI. 6. b. Test Periods.~~

- (1) Adoption of Test Periods by Utility. A utility may adopt a test period for the periodic test of meters within any well defined separate system as the utility may deem appropriate, based upon a consideration of relevant economic factors and accuracy of meters, provided authorization for such test period for any such separate system is first obtained from the Commission. Requests for such authorization may be made by an application and showing of necessity by letter.
- (2) Test Periods if Not Adopted by Utility: Unless a test period for such periodic tests of meters shall have been adopted as provided in paragraph (1), above, no meter shall be allowed to remain in service without retesting for more than the number of years indicated in the following tabulation:

Size of Meter	Maximum Period
Smaller than 1 – inch	<del>20</del> 10 years
1 – inch	<del>15</del> 10 years
Larger than 1 – inch	<del>10</del> 5 years

#### B. Frequency of periodic tests

Nothing in these rules shall be construed to mean that such periodic tests may not be made more frequently than the maximum period specified ~~herein~~.

## IV. Measurement of Service

### **C.e. Report of Periodic Tests of Meters.**

Each utility shall make a summary of all periodic tests of meters made each calendar year as required by these rules and shall submit such summary concurrently with, or as part of, the utility's Annual Report to the Commission for that year.

~~7. Tests on Customer Request.~~ [delete in its entirety. See Tariff Rule No. 18]

### **7. Meter Records.**

Each Utility shall keep records giving for each displacement, *multi-jet*, and other mechanical meter owned and used by it for any purpose the identification number, name of manufacturer, serial number, type, size and the dates of installation and removal. These records shall also give condensed information, including dates, concerning all tests. *See Appendix B for retention periods.*

## V. Rates and Billing

### V.VII. Rates and Billing

1. ***Filing of Tariffs.***

Each utility shall file with the Commission its tariff schedules containing all tariff sheets in accordance with the procedure prescribe by the Commission.

2. ***Information on Bills.***

Each utility shall render a bill to each customer for each billing period. All bills must show the time period, price per unit of the time period, date bill is due, date when any late fee can be applied and the Commission's policy on late fees. *Bills for metered service must include all the information shown in Appendix F.*

~~3. ***Adjustment of Bills for Meter Error.*** [delete in its entirety. See Tariff Rule 18]~~

### VI.VIII. Fire Protection Standards

1. ***Design Requirements.***

The flow standards for public fire protection purposes set forth below are those the Commission considers appropriate for application on an average statewide basis.

A. ***Standards of Local Fire Protection Agency's Govern.***

~~However,~~ The Commission recognizes that there are widely varying conditions bearing on fire protection throughout the urban, suburban, and rural areas of California. Therefore, the standards prescribed by the local fire protection agency or other prevailing local governmental agency govern.

B. ***Application of the Utility's Main Extension Rule.***

Such local flow standards shall be provided whether greater or lesser than those set forth in this chapter. However, mains

## VIII. Operations and Maintenance

designed for and capable of providing flows in excess of the requirements opposite the classification of land use, as set forth in the fire flow table found in this section, shall be considered mains providing excess flow for the purpose of the application of the utility's main extension rule.

### 2.a. Initial Construction, Extension, or Modification.

#### A. Fire Flow Table

In the initial construction, extension, or modification of a water system, any one of which is required to serve ~~(a)~~ a new applicant or ~~(b)~~ a change in use, the facilities constructed, extended, or modified shall be designed to be capable of providing, for a sustained period of at least ~~two hours, in addition to the requirements of the average daily demand within the area to be served, the minimum flow requirements set forth~~ *the length of time given in the fire flow table shown below* opposite the classification of land use to be served, or such other fire flow, either higher or lower, as determined either necessary or adequate by appropriate local governmental agency. (The table is based on AWWA manual M-31.)

Land Use	Minimum Flow
1. Rural, residential with a lot density of two or less per acre primarily for recreational and / or part-time occupancy	1,000 gpm
2. Lot density of less than one single-family residential unit per acre	1,000 gpm
3. Lot density of one or two single-family residential units per acre	1,000 gpm
4. Lot density of three or more single-family residential units per acre, including mobile home parks	1,000 gpm
5. Duplex residential units, neighborhood business of one story	1,500 gpm
6. Multiple residential, one and two stories; light commercial or light industrial	2,000 gpm

## VIII. Operations and Maintenance

7. Multiple residential, three stories or higher; heavy commercial or heavy industrial	2,500 gpm
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~~Except as provided in Section VIII 1. (b) below, cost of facilities to meet the governing fire flow standards shall be advanced or contributed in accordance with the utility's tariffs by the party requesting such facilities, unless assumed by the fire protection agency under a signed written agreement.~~

### **B. Grandfathering**

- (1) An existing main which is adequate to provide residential, commercial, or industrial service, but is not sized for the required fire flow, need not be modified for an additional service connection of the same land use classification when no main extension is involved, unless local authority determines that there is increased exposure of life and property to fire hazards.
- (2) Modification of a main to meet requirements set forth under "Land Use" is required for a new land use requiring higher fire flow. No modification is required when existing apartments, receiving service, are converted to condominiums without change of use unless higher fire flows are required by a government agency.

### **3.(b) Replacement of Mains**

- A. The utility shall not be responsible for modifying or replacing at its expense an existing main, which is otherwise adequate, to provide increased fire flow.
- B. However, when the utility initiates the replacement of an existing main, the replacement main, if used or useful for fire protection purposes, shall be constructed at the expense of the utility and be sized to accommodate the governing fire flow standard.

## VIII. Operations and Maintenance

### **4.2. Flow Tests.**

The flows set forth in ~~paragraph 1 in the above table~~ are to be calculated on the basis of a residual pressure of 20 p-s-i-g. in the distribution system under flowing conditions.

### **5.3. Fire Hydrants.**

Fire hydrants shall be attached to the distribution system at the locations designated by the agency responsible for their use for fire fighting purposes. Any new mains to which a hydrant may be attached shall be not less than six inches in diameter.

### **4. Fire Hydrant Service Agreement.**

~~The Commission encourages all water utilities to provide fire hydrant service by agreement between the utility and the fire protection agency responsible for the use of the hydrants. Each water utility is expected to make all reasonable efforts to make or renew agreements advantageous to the utility and its customers.~~

### **6. Fire Protection Service Agreement.**

- A. *In accordance with Public Utilities Code Section 2713, "No water corporation subject to the jurisdiction and control of the commission... shall make any charge upon any entity providing fire protection service to others for furnishing water for such fire protection purposes or for any costs of operation, installation, capital, maintenance, repair, alteration, or replacement of facilities related to furnishing water for such fire protection purposes within the service area of such water corporation, except pursuant to a written agreement with such entity providing fire protection services."*
- B. *The Commission therefore encourages all water utilities to form such agreements with entities providing fire protection services. Each water utility is expected to make all reasonable efforts to make or renew agreements advantageous to the utility and its customers.*
- C. When such written agreement is entered into between the utility and the fire protection agency which requires the utility to be responsible for all or any portion of the capital expenditures or

## VIII. Operations and Maintenance

maintenance costs associated with providing fire hydrant *protection* service, such expenditures and costs may be included by the utility in its general plant accounts and operating expenses for ratemaking purposes.

