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ORIGINAL

Decision No. 84334

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Investigation on the Commission's own motion to determine the feasibility of amending or revising General Order No. 103 by inclusion therein of provisions relating to fire protection standards and services to be offered by Public Utility Water Corporations or in promulgating other general orders, rules, directives or regulations relating to fire protection standards and services.	Case No. 9263 (Filed August 24, 1971)

(Appearances listed in Appendix A)

O P I N I O N

On June 22, 1971 Assembly Concurrent Resolution No. 146 was introduced at the 1971 Regular Session of the California Legislature. This resolution requested this Commission to determine whether water corporations under its jurisdiction should be required to undertake a program of constructing and maintaining adequate fire protection systems, to recommend necessary adjustments to the rate structures of such water corporations to permit such extensions and improvements to their systems, and to report to the Legislature on its findings and recommendations on this subject on or before the fifth calendar day of the 1972 Regular Session.

On August 24, 1971 this Commission issued an order instituting an investigation into the operations and service of all public utility water corporations under its jurisdiction for the purpose of inquiring into the feasibility of amending or

revising General Order No. 103 by inclusion therein of provisions relating to fire protection standards and services to be offered by public utility water corporations or in promulgating other general orders, rules, directives, or regulations relating to fire protection standards and services. The proceeding was divided into two phases. Phase 1 was for the purpose of determining whether this Commission had jurisdiction under presently existing statutes to promulgate rules and regulations setting standards for adequate fire protection standards and was decided affirmatively by Decision No. 79561 dated January 4, 1972. Decision No. 79561 ordered further hearings on Phase 2 of this proceeding for the purpose of formulating rules to effectuate the requirement that proper and adequate fire protection services be provided at just and reasonable rates by water utilities.

A prehearing conference on Phase 2 was held in San Francisco before Examiner Johnson on July 6, 1973. Thereafter, hearings on Phase 2 were held in San Francisco on October 2 and 3, 1973, February 6, 7, and 8, 1974, and July 9 and 10, 1974, and in Los Angeles on November 13, 1973, and May 15 and 16, 1974. The matter was submitted on concurrent briefs due October 18, 1974. Briefs were received from the Commission staff, the Fire Protection Standards and Services Committee of the California Section of the American Water Works Association (Committee), San Gabriel Valley Water Company, Southwest Water Company, Suburban Water Systems, and Vallecito Water Company (Four Companies), and Class C & D Water Companies (C & D Companies).

The Commission staff's presentation was made through its engineers and customer service representatives. Testimony was presented on behalf of the Committee by the vice president and chief engineer of the California Water Service Company, by the president of Peerless Water Company, by the secretary and general manager of Campbell Water Company, by the president and chief executive officer of Dominguez Water Corporation, by the chief engineer of San Jose Water Works, and by one of the district managers of California-American Water Company; on behalf of the C & D Companies by two owner-operators of small water utilities; on behalf of the Four Companies by the executive vice president of Southwest Water Company and Suburban Water Systems; on behalf of the Orange County Fire Protection Department by its fire protection analyst; on behalf of Southern California Edison Company by one of its district managers; and on behalf of the Associated Building Industry of Northern California by its director of technical services.

After extensive cross-examination of all witnesses who presented written exhibits and/or prepared testimony, informal meetings were held between staff personnel and Committee members and spokesmen for other parties of record which resulted in the resolution of several areas of conflict.

There is substantial agreement between the parties which submitted briefs that a new section (Section VIII) entitled "Fire Protection Standards" should be added to General Order No. 103. In general, the recommended Section VIII format provides for design requirements, flow tests, fire hydrants, fire hydrant agreements, and source of supply.

Design Requirements - Extensions

Subsection 1 of recommended Section VIII of General Order No. 103 is subdivided into part (a) governing the initial construction, extension, or modification of a water system to serve a new applicant, or a change in use, and part (b) governing company initiated replacement of mains.

The Commission staff, Committee, Four Companies, and C & D Companies are generally agreed that the utility shall provide a minimum level of water service to its customers for public fire protection purposes as an inherent part of water system design and that in the initial construction, extension, or modification of a water system to serve a new applicant or change in use, the facilities be capable of providing, for a sustained period of at least two hours, the following minimum flow requirements in addition to the area average daily demand requirements:

	Land Use	Minimum Flow
1.	Rural, residential with a lot density of two or less per acre primarily for recreational and retirement use.	250 gpm[a/]
2.	Lot density of less than one single-family residential unit per acre.	500 gpm
3.	Lot density of one or two single-family residential units per acre.	750 gpm
4.	Lot density of three or more single-family residential units per acre.	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
7.	Multiple residential, three stories or higher; heavy commercial or heavy industrial.	2,500 gpm

a/ This category was omitted from Committee's and Four Companies' proposals but was not contested when proposed by C & D Companies and was accepted by the Commission staff.

