Final Statement of Reasons
Waterworks Standards
Title 22, California Code of Regulations

All suppliers of domestic water to the public are subject to regulations adopted by the U.S. Environmental Protection Agency under the Safe Drinking Water Act (42 U.S.C. 300f et seq.) as well as by the California Department of Public Health (Department) under the California Safe Drinking Water Act (sections 116270-116751, Health and Safety Code).

The Department proposes to significantly reorganize and amend the existing Waterworks Standards regulations (section 64417, Chapter 15, and sections 64555 through 64644, Chapter 16, Title 22, California Code of Regulations). To avoid confusion, the Department proposes to completely repeal the existing standards, except for Section 64563 which is left intact, and replace them with the proposed amendments, even though some of the existing requirements are reflected in the new language.

The draft revisions to the Waterworks Standards were developed by an internal Department workgroup consisting of both field and technical branch staff. Subsequently, a group of stakeholders (see list at the end of this document), representing the drinking water industry, convened and met with the Department to discuss the proposed changes, resulting in much of their input being incorporated. The Stakeholder Group then had a second opportunity to directly comment on the draft regulations. The Department also considered input from other interested parties who commented on the draft standards as posted on the Department's website for informal comment. The Department worked very closely with stakeholders on this regulation and the majority of the proposed requirements had full Stakeholder Group concurrence.

The regulations incorporate by reference various standards:

- California Department of Water Resources (Bulletins 74-81 and 74-90);
- American Water Works Association (AWWA): A100-06, C150/A21.50-02, C151/A21.51-02, C200-97, C300-04, C301-99, C302-04, C303-02, C304-99, C512-04, C600-05, C605-05, C651-05, C652-02, C654-03, C800-05, C900-97, C905-97, C906-99, C909-02, C950-01, D100-05, D102-03, D103-97, D110-04, D120-02, D130-02, and Manuals M9 (1995), M11 (2004), M25 (2000), M51 (2001), and AWWA California-Nevada Section's "Reservoir Floating Cover Guidelines" (April 1999).
- American National Standard Institute/NSF International (ANSI/NSF): 60- 2005 and ANSI/NSF 61-2005/Addendum 1.0-2005.

In summary, the proposed regulation package would:

- For ease in revision, except for Section 64563, repeal the existing Waterworks Standards as contained in sections 64417, and 64555 through 64644 of Title 22;
- Update and clarify the regulatory requirements related to distribution systems, adopt new Waterworks Standards as detailed in proposed sections 64551 through 64604;

- For purposes of integrating related requirements, move the amended sections 64700 (Direct Additives) re-numbered 64590, and 64710 (Exception) re-numbered 64593 and retitled "Use of Uncertified Chemicals, Materials or Products" from Chapter 18 to the Waterworks Standards in Chapter 16;
- Set forth requirements for the purpose of ensuring sufficient supply to meet demands, adopt a requirement for a source capacity planning study for any anticipated water system expansion; and
- Address the potential for inadvertent contamination of drinking water and adopt a new section 64591 (Indirect Additives).

The net effects of the proposed regulations are as follows:

- Greater clarity and less ambiguity in the requirements as the result of reframing and updating the existing regulations;
- Requirements for the purpose of ensuring an adequate quantity of drinking water to supply any new developments or expansions of existing water systems prior to their establishment by requiring a comprehensive evaluation of anticipated demand and available supply; and
- Requirements for the purpose of ensuring that materials with which the drinking water may come into contact during transmission, treatment, and distribution do not contaminate the water by requiring that such materials be certified to have met safety standards.

Rationale
The reasons for repealing the existing sections are as follows.

Chapter 15

Article 2. General Requirements

64417. Siting Requirements.
Although not part of Chapter 16, this section would be repealed because the proposed changes to Chapter 16 make it obsolete.

Chapter 16

Article 1. Application, Responsibility and Definitions

64555. Definitions.
This section would be repealed because it contains definitions of terms not used in the proposed revisions and, therefore, is no longer necessary. Proposed sections 64551.10 to 64551.70 contain definitions of terms used in the proposed revisions.