- D.* The utility may bill the fire protection agency for fire hydrant *protection* service charges only under written agreement with the agency that it will pay such charges. Fire hydrant *protection* charges made under written agreement will also be included in revenues for ratemaking purposes.
- E.* In the absence of any written agreement between the utility and the fire protection agency, the utility will be responsible for maintaining fire hydrant *protection* service to the extent of its means. All cost associated with providing this service may be included for ratemaking purposes.
- F.* Fire hydrant *protection* service agreements between the fire protection agency and the utility ~~which deviate materially from a standard fire hydrant service agreement on file in the utility's~~ tariffs shall be submitted by advice letter in accordance with General Order 96-A.

## VII. Operations and Maintenance

### VII. Operations and Maintenance.

#### 1. **Operations and Maintenance Plan (O&M Plan).**

##### **A. All water and sewer systems should have an O&M Plan.**

- (1) *The O&M Plan shall consist of a description of the utility's treatment plant performance monitoring program, unit process equipment maintenance program, operating personnel, including numbers of staff, certification levels and responsibilities; how and when each unit process is operated; laboratory procedures; procedures used to determine chemical dose rates; records; response to plant and watershed emergencies; and reliability features.*
- (2) *Upon the Commission's request, the utility shall supply the O&M Plan.*

##### **B. The O&M Plan shall include at a minimum the following:**

- (1) *The operations and maintenance schedule for each unit process for each treatment plant that treats an approved surface water;*
- (2) *The operations and maintenance schedule for each groundwater source and unit process;*
- (3) *The schedule and procedure for flushing dead end mains, and the procedures for disposal of the flushed water including dechlorination;*
- (4) *The schedule for routine inspection of reservoirs, and the procedures for cleaning reservoirs;*
- (5) *The schedule and procedures for inspecting, repairing, and replacing water mains;*
- (6) *The plan for responding to emergencies as described below: Emergency/Disaster Response Strategy*
- (7) *The plan and procedures for responding to consumer complaints;*

## VII. Operations and Maintenance

- (8) *The schedule and procedures for testing backflow prevention assemblies;*
- (9) *The schedule and procedures for routine exercising of water main valves;*
- (10) *The schedule and program for maintenance and calibration of source flow meters;*
- (11) *The qualifications and training of operating personnel;*
- (12) *The program for biofilm control in water mains;*

### **C. Updates**

*Each Class A and B water system shall update its O&M Plan at least once every five years, and, in addition, following any change in the method of treatment or any other modification to the system requiring a change in the system's size.*

## **2. Emergency/Disaster Response Strategy (E/DRS).**

*In order to provide reliable water service and minimize public health risks from unsafe drinking water during emergencies, the Commission requires all water utilities to have an E/DRS and that it will be provided to the Commission upon request.*

- A. *The E/DRS will address all disasters likely to occur in the water system's service area including but not limited to the following: earthquakes, major fire emergencies, flooding, water outages and water contamination.*
- B. *The E/DRS should also include a set of actions to be implemented in case of any other natural disaster not aforementioned or due to threat to the system's security from either domestic or foreign terrorist activities.*
- C. *No person shall operate a public water system without, as part of its E/DRS, an Emergency Notification Plan that has been submitted to and approved by the DEPARTMENT.*
- D. *At a minimum the Emergency Notification Plan shall provide for immediate notice to the customers of the public water system of any significant rise in the bacterial count of water or other failure to comply with any primary drinking water*

## VII. Operations and Maintenance

*standard that represents an imminent danger to the health of the water users*

- E. *As a minimum, all water and sewer systems must:*
- (1) *Designate responsible personnel, provide a clear chain of command, and identify responsibilities.*
  - (2) *Include an inventory of system resources used for normal operations and available for emergencies. This information should include maps and schematic diagrams; lists of emergency equipment; equipment suppliers; emergency contract agreements; and emergency water interconnections and/or sources.*
  - (3) *Include a communication network, appropriate for the size and type of water system, that describes a designated location for an emergency operations center; emergency contact information for equipment suppliers; emergency phone and radio communication capabilities; coordination procedures with governmental agencies for health and safety protection, technical, legal, and financial assistance; and public notification procedures.*
  - (4) *Include emergency procedures to quickly assess damage to water system facilities; provide logistics for emergency source activation and repairs; monitor progress of repairs and restoration; communicate with health officials and water users; and document damage and repairs.*
  - (5) *Describe the steps taken to resume normal operations and to prepare and submit reports to appropriate agencies.*

### **3.10 Records and Reports**

*See Appendix B for retention schedules.*

#### **A. System Maps.**

~~Each utility shall~~*All water and sewer service utilities will have on file at its principal office located within the state, drawings, maps or other permanent records for the purpose of aiding in the operation of the water system. The scale of such maps or*

## VII. Operations and Maintenance

~~drawings shall be such that all data recorded thereon shall be clear and legible. These records, unless the Commission otherwise authorizes, shall show the following: its service territory “as built” plans, maps or drawings of all water system facilities. The plans, maps, or drawings shall be clear and legible. At a minimum these records will include:~~

- (1) Location of all principal pumping stations, diversion works, water treatment and filter plants, sources of supply, storage facilities, size, character and location of all mains and ditches, including valves and gates, gauges, interconnections with other systems and fire hydrants.
- (2) Location, size and ~~kind~~ *material* of each *user* service pipe
- (3) ~~Layout~~ *A schematic drawing or map* of all principal pumping stations, water treatment and filter plants to show size, location and character of all major equipment, pipelines, connections, valves and other equipment used in connection ~~therewith~~ *with the system*.
- (4) The date of construction of all principal plant items and ~~extensions of the~~ *main extensions*.

### **B. Results of laboratory analyses.**

*Samples taken pursuant to water quality issues including but not limited to: disinfection of new or repaired mains and disinfection of reservoirs or wells, records of flushing of mains; and records of reservoir inspections and cleaning shall be maintained for at least three years.*

### **C. Updated records.**

*The plans, drawings, and maps prepared pursuant to subsection B shall be updated as changes occur, and maintained until replaced or superseded by updated plans or drawings. The most current plans, drawings, and maps shall be available for Commission review.*

## VII. Operations and Maintenance

### 4. Flushing the System.

- A. *A flushing valve or blowoff shall be provided at the end of each newly installed dead-end water main.*
- B. *Flushing valves and blowoffs shall not discharge to a sanitary sewer without an air gap separation between the sewer and the valve or blowoff.*
- C. *The flushing velocity in the main shall not be less than 2.5 ft/s unless it is determined that conditions do not permit the required flow to be discharged to waste.*
- D. *New flushing valves and blowoffs shall be designed to maintain the minimum continuous flushing flows as indicated below to produce a minimum velocity of 2.5ft/s in commonly used sizes of pipe.*
- E. *Minimum Flushing Flows for Different Size Water Mains.*

<i>Nominal Main Size</i>	<i>Minimum Flushing Flow</i>
<i>Diameter (inches)</i>	<i>(gallons per minute)</i>

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2 .....	25
3 .....	50
4 .....	100
6 .....	225
8 .....	400
10 .....	600
12 .....	900
16 .....	1600