Approval of these minimum flow requirements was recommended by testimony presented on behalf of the Orange County Fire Protection Department. These minimum flow requirements will be adopted.

Committee and Four Companies propose that the cost of the facilities necessary to meet these minimum standards be advanced by the applicant for service in accordance with the utility's tariffs; and C & D Companies propose that the cost of these facilities be paid the utility and at its election be treated as a refundable advance or as a contribution in aid of construction.

If the fire protection agency having jurisdiction over the area requires minimum fire flows in excess of the specified minimum amounts, Committee and C & D Companies recommend that the increase in cost of distribution main necessary to meet such higher fire flows and the costs of facilities, other than distribution mains, for fire protection be paid to the utility as a contribution in aid of construction; and Four Companies recommend that the increase in the cost of the facilities necessary to meet such higher fire flow requirements be paid to the utility which may elect to treat it as a refundable advance or as a contribution in aid of construction. The Commission staff recommends that this decision authorize water utilities to enter into agreements whereby the costs of distribution mains designed to meet the minimum design standards would be refundable advances and all other necessary fire protection facilities would be considered contributions in aid of construction as an interim measure pending the resolution of a new proceeding to be initiated for the purpose of revising the Uniform Main Extension Rule to be consistent with the changes brought about by the adoption of fire protection standards in General Order No. 103.

One of the C & D Companies' witnesses testified that because of the unique characteristics of small water companies it was desirable for them to have the flexibility of making a decision on whether the cost of facilities necessary to meet the minimum fire flow standards be treated as a refundable advance or as a contribution in aid of construction in accordance with its determination of the need for building a rate base. We are not persuaded that the basic concept advocated by the Commission staff, Four Companies, and Committee that the cost of fire protection facilities designed to meet specified minimum standards be treated as refundable advances at this time is inapplicable for small water utilities. In this respect it will be noted that Rule 11 of Part I of General Order No. 103 provide: "...In those cases where the application of any of the rules incorporated herein results in 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 the Commission may accept an application and showing of necessity by letter." Needless to say, small water utilities always have the option of utilizing this provision of the general order for special treatment of plant costs.

Four Companies, in contrast to the recommendations of the Commission staff, Committee, and C & D Companies, would permit the utility at its election to treat the increased cost of facilities necessary to meet higher fire flow requirements imposed by the responsible fire protection agency as either a refundable advance or as a contribution. In support of this position Four Companies' witness testified that if the facility installed is limited strictly to fire protection the plant should be contributed but that where there is joint use the money should be

advanced subject to refund by the utility. The provisions recommended by the Commission staff, Committee, and C & D Companies plainly specify that the contributed plant shall consist of the increased cost of distribution mains caused by higher fire flow requirements imposed by responsible fire protection agencies and the cost of other facilities, allocated as appropriate, required for fire protection purposes. Presumably, the utility's determination of such costs associated with the fire protection facilities would consider joint usage of facilities and future development of the area and thereby limit the amount of contribution to that specifically required for such fire protection. Under these circumstances special optional provisions requested by Four Companies appear to be unnecessary.

Committee, Four Companies, and C & D Companies all propose that the provisions relating to advances and contributions in aid of construction be included in the new recommended Section VIII to General Order No. 103. The Committee's proposal is premised on the belief that the proposed section to the general order will radically change existing business relationships between water utilities, land developers, and fire protection agencies and that unless the economic terms of these new relationships are set forth concurrently with the adoption of new standards, uncertainty and confusion will result. Committee further states that the text of a decision authorizing a general order does not ordinarily accompany the printed copy of the order and that the normal publication of the Commission's decision of these relative cost responsibilities would not be adequate notice of these requirements to those parties affected by the decision.

While the Commission staff generally agrees with Committee's proposed allocation of fire protection facility costs, at least on an interim basis, it believes that the matter of the duties and obligations and costs of facilities and related details more properly belong in the Uniform Main Extension Rule. The staff further asserts that it is essential that the whole subject matter of advances and contributions and obligations of the parties be reviewed in greater depth by the staff, the utilities, the developers, and the building contractors. In this respect the staff noted that developers and the building industry have been generally absent from these proceedings and attribute this fact to the assumption that, in accordance with the staff recommendation, the new proceeding on the revision of the Main Extension Rule to establish the obligations of all concerned would be the appropriate proceeding in which to participate as the subject matter of advances and contributions and obligations of the parties concerned would not be considered in the instant proceeding.