64560. Basic Design.
This section would be repealed because it contains ambiguous and judgmental language and does not comply with the Administrative Procedure Act (Gov. Code Sec. 11340, et seq). This

section has been confusing to the water utilities, unenforceable by the Department, and has had no regulatory benefit or effect.

64562. Quantity of Supply.
This entire section would be repealed due to lack of clarity and specificity. More specific language addressing source capacity and storage requirements is in proposed section 64554.

64564. Procedures for Determining Needed Source Capacity and Needed Storage Volume.
Section 64564 would be repealed due to lack of clarity. Subsection 64564(a) has been incorporated into the proposed section 64554. Subsection (b) sets forth procedures and criteria to be followed to determine the source capacity and storage volume needed when existing records are unavailable. The Department has determined that this method is overly conservative and too restricting since other methods of determining needed capacity are equally valid. Also, the section's language and the charts are very confusing to the regulated community. As a result, this subsection has been cumbersome and extremely limited as a regulatory tool. The requirements in subsection 64564(c) are no longer needed in view of proposed section 64554. The requirement in existing subsection 64564(d) is in proposed section 64558(a)(2).

64566. System Pressure.
This section would be repealed due to lack of clarity and, for subsection (c), due to an unnecessary requirement. The requirements in subsections (a) and (b) have been rewritten and included in proposed section 64602.

64568. Conditions for Adding Service Connections.
This section would be repealed because it is redundant and unnecessary.

64570. Internal Combustion Engines.
This section would be repealed because the Department has determined that it does not meet the Administrative Procedure Act (Gov. Code Sec. 11340, et seq) requirement for necessity.

64600. Basic Design of Distribution Reservoirs.
This section would be repealed because it does not meet the Administrative Procedure Act (Gov. Code Sec. 11340, et seq) requirements for clarity and has, therefore, been rewritten. The revised language is contained in proposed section 64585.

64602. Subsurface Distribution Reservoirs.
This section would be repealed because the Department has determined that more flexibility should be allowed in designing this type of reservoir. Subsurface reservoirs are addressed in proposed section 64585(b)(12).

64604. Corrosion Protection.
This section would be repealed because it contains obsolete references and language. Corrosion protection would be addressed under section 64585(b)(11).

64612. Water Sealed Pumps.

This section would be repealed because the Department has determined that it is no longer necessary.

64622. Water Main Materials.
This section would be repealed because it contains obsolete references that are no longer appropriate or necessary. Allowable materials with updated references would be in proposed section 64570.

64624. Water Main Selection and Installation.
This section would be repealed because it contains obsolete references and requirements that are no longer appropriate or necessary. New requirements would be covered in proposed section 64570.

64626. Layout of Water Mains.
This section would be repealed because it does not meet the Administrative Procedure Act (Gov. Code Sec. 11340, et seq) requirements for clarity due to the ambiguous language. The Department has also determined that this requirement is no longer necessary.

64628. Minimum Water Main Diameter and Length of Run.
This section would be repealed due to lack of necessity and/or clarity. The requirements in subsection (a) have been rewritten and proposed as section 64573.

64630. Water Main Installation.
This section would be repealed because the requirements have been clarified and placed in proposed sections, or were no longer necessary. The requirements in subsections (a) and (f) are in proposed sections 64574 and 64570, respectively. Those requirements in subsections (c), (d), (e) and (g) are in proposed section 64572.

64632. Water Main Valve Locations.
This section would be repealed because it does not comply with the Administrative Procedure Act (Gov. Code Sec. 11340, et seq) requirements for clarity. New language relating to valve locations and construction is in proposed section 64577.

64634. Water Main Valve Construction Standards.
This section would be repealed. The Department has determined that the requirements in subsection (a) are no longer necessary. The requirements in subsection (b) have been rewritten and proposed as section 64578.