### 5. Water Treatment Operators.

#### A. General.

*Water Treatment Facility Staff Certification is listed as Per Articles 1 through 5 of Title 22, Division 4, Chapter 13, and Article 2 of Title 22, Division 4, Chapter 15 (or current regulations):*

- (1) *A person wishing to become a certified water treatment or distribution operator must meet the eligibility requirements and submit an application.*

## VII. Operations and Maintenance

- (2) *Operator examinations, re-examinations, certifications, and triennial renewal have associated fees that must be paid.*

### **B. Treatment Facility Operator Certification:**

- (1) *Each classification of treatment facility has its own chief and shift operator certification requirements. Exceptions are made for shift/chief operators who qualify for a deferral of certification under the regulations.*
- (2) *Operator Certification Grades I through V obtained as of December 31, 2000 are reclassified into a new set of Operator Certification Grades.*

### **C. Distribution System Operator Certification.**

- (1) *Each classification of distribution system has its own chief and shift operator certification requirements.*
- (2) *Certain decisions regarding operational activities such as installation of water mains, repair of broken water mains, flushing of water mains, and disinfection of domestic water wells, must be made by certified distribution operators.*
- (3) *A distribution operator may be eligible for an interim, temporary, or restricted certification if she or he meets the established criteria.*

## **6.3. Pressures**

**A.a. Variations in Pressure.** ~~The utility shall maintain normal operating pressures of not less than 40 p. s. i. g. Each~~ *Each distribution system shall be operated in a manner to assure that the minimum operating pressure at each service connection throughout the distribution system is not less than 40 pounds per square inch at all times nor more than 125 psi at the service connection, except that during periods of Peak Hour Demand (PHD) hourly maximum demand the pressure at the time of peak seasonal loads may be not be less than 30 psi and that during periods of hourly minimum demand the pressure may be not more than 150 psi. Subject to the minimum pressure requirements of 40 psi, variations in pressures under normal*

## VII. Operations and Maintenance

operation shall not exceed 50% of the average operating pressure. The average operating pressure shall be determined by computing the arithmetical average of at least 24 consecutive hourly pressure readings.

- ~~b. Main Sizing. As new mains are installed or as mains which have reached the end of their useful lives are replaced, the new or replacement mains shall be sized and designed to accommodate the standards of paragraph H 3 a.~~
  
- ~~c. Delineation of Minimum Normal Operating Pressures. Other minimum normal operating pressures are applicable within delineated areas as set forth on the utility's Commission-approved tariff sheets.~~

### **B. New Systems**

*Each new distribution system shall be designed to provide a minimum operating pressure throughout the distribution system of not less than 40 pounds per square inch at all times.*

### **C. Changes in distribution systems**

*Changes shall be designed to maintain an operating pressure at all service connections of not less than 30 psi under the following demand conditions:*

- (1) User maximum hour demand.*
- (2) User average day demand plus local fire flow.*

### **D. Waivers**

*In a public water system supplying users at widely varying elevations, a water supplier may furnish a service to a user that does not comply with Rule A above if the user is fully advised of the conditions under which minimum service may be expected and the user's agreement is secured in writing. This waiver shall be applicable only to individual service connections.*

## VII. Operations and Maintenance

### **E. Hydraulic Analysis of the Transmission and Distribution System.**

- (1) *To ensure reliable compliance with pressure standards under daily, peak daily and peak monthly demands, a hydraulic analysis of the transmission and distribution system must be conducted if the system is proposing to expand its existing distributions system within a ten year planning period, or the system is currently experiencing pressure problems.*
- (2) *One accepted analysis is found in AWWA Manual M32. A pressure survey of the system would be an acceptable alternative to the hydraulic analysis as long as the plan for conducting the survey is approved by the Department before the survey is conducted.*

### **F. Delineation of Minimum Normal Operating Pressures.**

Other minimum normal operating pressures are applicable within delineated areas as set forth on the utility's Commission approved tariff sheets.

### **G.d. Pressure Gauges.**

Each utility shall provide itself with one or more recording pressure gauges for each separately operated system for the purpose of making pressure surveys as require by these rules. These gauges shall be able to record the pressure experienced on such a system and shall be able to record a continuous 24-hour test. Each utility serving 1000 or more customers in a separately operated system or 1000 or more customers in any separately operated system of a multi-system utility shall maintain one or more of these recording pressure gauges in service at some representative point or points on the utility's system.

### **H.e. Pressure Surveys.**

- (1) At regular intervals, but not less than once each year, each utility shall make a survey of pressures in its distribution system of sufficient magnitude to indicate the

## VII. Operations and Maintenance

pressures maintained at representative points on its system.

- (2) *These representative points must include all endpoints of the system. Such surveys should be made at or near the period of ~~maximum usage~~ PHD and MDD. The pressure charts for these surveys shall show the date and time of beginning and end of the test and the location at which the test was made.*
- (3) *Records of these pressure surveys shall be maintained by the utility for a period of at least three years or after the next General Rate Case filing, which ever is longer, and shall be made available to representatives, agents or employees of the Commission upon request.*

## 7. Relations with Customers

### A. General.

- (1) *Consumers expect and should receive service that is consistently adequate, reliable, and safe. Utility industry developments over the past decade such as mergers, diversification, and changing economic conditions have encouraged utilities to cut costs, reduce staffs and outsource some utility operating functions, and such efforts to economize may have led to deterioration of service quality. A gradual decline in performance may not be detected for some time if regulators do not keep informed as to service quality through regular monitoring. By keeping informed, regulators are better able to recognize signs of deterioration and inadequacies so that they can take corrective action to avert major service quality problems that would otherwise be frustrating and disruptive to consumers.*
- (2) *Standardized reporting requirements and regular reporting are necessary for regulators to be able to monitor service quality and changes in performance. Reports should address performance areas such as customer relations and billing (e.g., responsiveness of customer call centers, responsiveness to consumer*

## VII. Operations and Maintenance

*complaints, timeliness of installations and repairs, and accuracy and frequency of billing and meter reading) and operating performance (e.g., frequency and duration of outages, and responsiveness to safety calls).*

- (3) *Reporting requirements should be carefully designed to yield accurate data that is uniform and consistent. In addition to keeping informed about service quality, regulators should establish measurable performance standards that must be met for providers to achieve and maintain a minimum quality of service, to the extent that quality of service is measurable, so that expectations are clear and problems are minimized. Performance standards should be supported by appropriate enforcement provisions. Service quality data and information should be available to the public to encourage companies to achieve good performance results, and to assure that regulation is open and effective.*

### **B. Reporting**

- (1) *Reporting periods shall be calendar quarters, with quarterly reports submitted to the CPUC by the last day of the month following the end of each quarter.*
- (2) *Performance results shall be aggregated monthly and quarterly, and shall be reported quarterly to the CPUC.*
- (3) *Quarterly reports shall include both monthly and quarterly averages. Quarterly averages shall be derived from raw data, not by averaging monthly averages.*
- (4) *Achievement of minimum standards for purposes of calculating service quality compensation shall be determined on the basis of a 12-month average. Service quality compensation shall be calculated annually in the month following the anniversary of the effective date of the Plan. A minimum performance standard shall be considered met if the 12-month average upon the anniversary of the effective date of the Plan was met or was better than the standard.*