We concur with the staff's position that the whole subject matter of advances and contributions and obligations of the parties should be the subject of a new proceeding to revise the Uniform Main Extension Rule to reflect the changes to General Order No. 103 set out in this decision. Such a proceeding will be adequately noticed and describe the objectives of the investigation so that developers, building contractors and others pecuniarily affected by any resultant changes will be fully informed of contemplated changes so they may participate in the proceeding if they so desire.

The Committee's position that the lack of the text of a decision authorizing modifications to a general order might lead to confusion is a valid one. However, the inclusion of the details of the cost allocation of fire protection facilities in a general order at a time when it is contemplated that future hearings will be held on the matter might also lead to confusion. To resolve this conflict we will include in the general order the statement "Except as otherwise provided herein, the cost of the facilities required for fire protection shall be advanced by the applicant in accordance with the utility's tariffs", and order the filing of a special tariff sheet specifying the apportionment of costs in accordance with the Commission staff's and Committee's recommendations.

Design Requirements - Replacement of Mains

Committee, the Commission staff, and C & D Companies are in agreement with respect to that portion of proposed Section VIII which provides that if mains to be replaced at the utility's initiative are used or useful for fire protection purposes, they shall be constructed at the expense of the utility and sized to accommodate prescribed fire flows. Four Companies, however, proposes that the general order provide that repairs and maintenance of the utility's existing system not be subject to the design requirements set forth in the previous section of the proposed Section VIII. Four Companies' witness testified that the basis for his proposal was his concern that if the alternate proposals are adopted the water utilities will be unable to place much reliance on existing subsection I.1.a. of General Order No. 103 which states:

> "Nothing contained in any of the rules herein promulgated shall be construed to require the replacement or abandonment prior to the expiration of economic

> utilization of facilities in use at the time of adoption of these rules unless the Commission, after hearing, shall enter an order directing the abandonment or replacement of particular facilities found to be inadequate for the rendition of proper public utility service."

He further testified that this concern was created by the testimony of the staff engineering witness relating to the sizing of replacement main being governed by the new fire flow standards. Four Companies' witness cited as an example of his concern an acquired mutual water system with small mains located in the rear of the lots requiring replacement pending the installation of new large mains in the street. His interpretation of the staff witness's testimony was that these mains would have to be sized to meet the new standards and that such a requirement would be unreasonable when replacement of the mains is contemplated within a short period of time. Such installations would probably not be classified as used and useful for fire protection purposes and would, therefore, be exempt from the requirements proposed by the other parties. In the unlikely event that such a situation would arise within the scope of the proposed rule, the affected utility could apply for a deviation as permitted in Rule 11 of Section I of General Order No. 103. The proposal of the Commission staff, Committee, and C & D Companies will be adopted.

Fire Hydrants

The Commission staff, Committee, Four Companies, and C & D Companies agree that fire hydrants are to be attached to the utility distribution systems at locations designated by the agency responsible for their use for fire fighting purposes. In addition, the Commission staff, Committee, and C & D Companies

agree that any new mains to which a hydrant may be attached shall be not less than six inches in diameter. These provisions will be adopted.

Exhibit No. 1 of the staff recommends a minimum diameter of four inches for new mains other than those to which a hydrant may be attached. This recommendation was withdrawn as a result of the aforementioned informal meetings between staff and Committee members. In reviewing the current General Order No. 103, we note that Section III, 2.a. and Chart 1 provide for mains as small as one inch. These sizes may have been appropriate when General Order No. 103 was first promulgated, almost 20 years ago. We do not think it to be in the public's interest, today, to continue these extremely small sizes. We will, therefore, eliminate Section III, 2.a. and Chart 1 from the general order, and substitute an absolute minimum main size of four inches when six inches is not appropriate.

Fire Hydrant Agreement

The Commission staff, Committee, and Four Companies propose that the furnishing of fire hydrant service shall be by tariff schedule or by agreement between the utility and the fire protection agency responsible for the fire hydrants. C & D Companies' witness recommended that the furnishing of fire hydrant

service be by tariff schedule or by arrangement and differentiated between agreement and arrangement by stating his opinion that agreements were written and arrangements were verbal. Arrangements, so defined, are subject to change, misunderstanding, and/or discrimination and will not be provided for in this decision.

The Commission staff and Committee further propose detailed provisions permitting, under certain specified conditions, the elimination of hydrant service charges. The elimination of such charges is contingent on an agreement between the utility and the fire protection agency providing that the agency thereafter shall maintain or cause to be maintained and install or cause to be installed all fire hydrants and shall supply or cause to be supplied all labor and materials for such new hydrants. The hydrant and maintenance costs for which the agency is to be responsible if it is to be relieved of the fire hydrant service charges include the capital costs of new hydrants, hydrant replacement cost, and hydrant maintenance costs. The proposals also provide that if the agency and utility reach an agreement which provides less than fully compensatory charges, the utility may treat its existing hydrant plant account and unrecovered expenses as part of its general plant account and expenses for ratemaking purposes.