64636. Air and Vacuum Relief and Air Release Valves.
This section would be repealed. The requirements in subsection (a) have been rewritten and proposed as new section 64576. The Department has determined that subsection (b) is extremely confusing due to ambiguous language.

64638. Water Main Joints.

This section would be repealed because the requirement is already inherent in other requirements and is, therefore, unnecessary.

64640. Fire Hydrants.
This section would be repealed. The requirement has been rewritten for clarity in proposed section 64577 (c).

64642. Flushing Valves and Blowoffs.
This section would be repealed. The requirements in subsections (a), (b) and (c) are in proposed subsections 64575 (a), (b), and (c), respectively.

64644. Service Connection Pipe.
This section would be repealed because it contains obsolete references and the Department has determined that it is no longer necessary in view of proposed section 64590 dealing with allowable materials.

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The Department proposes the following to replace the existing Waterworks Standards regulations.

Article 1. Definitions

Sections 64551.10 - 64551.70. Definitions.
For clarification and to avoid confusion, these sections define common terms used in the water industry that are utilized in the proposed revisions. Although the terms are used in the existing Standards, they are not defined.

Article 1.5. Waivers and Alternatives

Section 64551.100 Waivers and Alternatives.
The purpose of this section would be to establish a waiver of certain provisions in the Waterworks Standards for noncommunity water systems and to provide for alternative approaches to compliance for all public water systems.

(a) This provides for a waiver of specific requirements for noncommunity water systems. These may be waived by the Department, based on a review of various characteristics of the system, because the requirement that a new permit application be prepared by a licensed engineer [section 64552(b)], flushing (section 64575) and isolation valves (section 64577) may not be necessary. A major portion of the existing, as well as the proposed, Waterworks Standards relates to distribution systems. Noncommunity water systems typically do not have distribution systems in the traditional sense. This has caused serious problems in the past with implementation. The provision for a waiver can eliminate an onerous and unnecessary regulatory burden for those noncommunity systems for which it is appropriate.

(b) This provides for a water system to apply to the Department to use an alternative approach for compliance with the Waterworks Standards if it can demonstrate equivalent public health

protection. The Department recognizes that these Standards are necessarily very specific; however, due to local circumstances, there may be situations in which the Standards may be impractical or unachievable. For this reason, some allowance for the use of acceptable alternatives is needed. The existing Waterworks Standards contain language in numerous sections dealing with alternatives. Unfortunately, that language is ambiguous and frequently uses phrases such as "with the approval of the Department". The purpose of this subsection is to replace the existing alternative language scattered throughout the regulations with language that allows a water supplier to propose an equivalent alternative to any of the specific regulations. The applicant would have to demonstrate that the alternative being proposed does not increase the risk to public health over that of the specific proposed regulation and institute additional mitigation measures. Since there are many possible situations and alternatives, it would be impossible to cover them with regulatory language. Subsection(c) would allow the water systems and their engineering consultants' maximum flexibility in designing and adapting their distribution systems to take into account unusual local conditions.

Article 2. Permit Requirements

Section 64552. Initial Permit for Public Water System.
In order for the Department to issue a domestic water supply permit to a new public water system, it must make a finding that the proposed system will be able to provide a reliable and adequate supply of water at all times that is pure, wholesome, potable, and does not endanger the health of consumers (HSC section 116540). Section 116530 of the HSC mandates that a permit application include information required by the Department relating to plans and specifications, water quality information, and physical descriptions of the existing or proposed system. The Department cannot make a finding of an adequate supply of water without the type of information specified in this proposed section.

(a) The purpose of this subsection is to obtain the information needed by the Department to determine whether the proposed system has the capacity to provide an adequate, reliable water supply to its consumers. If a system cannot demonstrate this, the Department is precluded by law from issuing a permit. Whether the system will have the capacity to reliably meet the consumer demand for water is a primary criterion for granting a permit. For that reason, a great deal of related information is required to enable the Department to make a determination regarding a permit. The information includes details related to the area/consumers to be served, all the possible existing and past sources of water, water system facilities, estimated consumer demand, and how the water system plans to meet its responsibilities to provide a reliable potable drinking as required under the law.