## VII. Operations and Maintenance

- (5) *Notwithstanding Paragraph (4), where quarterly performance is more than ten percent worse than any standard, or where performance does not meet any standard for two consecutive quarters, the Utility shall within 30 days of the end of the quarter in which this provision is triggered, submit a corrective action plan indicating how it will remedy the failed standard.*
- (6) *Performance shall be evaluated and reported to one decimal place for all performance areas unless otherwise specified. Actual performance shall be rounded up when the relevant decimal place is 5 or more. The Utility shall retain all of its reports that support the results for each of the performance areas for a period of not less than 24 months after the results are reported. The Utility shall provide these reports upon request to the CPUC.*
- (7) *The Utility shall review with the CPUC any change to the Utility's measurement protocol or to the internal reporting methods that are used to obtain the data measured prior to the Utility's implementation of such changes.*
- (8) *The utility shall report missing data or other events that could reasonably affect the quality of the data at the time the Utility becomes aware of such events. Any data reported to the CPUC that reflects significantly altered measurement procedures or internal data acquisition methods that have not been agreed to between the Utility and the CPUC shall be subject to challenge and potential exclusion from results.*
- (9) *The Utility may seek a waiver of any applicable performance standard from the CPUC. A waiver may only be granted where the circumstances causing the failure were beyond the Utility's control, and the Utility can demonstrate that its level of preparedness and response was reasonable in light of the cause of the failure.*

## VII. Operations and Maintenance

### C. Telephone Performance Standards

*All water and sewer service utilities with adequate call handling equipment shall develop (a) a new quarterly report that provides California-specific statistics, by district, from the national call center and that breaks out type of calls and final disposition of all complaints; and (b) a new quarterly report on all complaints received at district and regional levels and their final disposition. These reports shall be filed on a quarterly basis with the Commission's Consumer Service and Information Division (CSID), and Division of Water and Audits.*

#### *(1) Call answer performance measures*

*Call Answering Service Level: Percentage of customers not reaching a utility representative within 20 seconds during normal business hours.*

[CAEM (Center for Advancement of Energy Markets & Navigant Study("Customer Service Quality Standards in the Utilities Industry", 12/03: <http://www.caem.org/website/pdf/CSQ.pdf>) cites the NARUC Staff Subcommittee Model Rules with a propose standard of 90/20 (90% answered in 20 seconds). Navigant indicates current utility industry practice is about 70/30, and that 80/30 is still better than median industry performance. So the 75% standard proposed here could be sufficient, although some might argue for 80%. Ideally, the performance standard would vary with customer type and reason for call.]

*Performance shall be calculated as follows:*

*Number of calls not reaching a utility rep within 20 seconds*

*Number of attempts to reach a utility rep*

*Performance measure:  $\leq 25.0\%$*

[According to TARP (Technical Assistance Research Program, a service quality assoc.) customer satisfaction with service calls does not decrease significantly until after 60 seconds on hold. This should generally apply to the utility industry, in which case the standard could be somewhat lower than proposed here (75/20).]

*Source of data: The standard shall be measured by using data obtained from the Utility's automated call distribution system (ACD). The data will include all calls reaching the ACD during the*

## VII. Operations and Maintenance

*normal business hours. For the first four reporting quarters this standard shall be excluded from the calculation of service quality compensation. Apparently this service quality standard does not reflect calls handled entirely by an automated system (with no need for connection to a human attendant).*

- (2) *Abandon rate, normal business hours: Percentage of calls abandoned before reaching a Utility representative during normal business. NARUC's Model Rules propose Abandonment rate not higher than 5%. However, Navigant considers Abandon rate to be redundant and misleading. In some cases, such as during outage events, abandonment of calls by customers before receiving a live answer can be desirable.*

*Performance shall be calculated as follows:*

*Number of calls abandoned/Number of attempts to reach a utility rep*

*Performance measure:  $\leq 5.0\%$ .*

*Source of data: The standard shall be measured by using data obtained from the Utility's ACD.*

- (3) *Abandon rate, after normal business hours: Percentage of calls abandoned before reaching a utility representative after normal business hours.*

*Performance shall be calculated as follows:*

*Number of calls abandoned/Number of attempts to reach a utility rep*

*Performance measure:  $\leq 15.0\%$*

*Source of data: The standard shall be measured by using data obtained from the Utility's ACD.*

- (4) *Blocked Calls to the Utility: Percentage of calls blocked (receive a busy signal). Performance shall be calculated as follows:*

*Number of overflow calls/Total number of calls*

*Performance measure:  $\leq 3.0\%$ .*

## VII. Operations and Maintenance

*Source of data: A call is deemed to have been blocked when it is classified as an “overflow” call from the utility’s telecommunications provider. The standard shall be measured by using data that is provided by the Utility’s telecommunication provider.*

[Are emergency calls held to the same service standards, or should they have a high standard? If so, how can they be separately accounted for so as to ensure they are meeting the higher standard?

Are the incremental benefits of each of these standards higher than the incremental costs required, and thereby economically justifiable?

Both Navigant and TARP assert that Response Effectiveness is best measured by 1) customer satisfaction with a call transaction, and 2) first call resolution. According to the editor of the Call Centres website in Australia ([http://callcentres.com.au/first\\_call\\_resolution.htm](http://callcentres.com.au/first_call_resolution.htm)), the failure to resolve on the first call accounts for about 30% of all operational costs. Consequently, call centers have the incentive to resolve first calls to reduce expenses \*and\* to better serve their customers. But there is wide discrepancy on how to most accurately measure “first call resolution”. See this link from the International Call Mgmt. Institute website:  
<http://www.incoming.com/WebModules/QueueTips/Question.aspx?ID=51>

### **D. Response to consumer and regulatory complaints:**

- (1) *The Utility shall provide a substantive response to consumer complaints expressed directly to the utility within 5 business days of receipt by any method of contact for billing complaints and within days 14 calendar days for non billing complaints.*
- (2) *The Utility shall provide a substantive response to consumer complaints from the CPUC within 5 calendar days.*
- (3) *If the Utility needs additional time to respond fully to a complaint from a consumer or from the CPUC, the Utility shall within the initial response period request a specific additional time for response and shall provide a full resolution within the requested additional time.*

## VII. Operations and Maintenance

### E. Billing Performance Standards

- (1) *Percentage of bills not rendered monthly: Percentage of bills not rendered within seven days of the scheduled billing date. Performance shall be calculated as follows:*

*Number of bills not rendered within seven days of the scheduled billing date/Total number of bills scheduled to be rendered*

*Exclusions: The measurement will exclude accounts that were activated within 10 days prior to the normal billing cycle; accounts that are scheduled to receive a final bill within 10 days after the normal billing cycle; off-system sales; utility use accounts.*

*Performance measure:  $\leq .10\%$*

*Source of data: This standard shall be measured by using data obtained from the Utility's Customer Information System. Results shall be reported to the second decimal place.*

- (2) *Bills found inaccurate: Percentage of bills found inaccurate after being sent to customers, brought to utility's attention either as result of customer complaints and/or by the utility's own efforts. Performance shall be calculated as follows:*

*Number of bills rendered inaccurately for the month/Total number of bills rendered for the billing month*