Four Companies opposes the inclusion of the detailed provisions permitting the elimination of fire hydrant service charges in the general order. Four Companies' witness testified that the composition of fire hydrant rental charges are proper subjects to be included in the tariff schedules or to be negotiated and included in an agreement with the fire protection agency. He further testified that under Four Companies' proposal the utility and responsible fire protection agency may agree between themselves to eliminate fire hydrant rental charges. Under these circumstances the only substantive difference between the proposal of the Commission staff and Committee and the proposal of Four Companies is the omission by Four Companies of the details of the composition of fire hydrant rental charges. Such details represent majority opinion as to what utility costs should be eliminated as a prerequisite of eliminating fire hydrant charges and will undoubtedly form the basis for negotiations between utilities and fire protection agencies regardless of whether or not they are included in the general order. For this reason and for clarity and understanding we will include the details of the prerequisites for the elimination of fire hydrant service charges as proposed by the Commission staff and Committee.

Four Companies' witness opposed the concept that a utility may treat its existing hydrant plant and expense accounts as part of its general plant to recover deficits created by less than fully compensatory charges resulting from an agreement between the utility and a fire protection agency. He favors the imposition of fully compensatory fire hydrant rentals by the application of special tariff provisions designed to reflect actual full costs. As an

example of the type of a tariff he considered appropriate he presented a study outlining a procedure called the inch-foot method, devised as a method for recovering costs incurred in providing fire protection. This method assigns a higher proportion of the fire protection costs to those areas having higher fire protection requirements and was introduced into evidence to show that there are existing methods in use today that spread the cost of fire protection service over the areas protected in an equitable manner rather than on the basis of the amount of water consumed which may not be related to the costs incurred in providing fire protection facilities. One of the bases for recommending provisions for the elimination of fire hydrant rentals is the difficulty the utilities are experiencing in collecting such charges. The inch-foot or other similar methods would have the effect of increasing the charges to fire protection agencies and would thereby compound the revenue collection problem. Such methods will, therefore, not be adopted.

Minimum Pressure Standards

For approximately twenty years General Order No. 103 has required utilities to maintain normal operating pressures of not less than 25 p.s.i.g. nor more than 125 p.s.i.g., at the service connection, except that during peaks of hourly maximum demand the pressure at the time of peak seasonal loads may be not less than 20 p.s.i.g. and that during periods of hourly minimum demand the pressure may be not more than 150 p.s.i.g. The Commission staff proposes that the minimum pressure requirement be updated to provide a normal operating pressure of not less than 40 p.s.i.g. In support of this position the staff engineer testified that the recommended increase in minimum

pressure is necessary to meet recommended total flow requirements, including fire flow, and to provide adequate pressure for the proper functioning of water-operated household appliances; that this Commission has recently been conditioning the grant of certificates of public convenience and necessity for new water systems on the establishment of normal minimum operating pressures of 40 p.s.i.g.; and that many larger utilities are presently voluntarily observing the higher standard in new construction.

Committee opposes the implementation of higher minimum pressures on the bases that there is no necessary correlation between minimum pressure and the quantity of water available for fire suppression purposes; that a minimum pressure higher than 25 p.s.i.g. is not required for the proper functioning of household appliances; and that those utilities that are voluntarily observing the higher pressures are doing so as a design objective and not as a minimum to be observed under all normal operating conditions.

In support of this position, the Committee witness testified that the flows required by fire-fighting agencies are in terms of gallons per minute computed at a residual pressure of 20 p.s.i.g. and that neither the ISO manual nor local ordinances prescribing fire flow capability specify a minimum pressure to be observed; that a properly designed system can provide adequate flows at 25 p.s.i.g.; and that since adequate fire flows are the product of variable combinations of such factors as the size of main required, the distance of new developments from existing mains, the quantities of water required, the system pressures, and the elevations of the area to be served, an increase in minimum pressures as proposed by the staff cannot be justified on the grounds of fire protection requirements.

Committee's witness further stated that the staff recommendation that a higher minimum pressure is necessary for the proper functioning of household appliances is not valid because modern household water-using appliances have minimum pressure requirements less than the 25 p.s.i.g. prescribed by the present general order and such appliances generally utilize water level floats rather than timed fill cycles. This witness also testified that increasing the required minimum pressure to some higher number will not relieve any problem that presently exists because, in most cases, the problem was the inadequate flow capacity of the customer's plumbing rather than the inadequate pressure of the utility system. In this respect Committee presented several witnesses who testified that most of the low pressure complaints on their various systems were actually low flow complaints caused by inadequate and/or corroded or plugged house plumbing.