Implicit in this list are certain criteria that must be met to obtain a permit, e.g., the need to demonstrate how it will reliably meet four hours of peak hourly demand (PHD) at all times and a listing of vehicles for doing so (paragraph 6). In the event of a source interruption (power outage, pump failure, broken transmission main etc.), the system must have some reserve delivery capability in order to continue to meet minimum water demands until the source can be restored to service. For most systems, this emergency backup reliability can best be met by use of a distribution storage reservoir. A distribution storage reservoir is also helpful in meeting

unexpectedly high peak hourly demands. However, auxiliary power and/or emergency source connections can also effectively meet such needs.

The following explains why the Department is proposing four hours of PHD as the criteria for determining adequate capacity. Most source interruptions, such as those described above, are of short duration. Although greater capacity would be desirable, based on its years of engineering experience, the Department's workgroup determined that, as a minimum, a capacity of 4 times the peak hourly demand using excess source capacity, distribution reservoirs, auxiliary power, and/or emergency source connections should be sufficient. The reason that the PHD requirement is necessary, in addition to the maximum day demand (MDD) requirement, is that MDD addresses only the total volume of demand for the maximum day. During that maximum day, there are peaks in demand that can only be met by the "surplus" capacity provided by the 4 hrs PHD. The diurnal curve developed by engineers based on water system demand data (Water Supply and Pollution Control by W. Viessman, Jr. and M. Hammer, 4th Edition) typically shows a 2-hour peak in the morning and another in the afternoon; based on that, the Department proposes to require that the system have the capacity to meet the total of 4 hours of PHD. Flexibility is provided for systems to use different approaches to meet this requirement since some will have excess source capacity, while others will not.

(b) The analysis and system design for new water systems can be technically complex, particularly for community water systems. Systems that are inadequately designed invariably create problems for subsequent owners and for consumers of the system who have to pay for repairs or replacement. It is essential for consumer protection and safety that the analyses are prepared by a competent person with experience in water system engineering. Requiring that person to be a registered civil engineer with water system experience as set forth in subsection (b) provides that assurance to some degree.

64554. New and Existing Source Capacity.

The purpose of this section is to require that all systems have the source capacity to assure that an adequate quantity of water under sufficient pressure is available to serve consumers at all times, pursuant to HSC Section 116555(c). The existing practical criterion for determining if a water system has sufficient water has been whether or not the system experiences water outages. When an outage occurs, the health of the water consumers can be seriously jeopardized due to lack of water for fire and sanitary needs as well as a substantially increased risk of backflow contamination. Both the water systems and the Department need to have a means of comparing current and future water needs to the available supply in order to prevent outages from occurring. Section 10910(d) of the Water Code (effective January 1, 1997) requires a public water system to provide an assessment of its capability to supply adequate water to meet projected demands to cities and counties. This proposed subsection is consistent with the statute in that it establishes the minimum projected demand.

(a) If a system can meet the demand on a day of maximum demand with source capacity only, then it should be able to do so for the next day and the next. However, during the day of maximum demand, there will be periods of "peak demand" (PHD), based on diurnal curves of water usage data; these periods will vary for different systems; the system must have the

resources to meet the demand during these periods; this requires that the system have additional source capacity, storage or connections to other sources. Hence, this section also requires the capacity (through sources, storage and/or alternative connections) to meet a total of 4 hours of PHD.

As mentioned in the previous section, the Department determined that, as a minimum, a capacity of 4 times the peak hourly demand should be sufficient. The reason that the PHD requirement is necessary in addition to the MDD requirement is that MDD addresses only the total volume of demand for the maximum day. During that maximum day, there are peaks in demand that can only be met by "surplus" capacity provided by the 4 hrs PHD. MDD and PHD are important criteria for defining the water demand needs of a system. Requirements for both must be met in individual pressure zones, as well as the system as a whole, because different pressure zones may have different demands.