*Exclusions: This standard does not include bills found to be inaccurate strictly as result of estimation, bills where the inaccuracy does not effect the calculation of the bill, or where the fault does not lie with the utility. Multiple bills for a customer that are caused by the same error shall be counted as one incident.*

*Performance measure :  $\leq .10\%$*

*Source of data: This standard shall be measured by using data obtained from the Utility's Customer Information System. Results shall be reported to the second decimal place.*

## VII. Operations and Maintenance

- (3) *Payment posting complaints: Percentage of customers filing complaints ultimately classified as escalations to the utility or CPUC concerning the posting of their payments to their accounts. Performance shall be calculated as follows:*

*Number of customers complaining about payment posting/Total number of customers*

*Performance measure:  $\leq .0050\%$*

*Source of data: This Standard shall be measured by using data obtained from the Utility's Complaint Tracking System, Customer Information System (CIS) and the CPUCs Consumer Affairs Tracking System. The complaint tracking system currently includes a complaint type for payment processing. Complaints regarding payment options will be excluded from this measurement. Standard shall be measured and reported to the fourth decimal place.*

### **F. Meter Reading Performance Standards**

- (1) *Percentage of actual meter readings per month: Percentage of meters not read each month in relation to the number that were scheduled to be read. Performance shall be calculated as follows:*

*Number of scheduled meters not read/Number of meter readings scheduled*

*Performance measure:  $\leq 10.0\%$*

*Source of data: Data shall be obtained from the Utility's Customer Information System.*

*Would we want to have a standard for AMR, or will this be handled elsewhere? Should there be a minimal and maximum standard for frequency of meter readings?*

### **G. Work Completion Performance Standards**

- (1) *Keeping Appointments: The utility will inform the customer whether the utility representative will be at the customer's premises within a four hour window. The*

## VII. Operations and Maintenance

*utility must inform the customer more than 12 hours prior to the meeting if the meeting time must be changed.*

*Final Read and Final Bill: The utility is required to read the customer's meter on the day the customer specifies so long as five (5) days notice is given. The utility will provide a final bill within 14 days of the meter read.*

*Meter Installation: The utility will provide a meter box if necessary and meter a customer who requests a meter within 30 working days of the request.*

*Meter Exchange: If the utility needs to change out a meter it will leave written details of the date of the change, meter readings on the day and the serial numbers of the old and the new meter.*

*The utility must correct all problems that result from the flooding of sewers within 24 hours of being informed of the flooding event.*

*Percentage of customer requested work not completed on or before promised delivery date: The percentage of jobs resulting from customer requests for new service line installations, meter installations, meter turn-ons, meter read-over, disconnects and reconnects (collectively "customer orders") that are not completed on or before the promised completion date. For purpose of this measure, a new service is one requested for a premise where the proposed meter location is within 150 feet of an existing, water main. Performance shall be calculated as follows:*

*Number of customer orders not completed on or before promised delivery date/Total number of customer orders promised and completed in the reporting month*

*Exclusions: When an event outside of the utility's control occurs resulting in the work not being completed as promised, utility will renegotiate the promised delivery date with the customer. Renegotiated customer orders will be reported as completed on or before' \_\_\_\_\_ based on the new renegotiated date not the original date.*

*Performance measure: <=5.0%*

## VII. Operations and Maintenance

*Source of data: For all customer orders excluding service line installation, data shall be obtained from the Utility's Customer Information System. When a customer calls for included work, a service request is created for the date promised to the customer. Reports are generated monthly of all meter orders closed during the prior month and are reviewed for the following exclusions: (1) delayed at the customer's request or because the customer was not ready for the work to be performed, (2) meter order request not the result of a customer request but rather an internal request for meter order work, (3) non-regulated business activities. For service line installations the data shall be obtained from the Utility's work order system. For each service line installation a "promise date" will be agreed to by the Utility and customer and recorded in the Utility's work order system.*

- (2) *Average number of days after the missed delivery date: Average number of days after the missed delivery date in which utility was to complete work covered under 4a above. Performance shall be calculated as follows:*

*Total days of delay/Total number of delayed jobs in the reporting month*

*Exclusions: When an event outside of the Utility's control occurs resulting in the work not being completed as promised, the Utility will renegotiate the promised delivery date with the customer.*

*Performance standard:  $\leq 5$  days.*

*Source of data: For all work covered in 4a above except for service line installations, data shall be obtained from the Utility's Customer Information System. When a customer calls for included work, a service request is created for the date promised to the customer. Reports are generated monthly of all meter orders closed during the prior month and are reviewed for the following exclusions: (1) delayed at the customer's request or because the customer was not ready for the work to be performed, (2) meter order request not the result of a*

## VII. Operations and Maintenance

*customer request but rather an internal request for meter order work, (3) non-regulated business activities.*

*For service line installations the data shall be obtained from the Utility's work order system. For each service line installation a "promise date" will be agreed to by the Utility and customer and recorded in the Utility's work order system.*

### H. Customer Satisfaction Measures

- (1) *Transactional customer satisfaction: Percentage of customers who rate the utility with a 4 or a 5 following customer-initiated contact with the utility (report, request, inquiry, customer requested work and complaint resolution).*

*Performance measure:  $\geq 80\%$ . Deviation from the baseline for this measure shall be calculated dividing the number of points of deviation from the baseline by 20 rather than 80 in order to convert the measure to its inverse.*

*Exclusions: The performance standard shall be considered met if performance falls within the survey margin of error.*

*Source of data: Survey conducted by an independent, third-party contractor performing four quarterly surveys of customers who have contacted the utility with a report, request, inquiry, complaint or request for work in order to assess the level of satisfaction with the transaction. The Utility will allow the CPUC to review and have input into any changes it may propose to implement.*

- (2) *Overall customer satisfaction: Percentage of customers rating the utility 5 or 6, or 7 on the aggregate of two customer satisfaction survey questions.*

*Performance measures:  $\geq 80\%$ . Deviation from the baseline for this measure shall be calculated dividing the number of points of deviation from the baseline by 20 rather than 80 in order to convert the measure to its inverse.*

## VII. Operations and Maintenance

*Exclusions: The performance standard shall be considered met if performance falls within the survey margin of error.*

*Source of data: Survey conducted by an independent, third-party contractor performing an annual survey of a sample of the Utility's customers.*

*The Utility will allow the CPUC to review and have input into any changes it may propose to implement.*

*(3) Rate of complaints to CPUC Consumer Affairs: Percentage of customers who file complaints with the CPUC that are ultimately classified as escalations following investigation. Performance shall be calculated as follows:*

*Number of escalations/Total number of customers*

*Performance measure:  $\leq .07\%$*

*Source of data: Data shall be obtained from the quarterly reports provided by the CPUC to the utility from the CPUC Consumer Affairs Tracking System. Results shall be reported to the second decimal place.*

### **I. Worker Safety Performance Measures:**

*(1) Lost Time Incident Rate: The number of lost time cases experienced by the Utility in a calendar year, multiplied by 200,000 and divided by the total hours worked by Utility employees.*

*Number of lost time cases x 200,000/Total hours worked by utility employees*

*Performance measure:  $\leq 3.5$*

*Source of data: Lost time cases are the total number of incidents that cause an injury that results in the employee missing work as a result of an injury sustained while performing work for the utility. Lost time cases are recorded in column H on the OSHA Form 300A that is maintained by the Utility's Human Resources Department.*