Through cross-examination of Committee's witness the Commission staff elicited the information that with a minimum pressure of 25 p.s.i.g. at the meter, the water pressure in a new house with new plumbing would be approximately 15 p.s.i.g. at a dishwasher if the front yard sprinkler were in operation. Such a pressure would be below the minimum pressure specified for satisfactory operation of the dishwasher. It is not uncommon for a new house to have both a dishwasher and a front lawn sprinkler. Such a customer should not be forced to alternate their use because of pressure levels too low to permit simultaneous operation of both. Needless to say, such a problem will be aggravated as the house plumbing ages and corrodes.

In addition, the Commission staff presented a Customer Service Representative who testified as to some of her experiences relating to alleged low pressure complaints. She stated that

water utility customers complaining of low pressure have informed her that the presently prescribed minimum pressure of 25 p.s.i.g. is insufficient to satisfactorily operate their dishwashers or washing machines. Those utility customers living in the suburban areas surrounded by dry weed and brush also expressed fear of insufficient water in the event of brush fires. This witness further testified that often the customer's piping is the major cause of the problem and that, generally, larger water utilities maintain higher water pressure than the smaller ones and, therefore, the larger utilities have a higher proportion of complaints where the major problem is the customer's home piping. According to her testimony, 9 of the 23 low pressure complaints received in the Los Angeles office in 1973 proved to be caused by inadequate pressure in the water utility's system and the remaining 14 had pressures of between 25 and 45 p.s.i.g. at the meter. Of the 98 informal complaints received in the San Francisco office from the period 1969 to the date of her testimony, 75 were caused by pressure deficiencies within the utility's systems. The Customer Service Representative also testified that larger utilities reported modifying their systems to increase pressures above the prescribed minimum and that the customers then expressed their satisfaction with the pressures.

The present general order prescribes a minimum pressure of 20 p.s.i.g. during periods of hourly maximum demand at the time of peak seasonal loads. A system designed to such a minimum pressure requirement could conceivably experience difficulty in maintaining the 20 p.s.i.g. residual pressure at the flowing hydrant specified for measurement of required fire flow. This fact, coupled with the possible unsatisfactory household utilization of water-operated appliances previously discussed, requires increasing the normal minimum pressure specified in General Order No. 103.

As previously stated, the Commission staff recommends that the normal minimum pressure be raised to 40 p.s.i.g. with minimum pressures of 30 p.s.i.g. being permitted during periods of hourly maximum demands. Committee's position is that should this Commission determine an increase in minimum normal pressure is required the new minimum normal pressure should not exceed 35 p.s.i.g. and a minimum pressure of 25 p.s.i.g. be permitted during periods of hourly maximum demands at the time of peak seasonal load. The record shows that the basis for selection of the 35 p.s.i.g. normal minimum pressure is the presently existing requirement of State Department of Public Health applicable for new water systems or new pressure zones in existing water systems. Committee alleges that by proposing a minimum pressure at the level prescribed by the State Department of Public Health applicable to all water purveyors, including those not regulated by this Commission, the Committee's proposal avoids a potential conflict in applicable standards and, together with the Department of Public Health regulation, provides a uniform standard to be observed by the bulk of the water suppliers within the State. In this respect, it is noted that the Public Health standard prescribes a maximum pressure of 100 p.s.i.g. as contrasted to the presently existing General Order No. 103 maximum of 125 p.s.i.g. which contradicts Committee's argument with respect to uniformity of provisions.

Committee's witness testified that many systems have been designed for 40 p.s.i.g. which has long been considered a normal design pressure, but that extensions from such systems will usually occur at the marginal boundaries where the pressure is close to the design pressure of 40 p.s.i.g. For these, according to his testimony, a minimum pressure requirement of

a part of the general order and recommends that the decision in this proceeding authorize all water utilities to set forth in their tariffs the operating areas or customers where the proposed new standards cannot be met. The staff proposes to review all such tariff filings in future formal rate or service proceedings.

Committee's recommended subparagraph 3.c. will be excluded from the modifications authorized to the general order. We will, however, permit those utilities confronted with special circumstances affecting pressure to file, within twelve months following the effective date of the revised general order, tariffs referring to generally described or delineated areas within which exceptions to the minimum pressures may be encountered. Such exceptions will be for areas where normal minimum pressures will be between 25 and 40 p.s.i.g. In an earlier discussion in this order, we commented that General Order No. 103 presently provides a procedure whereby a utility can receive relief for undue hardship or expense. In specific situations, and particularly in situations relating to additions to existing systems, it may not be economical to rebuild an existing system to maintain a minimum pressure of 40 p.s.i.g. Should this occur, this provision of the general order should be utilized.