(b) and (b)(1) These provide detailed instructions for calculating the required capacity in terms of maximum daily demand (MDD) and peak hourly demand (PHD) and determining the capacity of a well. Depending on the data available, size of the system, and type of water, different procedures are appropriate. Ten years of data, if available, is required as a basis for the calculations to ensure that the data covers a range of water supply years (high precipitation, drought, etc.). The calculations are basically straightforward and reflect industry practice. The minimum peaking factor of 1.5 specified in several places is based on Department experience and was supported by the Stakeholder group as a minimum; water systems can use a larger factor if they choose, but in most cases, the minimum factor of 1.5 should provide an adequate estimate of demand to enable the system to determine needed capacity. From diurnal curves of typical water demand, it appears that the PHD is 50% greater than 1 hr in the MDD. The minimum of 1.5 is best for small systems, because they are sensitive to individual use patterns. Larger systems are more likely to have peaks beyond 50% of the MDD, but because people are on different schedules, the peaks tend to average out.

(b)(2) When there is no daily water usage data available resulting in the use of monthly data and the derivation of an average daily water usage, again the 1.5 factor is applied to increase the "average" to obtain an estimate of the maximum day's use. The 1.5 factor is then used to obtain the PHD for the reasons given above.

(b)(3) When there is no monthly data available, the factor of 2.25 (1.5 times 1.5) is used to increase by 50% the average day in the year to get the average highest day in the year and then increase it by 50% to get the highest day. To that number is again multiplied by the 1.5 factor to get the PHD for the reasons given above.

(b)(4) This provides for sources with no data history. Maximum day demand and peak hourly demand are used because they represent the worst cases in terms of water demand. Systems must have the ability to meet both to avoid water outages or loss of pressure during high demand periods.

(c) This subsection establishes that community water systems with groundwater sources must have a minimum of two approved sources of water supply and that each must be capable of supplying the system. This is necessary to ensure that the water system is able to supply water to its resident consumers who are dependent on the water system even if a source fails for one reason or another (e.g., drought, aquifer depletion, contamination).

64556. Permit Amendments.
(a) Section 116550 (HSC) clearly indicates that amendments to the domestic water supply permit should not be required except where the Department determines such an amendment is appropriate. Paragraphs (1) through (13) list a number of changes in water system facilities, operations, or supply that necessitate Department oversight via the permit amendment process to ensure that any planned change does not threaten the provision of a reliable supply of potable water to customers served by the water system. Paragraph (1) indicates that no permit amendment is needed for smaller tanks; the Department has found that smaller reservoirs are typically purchased tanks that do not need Department approval. Paragraph (2) reflects the Department's recognition that the Waterworks Standards, of necessity, are very specific and there may be situations that, due to local circumstances, may be impractical or unachievable. Hence, proposed subsection 64551(c) provides for alternatives, while paragraph 64556(a)(2) specifies that a water supplier must request a permit amendment to propose an equivalent alternative to any of the specific regulations. The associated requirement is that the applicant must demonstrate that the alternative being proposed does not increase the risk to public health over that of the specific standard stated in the proposed regulations. The need for this provision is based on extensive Department experience; the Stakeholder Group's comments and concerns were also taken into account and all agreed that a demonstration is necessary to ensure equivalent public health protection.

Paragraphs (3), (4), and (6) through (13) cover system changes for which the Department has determined that its oversight is necessary to ensure that the system's capacity to serve potable water is not compromised. Paragraph (7), "change in regulatory jurisdiction", would be applicable if a water system, for which the Department of Public Health has had regulatory oversight, were transferred to the jurisdiction of the local primacy agency, e.g., County Health Department.