## VII. Operations and Maintenance

- (2) *Lost Time Severity Rate: The number of employee lost days experienced by the Utility for a calendar year, multiplied by 200,000 and divided by the total hours worked by Utility employees.*

*Number of employee lost days x 200,000/Total hours worked by the Utility employees*

*Performance measure: <=30 days*

*Source of data: Employee lost days are the total number of calendar days missed by employees as a result of an injury sustained while performing work for the utility. Employees lost days are recorded in column K on the OSHA Form 300A that is maintained by the Utility's Human Resources Department.*

### J. Reliability Performance Standards

- (1) *Meter Accuracy: This standard measures the percentage of meters not accurate within a threshold of 98-102%. No more than 5% of the utility meters shall fall outside an accuracy threshold of 98-102% as measured by meter in-test data describing open-rate meter test performance, except that, as appropriate on larger meters, performance shall be measured by check-rate meter test. The utility shall report meter accuracy percentages broken down by the following ranges: percent of meters accurate to <98%, >=98% and <100%; >=100% and <=102%; and >102%. Deviation from the baseline shall be measured as the percent of tested meters that fail to fall within the accuracy threshold.*

*Performance measure: <=5.0%*

*Source of data: Meter test records as maintained and compiled by the Utility's Operations Department.*

- (2) *Underground Damage Prevention Statistics: The Utility shall comply with the Underground Damage Prevention Law(Is this a Vermont law?). Non-compliance shall be measured as follows:*

- (a) *Non-compliance when the utility is the excavating party will be measured as the utility's*

## VII. Operations and Maintenance

*underground Damage Prevention Law  
Offenses/Total number of outgoing requests to Dig  
Safe*

*Performance Measure: 0%*

*Source of data: Data shall be obtained from the  
Utility's Operation's Department.*

- (b) *Non-Compliance when the utility is the marking  
party will be measured as:*

*Number of times the utility failed to mark or  
mismarked its pipelines/Total Number of incoming  
notifications from Dig Safe*

*Performance Measure: .1%*

*Source of data: Data shall be obtained from the  
Dig Safe System.*

- (c) *The utility shall file all "Underground Facility  
Damage Prevention Reports"???*

*Performance Measure: 0 occurrences of the  
CPUC finding a violation of this requirement*

*Source of data: Data shall be obtained from  
CPUC violation notices.*

### **K. Service Guarantees**

- (1) *The Utility shall offer the following service guarantees:*

(a) *Bills not rendered: The Utility shall provide a  
credit of \$10 to any retail customer whose bill is  
not rendered within 7 days of the customer's  
scheduled billing cycle. In the event of systemic  
errors that affect in excess of 500 customers in the  
same manner and the same incident (such as  
programming errors), the amount of service  
guarantees shall be capped at \$5000 per incident.  
The \$5000 shall be divided equally among all  
affected customers.*

(b) *Bills found inaccurate: The utility shall provide a  
\$10 credit if a retail customer's bill is determined*

## VII. Operations and Maintenance

*to be inaccurate (see above III.2.B) as result of a customer complaint or found to be inaccurate by the utility after the bill has been sent to the customer. In the event of systemic errors that affect in excess of 500 customers in the same manner and the same incident (such as programming errors), the amount of service guarantees shall be capped at \$5000 per incident. The \$5000 shall be divided equally among all affected customers. Bills that are inaccurate in the customer's favor where the Utility chooses not to collect are excluded.*

- (c) Service initiation: The Utility shall provide a credit of \$15 to any customer whose service is not initiated within three business days of the requested date or five days if the initiation requires access to the inside of the customer's premises. Service initiation means the meter is turned on and the account for the meter is in the new customer's name.*
- (d) Final meter reads: The Utility shall provide a credit of \$10 to any customer whose final meter reading does not occur within three business days of the requested date.*
- (2) All credits owed to customers as a result of the Utility failure to meet the service guarantees described above will automatically be credited without the customer having to notify the Utility. In the event a customer who is due a credit no longer has an account with the Utility at the time the utility determines a credit is due, the Utility shall mail a check for the credit amount to the customer's last known address. All unclaimed funds will follow legal requirements regarding abandoned property.*

### **L. Asset management requirements**

- (1) Due to the water industry's long life infrastructure and high fixed costs, the effective management of the planning, construction, maintenance and operation of*

## **VII. Operations and Maintenance**

*assets is a critical component in delivering good customer service and ensuring the ongoing viability of water services.*

- (2) *Effective asset management helps achieve or maintain service and other business performance requirements, manage risks and improve efficiency. To support the asset management system requirements all utilities shall have regular independent third party reviews conducted of their asset management system to ensure the proper maintenance of their assets.*

### **M. Customer Service Conditions**

*Each utility shall make available to its customers a charter detailing services offered, standards, customer rights, information on obtaining emergency assistance, and how they can make suggestions or complaints.*

**Appendix A      *Non Potable Water Systems***

**Sections of Rules Governing Water Service Including Minimum Standards for Design and Construction which shall be applicable to utility water systems supplying water not intended or claimed to be potable from ditches, canals or other conduits.**

Section I – General

All paragraphs of the section, except (2), (3), and (4) of paragraph 10a.

Section II – Standards of Service

Paragraphs 2 and 4 of this section, except that paragraph 2c shall not apply to scheduled interruptions as provided in applicable tariffs.

Section III – Standards of Design

None.

Section IV – Standards of Construction

Section V – Extension of Service

Paragraph 2a (1) of this section

Section VI – Measurement of Service

All paragraphs of the section, except when sales are measured by other than displacement meters as provided in applicable tariff schedules only paragraphs 1, 3a and e, 5, 6a, 7a, e and f and 8 shall apply.

Section VII – Rates and Billing

All paragraphs of the section, except when sales are measured by other than displacement meters as provided in applicable tariff schedules only paragraphs 1, 2 and 3c and d shall apply.

Section VIII – Fire Protection Standards

None

APPENDIX B deleted

CHART 1 deleted

**Appendix B      Records Retentions Schedules**

*REGULATIONS TO GOVERN THE PRESERVATION OF RECORDS OF WATER UTILITIES, CLASSES A, B & C*

1. *General Instructions. The regulations in this Appendix apply to all records prepared by or on behalf of water or sewer system utilities, Classes A, B and C.*
  - a. *The regulations in this part shall not be construed as exclusive compliance with any other lawful requirement for the preservation of records for periods longer than those prescribed herein.*
  - b. *Each water utility subject to the regulations herein shall designate one or more persons and positions with official responsibility to supervise the utility's program for preservation and the authorized destruction of its records.*
  - c. *The water utility shall provide reasonable protection for records subject to the regulations herein. Records shall be arranged in such a manner as to be easily identifiable and accessible to representatives of this Commission.*
  - d. *All methods of storage including but not limited to compact disk, hard drive or floppy disk, microfilm and tape records shall contain labels including the title, date prepared, name of official responsible for validating the data, date of completion, and certification that the records are true and accurate reproductions of the original records.*
  - e. *When records are destroyed or lost before the expiration of the prescribed period of retention, a certified statement listing the records destroyed and prescribing the circumstances of accidental or other premature destruction or loss shall be filed with the Commission within sixty (60) days from the date of discovery of such destruction.*
  - g. *The water utilities to which the regulations herein apply shall assure the availability of records of services performed by associated and affiliated companies for the periods indicated herein, as are necessary, to support the cost of services rendered to it by an associated or affiliated company.*