Other Changes to General Order No. 103

Section III, 2.b. of General Order No. 103 presently contains the requirements for fire protection facilities. Section VIII authorized herein obviates the necessity of that paragraph and it will be deleted.

Ratemaking Considerations

Section VIII as proposed by Committee would require that the cost of distribution mains and other facilities necessary to meet fire flow requirements imposed by fire protection agencies in excess of the minimum recommended fire flow requirements be paid to the utility as a contribution in aid of construction. Committee, however, expresses concern that where the prescribed minimum is exceeded for such valid operating reasons as reinforcement of the existing system, improvement of circulation, provision of alternate facilities, and providing for future growth, the cost of such facilities in excess of the prescribed minimum might not be allowed in the rate base for ratemaking purposes. In view of this Commission's long history of including for ratemaking purposes the cost of facilities "used and useful" for the utilities' operations, irrespective of whether or not minimum requirements of this Commission's general orders were exceeded, the basis for Committee's concern is difficult to discern. The test for inclusion of the cost of facilities in rate base is whether or not such facilities represent a prudent investment and not whether or not the minimum standards prescribed by this Commission were exceeded.

Findings

1. There is a need for establishing minimum standards of fire flows to be observed by water utilities subject to this Commission's jurisdiction.

2. These minimum fire flow standards should be set forth in a new Section VIII in this Commission's General Order No. 103.

3. Land use is the most appropriate measure of the need for water for fire protection purposes.

4. The adopted minimum standards should be applied in addition to the requirements of other provisions of the general order and are reasonable.

5. These standards should be stated as minimum levels of water service the water utility shall provide, but are not intended to preclude any governmental agency responsible for fire protection from setting higher standards in areas subject to its jurisdiction.

6. The prescribed minimum standards should apply for the initial construction, extension, or modification of water system required to serve a new applicant, or change in use, or for replacement main used or useful for fire protection purposes.

7. The facilities to be so constructed, extended, or modified should be designed to provide the prescribed flow, in addition to the required average daily demand, for a sustained period of at least two hours.

8. The minimum specified flows should be calculated on the basis of a residual pressure of 20 p.s.i.g. in the distribution system under flowing conditions.

9. Any new mains to which a fire hydrant may be attached should be not less than six inches in diameter. Other mains should be no smaller than four inches in diameter.

10. Each separately operated water system should have not less than two independent sources of supply.

11. Fire hydrants should be attached to the distribution system at the locations designated by the agency responsible for their use for fire fighting purposes.

12. General Order No. 103 should specify the utility costs which should be provided by the responsible fire protection agency as a prerequisite to the elimination of fire hydrant charges.

13. The subject of advances for construction and contributions in aid of construction and the relative obligations of utilities, developers, contractors, and fire protection agencies should be considered in a new proceeding limited to revising those portions

of the Main Extension Rule affected by this decision to permit participation in the formulation of the allocation of cost by developers and building contractors and others pecuniarily affected by modification to the extension rule.

14. The increase in cost of distribution mains necessary to meet higher than minimum fire flow requirements imposed by local fire protection agencies and the cost, allocated as appropriate, of facilities other than distribution mains required primarily for fire protection purposes should be paid to the utility as a contribution in aid of construction pending the resolution of a new proceeding on the modification of the Uniform Main Extension Rule.

15. The respective obligations of water utilities and applicants for service should be included on an interim basis in tariff sheets authorized by this decision and not in the general order.

16. Deficiencies in fire hydrant revenues should be recoverable through the utilities' rates for water service.

17. The normal minimum pressure should be raised from 25 to 40 p.s.i.g. and the minimum pressure during periods of hourly maximum demands at the time of peak seasonal loads should be raised from 20 to 30 p.s.i.g.

18. Exemptions to these new minimums should be permitted for present systems or portions of them which were designed to meet the present minimum pressure of 25 p.s.i.g. and cannot feasibly be rebuilt to meet the increased minimum pressures. Tariff filings delineating such areas should be filed within a twelve-month period following the effective date of this decision.

19. The minimum standards set forth in this order do not constitute a measure of the reasonableness for ratemaking purposes of expenditures for facilities having a greater capability than required by the minimum standards.

The Commission concludes that General Order No. 103 should be modified to the extent set forth in the order which follows.