Paragraph (5) addresses expansions of the distribution system. In the opinion of the Department, a major expansion of the service area, with the potential impact on the adequacy of the water supply, is the type of change in the distribution system that should require a review and amendment to the permit. Requiring a water system to obtain a permit amendment forces the system to evaluate the impact of the expansion on the existing water supply and distribution system and provides the Department the information it needs to determine whether the water system has sufficient capacity for the proposed extension. The Department proposes to use a criterion of 20% for identifying a "significant" expansion. A specific criterion is needed, because otherwise, the addition of a single service connection could be labeled as an expansion. Although 20% is a somewhat subjective number, in the judgment of the Drinking Water Program's field staff, it is a reasonable one based on their experience with system expansions

and the point at which a water system would need to be evaluated to ensure that it is not proposing to expand beyond its current capacity.

Subsection (b) is included in this list to cover any situation that the Department cannot anticipate at this point that would need the review and oversight associated with the permit amendment process and necessitate inclusion in the water system's official permit. The factors listed in paragraphs (1) – (13) are those that the Department would review to determine whether the situation merited handling as a permit amendment.

(c) Section 116550 of the Health and Safety Code (HSC) allows modifications or additions to a distribution system to be made without an amendment to the permit provided the water system complies with the Waterworks Standards and also states that this is allowable "unless otherwise directed by the Department". This statutory provision is restated here because it is extremely important to the understanding of the full context and application of these proposed regulations and is thus helpful to the reader. The proposed Waterworks Standards are sufficient, in the opinion of the Department, to fully protect the health of consumers of the drinking water, except in those situations listed in subsection (a), some of which are not directly associated with the distribution system and, therefore, are not covered by the Waterworks Standards. Pursuant to HSC section 116550, most distribution system changes are covered by the proposed Regulations and, as long as the Regulations are adhered to, no further evaluation or review by the Department is needed.

64558. Source Capacity Planning Study.

A key public health feature of any water system is to assure that an adequate quantity of water under sufficient pressure is available to serve consumers at all times. Existing section 64568 provides that no service connection be added that would cause the quantity or pressure related regulations to be violated. The Department has determined that making this type of analysis every time a single new service connection is added is unreasonable and unnecessary. Instead, the Department proposes to limit this analysis to significant additions and any case the Department has identified as a potential or existing supply problem, i.e., a system has almost, or indeed, failed to meet its water supply demand. The purpose of this section, therefore, is two-fold: To assure that a major expansion of the existing service area (such as an annexation) of a water system will not result in overtaxing the available water supply or cause excessive loss of pressure and; to provide the analysis needed for a system with potential or existing supply problems on which to base appropriate remediation steps to ensure adequate supply.

Many water systems, particularly the larger ones, already have and maintain a water supply master plan to meet growth demands. Unfortunately, many of the small systems, where many of the supply problems tend to occur, do not. Correcting a water supply shortage problem generally takes time in order to determine new sources, establish the financing, obtain water rights, and undertake the necessary construction. Beginning these actions after water outages occur can leave the consumers in a serious risk situation for several years. Systems need advance warning in order to plan and undertake the necessary corrections to assure an adequate supply of drinking water and ward off outages before they occur. Therefore, in accordance with section 11346.3(c) of the Government Code, the Department has determined that it is necessary, for the health and

safety of the people of the state, to apply the requirement of a planning study to a business that owns or operates a public water system whenever such business proposes significant expansions of the public water system's service area or whenever the public water system has potential or existing water supply problems.

(a)(1) The information required by this paragraph is the minimum necessary for the Department to evaluate water demand and source capacity. While a growth projection period greater than 10 years would be desirable, the Department has learned from observation that it is difficult to make accurate projections beyond that timeframe; therefore, a 10-year projection is the most realistic for purposes of this section. In addition to population, it is important to also project the type of growth anticipated in terms of the types of service connections. For example, if large industrial or agricultural users are included in the projection, these types of users can create large water demands compared to residential users and could thus affect the overall water demand projection.

(a)(2) There are a number of acceptable ways to calculate and project water demand (e.g. using past records, comparing to a similar nearby system, using standard industry units). The purpose of this paragraph is to provide water systems the flexibility to use any reasonable method that best meets the circumstances of the individual system. The proposed regulations require the basic approach detailed in section 64554. Submission of the methods, assumptions, and calculations enables the Department to review the reasonableness of the demand projection.