## APPENDIX B

### SCHEDULE OF RECORDS AND PERIODS OF RETENTION

Description	Retention Period
<i>CORPORATE AND GENERAL</i>	
1. <i>Capital stock records:</i>	<i>6 years after cancellation or other closing of account</i>
2. <i>Proxies and voting lists:</i>	<i>3 years</i>
3. <i>Annual reports or formal communications or statements to stockholders:</i>	<i>Life of corporation</i>
4. <i>Debt security records:</i>	<i>6 years after redemption, payment or cancellation</i>
5. <i>Commission Filings and Authorizations:</i>	<i>25 years or until all securities covered are retired, whichever is shorter</i>
6. <i>Corporate organizational documents:</i>	<i>Life of corporation, except permits, deeds and title documents, retained for 6 years after termination or disposal of property</i>
7. <i>Contracts and agreements (except contracts provided for elsewhere):</i>	<i>6 years with the following exceptions:</i>
(a) <i>Contracts or agreements for the acquisition or disposal of investments (excluding temporary cash investments):</i>	<i>25 years after disposal</i>
(b) <i>Memoranda essential to clarifying or explaining provisions of contracts listed above:</i>	<i>For the same periods as contracts to which they relate</i>
(c) <i>Card or book records of contact, leases, and agreements made, showing dates of expirations and of renewals, memoranda of receipts and payments under such contracts, etc.</i>	<i>For the same periods as contracts to which they relate</i>

## APPENDIX B

8. *Accountants' and auditors' reports, interna land external:* 7 years after date of report or Commission audit, whichever comes last
9. *Data processing records:* Retain original source data for the periods prescribed elsewhere in the schedule; retain all other data as long as part of active program

### GENERAL ACCOUNTING RECORDS

10. *General and subsidiary ledgers and journals; journal vouchers, journal entries (including supporting detail), vouchers and voucher registers:* 50 years
11. *Trial balance sheets of general and subsidiary ledger:* 3 years
12. *Cash books, general and subsidiary or auxiliary books:* 10 years after close of fiscal year
13. *Accounts receivable and supporting records:* 3 years
14. *Records of securities owned, in treasury, or with custodian: (excluding temporary investment of cash):* 6 years after disposal of investment
15. *Payroll records and insurance records:* 6 years, except where information transferred other records, then destroy at option
16. *Assignments, attachments, and garnishments:* Destroy at option
17. *Records of injuries and damages:* 2 years after settlement

### OPERATIONS AND MAINTENANCE

18. *Production of records of sources of supply, pumping, transmission and distribution:* 15 years, except as follows:
  - (a) *Water reports showing purchases and exchanges:* 25 years

## APPENDIX B

- (b) Water treatment records: 10 years*
- (c) Daily dispatch logs: 1 year*
- (d) Customer service records. 5 years*
- (e) Maintenance work and job orders: 6 years*
- (f) Equipment repair records: Life of equipment*
- 19. *Personnel records including employees' benefit and pension records, and operating and procedural instructions issued by the company to employees. 3 years after termination of employment, plan instructions*
- 20. *Plant and depreciation records including plant inventory, drilling, appraisals, engineering records, construction records, and contracts relating to above: 50 years*

### MISCELLANEOUS

- 21. *All purchase and supply records: 6 years*
- 22. *All revenue, accounting and collecting records; 10 years, except as follows;*
  - (a) Where refunds required: 6 years after refund*
  - (b) Documents relating to donations and contributions: 50 years*
  - (c) Published rates and service schedules: 50 years*
- 23. *Tax records: 7 years after settlement*
- 24. *Treasury record (funds, deposits, receipts and disbursementd): Destroy at option after completion of annual audit by independent accountants*
- 26 *All annual reports to the Commission and special reports relating to plant and Life of corporation*

## APPENDIX B

*utility property:*

- |   |   |
|---|---|
| 26. <i>All other reports and documents:</i>               | <i>Destroy at option after regulatory requirements fulfilled.</i> |
| 27. <i>Life or mortality study data for depreciation.</i> | <i>Life of corporation</i>  |

## Appendix C      Calculation of System Demands

*To determine the estimated MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), the following steps should be used. Use the highest frequency of water usage data that is available.*

- (1) *Daily water usage data. Identify the day with the highest usage during the past five years to obtain MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.*
- (2) *Monthly water usage data:*
  - (A) *Identify the month with the highest water usage (“maximum month”) during at least the most recent five years of operation. If the system has been operating for less than five years, the entire period of operation.*
  - (B) *To calculate the average daily usage during the maximum month, divide the total water usage during the maximum month by the number of days in that month.*
  - (C) *To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5.*
  - (D) *To calculate the PHD, multiply MDD by a peaking factor that is a minimum of 1.5.*
- (3) *Annual water usage data:*
  - (A) *Identify the month with the highest water usage (“maximum month”) during at least the most recent five years of operation. If the system has been operating for less than five years, the entire period of operation.*
  - (B) *To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days.*
  - (C) *To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.*
  - (D) *To calculate the PHD, multiply MDD by a peaking factor that is a minimum of 1.5.*
- (4) *If no water usage data is available.*
  - (A) *Utilize records from a system that is similar in size, elevation, demography, residential property size, and metering to determine the average water usage per service connection.*
  - (B) *From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.*

**Appendix D      Calculation of System Supply**

A.    A system shall determine the total capacity of its groundwater sources by summing the capacity of its individual sources; if capacity varies seasonally, it shall be determined at the time of MDD:

    (1) The capacity of a well drilled into alluvial soils shall be determined from existing pumping data or from a pump test conducted as follows:

        (A) Pump the well continually using a constant rate of water discharge;

        (B) Take measurements of the water level drawdown at least one hour apart;

        (C) Plot the drawdown measurements against the logarithm of time elapsed since the beginning of the pump test; and

        (D) Pump until at least four consecutive drawdown measurements and the elapsed time yield a straight line in the plot developed pursuant to subparagraph (C).

    (2) The capacity of a well drilled in hard rock shall be determined from existing pumping and drawdown data covering a period of at least ten years or one of the following pump tests initiated during August, September or October:

        (A) Pump the well continuously for a minimum of 72 hours;

            1. Take measurements of water drawdown and pumping rate every four hours;

            2. Pump until the water drawdown level is constant for at least four measurements;

            3. To calculate the assigned well capacity, the pumping rate at the fourth of the measurements in subsubparagrph 2. shall be multiplied by 25%.

        (B) Pump the well continuously for a minimum of 10 days;

            1. Take measurements of water drawdown and pumping rate every four hours during the first four days, daily for the next four days, and every four hours for the remaining days;

            2. Pump until the water drawdown level is constant for at least four measurements;

            3. To calculate the assigned well capacity, the pumping rate at the fourth measurement collected per subsubparagrph 2. shall be multiplied by 50%.

    (3) The assigned well capacity based on a pump test may be revised based on actual pumping data collected for five years.