O R D E R

IT IS ORDERED that:

1. Subsection III, 2.a. and 2.b., and Chart 1 of General Order No. 103 is deleted.

2. Subsection III, 2.a. is revised to read as follows:

   a. Minimum Pipe Sizes. The distribution system shall be of adequate size, and so designed in conjunction with related facilities to maintain the minimum pressures required by paragraph II, 3.a. and the minimum pipe size required by Section VIII, 3. In no event, however, should the minimum pipe size for new mains be less than four inches in diameter.

3. A new Section VIII is added to General Order No. 103 as follows:

Section VIII Fire Protection Standards

1. Design Requirements. In addition to observing the requirements of the other provisions of this order the utility shall provide a minimum level of water service to its customers for public fire protection purposes as an inherent part of the water system design in accordance with the standards set forth below. These standards are stated as minimum levels of water service which the utility shall provide and are not intended to preclude any governmental agency from setting higher standards in any area subject to its jurisdiction.

   (a) Initial Construction, Extension, or Modification. 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 below opposite the classification of land use to be served:

	Land Use	Minimum Flow
1.	Rural, residential with a lot density of two or less per acre primarily for recreational and retirement use.	250 gpm
2.	Lot density of less than one single-family residential unit per acre.	500 gpm
3.	Lot density of one or two single-family residential units per acre.	750 gpm
4.	Lot density of three or more single-family residential units per acre.	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
7.	Multiple residential, three stories or higher; heavy commercial or heavy industrial.	2,500 gpm

Except as otherwise provided herein, the cost of the facilities required for fire protection shall be advanced by the applicant in accordance with the utility's tariffs.

(b) Replacement of Mains. In making any replacement initiated by the utility of existing mains, 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 fire flows prescribed by the table in paragraph (a) or by the fire protection agency having jurisdiction over the area in which such replacement is made, whichever is greater.

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

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 Agreement. The furnishing of fire hydrant service shall be by tariff schedule or, should the fire protection agency or the utility so request, by agreement between the utility and the fire protection agency responsible for the use of the hydrants. If such agreement between the utility and the agency provides that the agency thereafter shall maintain or cause to be maintained and install or cause to be installed all fire hydrants, starting with the tee in the main, and shall supply or cause to be supplied all labor and materials for all new hydrants on new or existing mains, the agency shall be relieved of hydrant service charges.

   The hydrant installation and maintenance costs for which the agency is to be responsible if it is to be relieved of hydrant service charges include, without limitation, the capital cost of new hydrant installations starting with the tee in the main and the branch gate valve, any hydrant replacements caused by age, wear, or change in hydrant standards, relocations to accommodate street improvements or changes of grade to the utility's pipelines or changes to the right-of-way, relocations or reconnections of hydrants brought about by replacement of the main by the utility,

maintenance (including repairs caused by traffic accidents and the expense of shutting down and reestablishment of service), mechanical maintenance, or adjustment of the hydrant, painting and clearing of weeds. If the utility and the agency reach such an agreement covering present and future hydrants which provides for no, or less than fully compensatory, hydrant service charges, the utility may treat its existing hydrant plant account and unrecovered expenses as part of its general plant account and expenses for ratemaking purposes.

5. Source of Supply. Each separately operated water system shall have not less than two independent sources of supply.

4. Subsection II, 3.a. of General Order No. 103 is changed as follows:

Pressures

a. The utility shall maintain normal operating pressures of not less than 40 p.s.i.g. nor more than 125 p.s.i.g. at the service connection, except that during periods of hourly maximum demand the pressure at the time of peak seasonal loads may be not less than 30 p.s.i.g.

and that during periods of hourly minimum demand the pressure may be not more than 150 p.s.i.g. Subject to the minimum pressure requirement of 40 p.s.i.g., variations in pressure under normal 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. As new mains are installed or as mains which have reached the end of their useful lives are replaced, the new or replacement main shall be sized and designed to accommodate the standards of Paragraph II.3.a.

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

5. Within sixty days after the effective date of this order each water utility in California subject to the jurisdiction of the Commission, except those which supply water primarily for irrigation uses, shall file, in accordance with the procedure prescribed by General Order No. 96-A, a tariff sheet substantially as set forth in Appendix B attached to this order.

6. Within twelve months after the effective date of this order each water utility in California subject to the jurisdiction of the Commission, except those which supply water primarily for irrigation uses, is authorized to file tariffs setting forth as a special condition within generally described or delineated areas such minimum normal operating pressures between 25 and 40 p.s.i.g. to be provided from existing facilities initially designed to meet prior effective minimum normal operating pressures of 25 p.s.i.g.

The effective date of this order shall be twenty days after the date hereof.