B.    The source capacity of a surface water supply or a spring shall be the lowest daily volume of water flow based on five years of data, if available, or contracts for water rights.

C.    The source capacity of a purchased water connection shall be the volume available during MDD.

**Appendix E      TMF Criteria Checklists**

*On January 1, 1998, State regulations became effective requiring that all new public water systems and systems changing ownership demonstrate adequate Technical, Managerial and Financial (TMF) capacity in order to obtain a permit to deliver pure, wholesome, and potable drinking water.*

*Voluntary TMF Capacity Development Program. Public water systems will choose to participate in achieving the TMF capacity requirements on a voluntary basis because of benefits of the program. Public water systems that volunteer to improve their TMF capacity will more consistently comply with regulatory requirements.*

*TMF Capacity Requirements as Elements of Enforcement Actions. The DEPARTMENT has required some public water systems to improve TMF capacity as a provision of compliance actions. These compliance actions are undertaken as a result of actual or threatened violations of State regulatory requirements by a public water system.*

*The Federal Safe Drinking Water Act (SDWA) Amendments of 1996 authorize a Drinking Water State Revolving Fund (SRF) loan program to help public water systems finance their infrastructure needs. Through this authorization, funds are available to assist public water systems in acquiring and maintaining its TMF capacity.*

*Public water systems that receive funding under the SRF program are required to demonstrate or develop adequate TMF capacity.*

*New Systems and Change of Ownership*

*According to §116540 of the California Health and Safety Code, “No public water system that was not in existence on January 1, 1998, shall be granted a permit unless the system demonstrates to the [Department] that the water supplier possesses adequate financial, managerial, and technical capability to assure the delivery of pure, wholesome and potable drinking water. This section shall also apply to any change of ownership of a public water system that occurs after January 1, 1998.”*

## APPENDIX E

*Below is the TMF Capacity Criteria Applicability Chart for new community water systems:*

*Mandatory: Compliance is required at the time the permit is issued.*

*Technical: Compliance is required within a specified time frame.*

<b><i>Technical Capacity</i></b>	
<i>System Description</i>	<i>Mandatory</i>
<i>Source Capacity Assessment</i>	<i>Mandatory</i>
<i>Consolidation Feasibility</i>	<i>Mandatory</i>
<i>Technical Evaluation</i>	<i>Necessary</i>
<i>Operation Plans</i>	<i>Necessary</i>
<i>Certified/Qualified Operators</i>	<i>Necessary</i>
<i>Training</i>	<i>Necessary</i>
<b><i>Managerial Capacity</i></b>	
<i>Ownership</i>	<i>Mandatory</i>
<i>Organization</i>	<i>Mandatory</i>
<i>Water Rights</i>	<i>Mandatory</i>
<i>Planning</i>	<i>Mandatory</i>
<i>Emergency/Disaster Response Plans</i>	<i>Necessary</i>
<b><i>Financial Capacity</i></b>	
<i>Budget Projection</i>	<i>Mandatory</i>
<i>Reserves</i>	<i>Necessary</i>
<i>Capital Improvement Plan</i>	<i>Mandatory</i>
<i>Budget Control</i>	<i>Necessary</i>

## APPENDIX E

*Below is the TMF Capacity Criteria Applicability Chart for change of ownership*

<b>Technical Capacity</b>	
<i>System Description</i>	<i>Necessary</i>
<i>Source Capacity Assessment</i>	<i>Necessary</i>
<i>Consolidation Feasibility</i>	<i>Necessary</i>
<i>Technical Evaluation</i>	<i>Necessary</i>
<i>Operation Plans</i>	<i>Necessary</i>
<i>Certified/Qualified Operators</i>	<i>Necessary</i>
<i>Training</i>	<i>Necessary</i>
<b>Managerial Capacity</b>	
<i>Ownership</i>	<i>Mandatory</i>
<i>Organization</i>	<i>Mandatory</i>
<i>Water Rights</i>	<i>Mandatory</i>
<i>Planning</i>	<i>Mandatory</i>
<i>Emergency/Disaster Response Plans</i>	<i>Necessary</i>
<b>Financial Capacity</b>	
<i>Budget Projection</i>	<i>Mandatory</i>
<i>Capital Improvement Plan</i>	<i>Mandatory</i>
<i>Budget Control</i>	<i>Necessary</i>

*Below is the TMF Capacity Criteria Applicability Chart for systems applying for funds through the Safe Drinking Water State Revolving Fund.*

<b>Technical Capacity</b>	
<i>System Description</i>	<i>Mandatory</i>
<i>Source Capacity Assessment</i>	<i>Necessary</i>
<i>Consolidation Feasibility</i>	<i>Mandatory</i>
<i>Technical Evaluation</i>	<i>Necessary</i>
<i>Operation Plans</i>	<i>Necessary</i>
<i>Certified/Qualified Operators</i>	<i>Mandatory</i>
<i>Training</i>	<i>Necessary</i>
<b>Managerial Capacity</b>	
<i>Ownership</i>	<i>Mandatory</i>
<i>Organization</i>	<i>Mandatory</i>
<i>Water Rights</i>	<i>Mandatory</i>
<i>Emergency/Disaster Response Plans</i>	<i>Necessary</i>
<b>Financial Capacity</b>	
<i>Budget Projection</i>	<i>Mandatory</i>
<i>Capital Improvement Plan</i>	<i>Necessary</i>
<i>Budget Control</i>	<i>Necessary</i>

**Appendix F Report Card Billing**

This Appendix explains the minimum amount of information that must be included with the bill to the customer.

- Meter Readings. Previous and Present.
- Service Charge
- Commodity Charge
- Past due after date
- Quantity per billing unit (Hundred Cubic Feet, thousand Gallons etc)
- Billing period Usage Comparison
- Amount Due.

ATTACHMENT 1

POINTS OF INTEREST

**Meter Readings, Previous and Present.** The availability of these two readings will allow you to calculate your own bills. The difference between the previous meter reading and the present one equals the amount consumed during the billing period, measured in hundred cubic feet. (One hundred cubic feet equals 748 gallons.)

**Water Charges.** This is the amount of your current bill, including the service charge and the quantity charge, which are calculated in example to the right.

**Past Due After.** This is the date after which the bill will be considered "past due" and delinquent.

**Service Charge.** This is a monthly or bi-monthly (depending on your billing cycle) charge made to each customer connected to our system. It is based on the size of your meter.

**Quantity Rates Per 100 Cubic Feet.** This section shows the rate at which your water usage was billed. Your water is billed at two step rates, a basic "lifeline" rate is charged for the first ("1st") designated quantity. Then a higher rate is charged for usage over the basic ("1st") quantity.

**Billing Period Usage Comparison.** In this area you will see how much water you have used during this billing period, compared with your usage last year during a similar billing period. The "Last Year" section will remain blank during the first year while we accumulate your monthly usage figures.

**Amount Due.** This is the amount you owe. It represents the total amount due for current charges, including the service charge and the quantity charge, for the cubic feet of water used during the billing period. The amount due may also include billing adjustments and an unpaid balance, if shown.  
  
To figure your water charges, multiply the quantity of water consumption shown by the quantity rates and then add the service charge. See also example:

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Info Resource Center  
P.1