Dated at San Francisco, California, this 15th day of APRIL, 1975.

Vernon L. Sharp
President
William Symons, Jr.
Leonard Ross
Robert Batinovich
Commissioners

APPENDIX A

APPEARANCES

RESPONDENTS

Lyle G. Isbell, for Alco Water Service; A. K. Fuller, for California-American Water Company; Ross Workman, for California-Pacific Utilities Company; Carlton J. Peterson, for Diamond Bar Water Co.; Jeptha A. Wade, Jr., C. G. Ferguson and Edmund F. Catey, for California Water Service Company; A. L. Anderson, for Cobb Mountain Water Company; Brobeck, Phleger & Harrison, by Robert N. Lowry, Attorney at Law, for California Water Association; McCutchen, Doyle, Brown & Enerson, by Ronald Friend, Attorney at Law, for California Water Service Company and San Jose Water Works; Charles L. Stuart, for Southern California Water Company; Walker Hannon, for Suburban Water Systems; Bertha Wright Bertillion, for Wright Ranch Water System; Homer A. Hyde, for Campbell Water Co.; Charles C. Carr, for Broadview Terrace Water Co.; William S. Cook, for Park Water Co. and Vandenburg Utilities Co.; Francis H. Ferraro, for Kavanagh Vista Water Co.; R. E. Woodbury, Robert J. Cahall, L. Christian Hauck, William T. Elston, and H. Clinton Tinker, Attorneys at Law, for Southern California Edison Company; R. F. Walter, Attorney at Law, for Ponderosa Water Co.; Joseph S. Englert, Jr., Attorney at Law, and Chesley Ferguson, John E. Skelton, Marvin Brewer, and Homer Hyde, for American Water Works Association; J. E. Skelton, Attorney at Law, for California Water Association and San Gabriel Valley Water Co.; W. B. Stradley, for Citizens Utilities Company of California; George C. Baron, for Tahoe Paradise Water and Gas Co.; William J. Kastler, Attorney at Law, and P. V. Tuttle, for Lost Hills Water Company;

RESPONDENTS

C. M. Brewer, for American Water Works Association, California Water Association and Dominguez Water Corporation; R. M. Ritchey, for San Jose Water Works; Jack Greening, for Pomona Valley Water Co.; Harold R. Farr, for Tahoe Park Water Co.; and Joseph S. Englert, Jr., Attorney at Law, and Clifford Malone, for Pacific Gas and Electric Company.

INTERESTED PARTIES

Byron R. Chaney and Ben Matthews, for California Fire Chiefs Association; Raymond M. Banks, for Tulare County Fire Department and California Rural Fire Association; P. S. Blair and Carl London, for Carmichael Fire Protection District; William L. Eichenberg, for Tulare County; Carl M. Downs, for Orange County Fire Protection Department; Kenneth Frank, for League of California Cities; William R. Goss, for National Automatic Sprinkler and Fire Control Association; Kenneth R. Putnam, Department of County Engineer, for County of Los Angeles; Robert Hennessey, Attorney at Law, for Orange County Fire Protection Department; David H. Rule, Attorney at Law, for City of Jackson; Burris, Lagerlof, Swift & Senecal, by Stanley C. Lagerlof, Attorney at Law, for Public Water Agencies Group; Reginald E. Moorby, for League of California Cities; Richard E. Costello, Attorney at Law, for Spreckels Water Co.; Lynn Keyth Durham, for City of Hawaiian Gardens; John P. Fraser, Attorney at Law, for Association of California Water Agencies; William H. Priester, for Los Angeles Department of Water and Power; Joe Rotella, for Los Angeles County Fire Department; and Paul Elliott, for Tulare County Fire Department.

THE COMMISSION STAFF

Cyril M. Saroyan, Attorney at Law, Melvin E. Mezek, and Parke L. Boneysteele.

APPENDIX B

Uniform Water Main Extension Rule

Rule No. 15

MAIN EXTENSIONS
(Continued)

D. Extensions Designed to Include Fire Protection

1. The cost of distribution mains designed to meet the fire flow requirements set forth in Section VIII.1(a) of General Order No. 103 is to be advanced by the applicant. The utility shall refund this advance as provided in Sections B.3. and C.2. of this rule.

2. Should distribution mains be designed to meet fire flow requirements in excess of those set forth in Section VIII.1(a) of General Order No. 103, the increase in cost of the distribution mains necessary to meet such higher fire flow requirements shall be paid to the utility as a contribution in aid of construction.

3. The cost, allocated as appropriate, of facilities other than distribution mains required to provide supply, pressure, or storage primarily for fire protection purposes shall be paid to the utility as a contribution in aid of construction.