(a)(3) The purpose of this paragraph is to establish the means for evaluating the capacity of the sources of water and the capability of the system to deliver that water. Since the ability to withdraw water may, in some cases, be restricted by legal water rights, it is essential that these rights be confirmed. Recent court decisions have held that the Department has the responsibility to verify water rights claimed by a water system. With respect to groundwater sources, information relating to the potential capacity of the aquifer is necessary to determine if the aquifer has the capacity to sustain continued or increased withdrawal. This can be established by such means as a hydrological evaluation of the physical characteristics of the aquifer, changes in groundwater levels over time, and comparison of drawdown pumping patterns. Even if the aquifer contains sufficient capacity, this capacity is not available to the water system if the yield of the well or the capacity of the pump is inadequate. This information is also essential, therefore, to complete the evaluation. In some cases, inadequate yield or pumping capacity can be partially offset by additional storage capacity which can be used to meet peak demand periods. Including this information in the report allows water systems to take this possibility into account in evaluating their supply capability.

(b) As indicated, the intent of this section is to provide the water system and the Department with information to evaluate the continued capability of the system to serve an adequate supply of drinking water. If the Department determines during its annual system inspection that the information in the initial (or previous) report is not current, an update would be necessary to ensure the supply is still adequate. Since water sources do not undergo frequent changes, in most cases, the update would involve only a further growth and demand projection.

(c) Water systems that serve more than 3,000 service connections are already required to develop and submit an Urban Water Management Plan (Water Code Part 2.6 beginning with section 10610) to the State Department of Water Resources. Some water systems have indicated to the Department that these reports contain information similar to that required pursuant to this section. Therefore, in order to minimize the burden on these systems, submission of that report for the purposes of meeting all or a portion of this section's requirements is allowed.

Article 3. Water Sources

64560. New Well Siting, Construction, and Permit Application

(a) This subsection lists a number of steps to be taken prior to initiating well construction in order to ensure that the water system has thoroughly considered source protection in its selection of a site for the new well before it proceeds with construction; failure to conduct an adequate site review prior to construction has resulted in the development of new wells that are already contaminated or unnecessarily subject to potential contamination. The Department intends to avoid such situations in the future by requiring that a utility proposing a new well develop a comprehensive technical report to submit as part of its permit amendment application.

(a)(1) A Source Water Assessment includes a comprehensive site review the same as that required by the U.S. EPA on a national basis for all drinking water sources under the 1996 reauthorization of the Safe Drinking Water Act (SDWA, Title XIV, Section 132).

(a)(2) Based on the Department's experience, a 50-foot radius should provide a sufficient protection zone to provide some insurance against the well's contamination.

(a)(3) Design plans and specifications are necessary for assessing design and construction deficiencies that may lead to health hazards.

(a)(4) California Environmental Quality Act (CEQA) documentation is a statutory requirement (Public Resources Code, Division 13, section 21000 et seq.).

(b) This section would establish the basic requirements to obtain a permit or permit amendment for the new well. The documentation required by the Department is necessary to determine whether the well should be permitted as a drinking water supply. The Department of Water Resources well completion report has the full description of the construction features of the well (e.g., seal, screening levels, casing materials, and soil type). Pump tests establish the flow (volume of water that the well can contribute to the water system's supply) and the water quality data is used to ensure the well is in compliance with all applicable drinking water quality regulations (necessary to protect the public). The As-Built plans confirm how the well was constructed, in case there were any changes to the well or discharge piping since the design phase.

(c)(1) It is important for any well that is going to be used to supply drinking water to the public to be properly designed and constructed to avoid contamination by surface water and other

means. The Department of Water Resources (DWR) has developed statewide construction standards for all new wells in California that provide adequate safety for public water supply wells. Rather than restate these construction standards, the Department has referenced them (Bulletin 74-81 and the newer amendments in Bulletin 74-90). The DWR standards are already implemented and enforced through local ordinances, therefore, this requirement poses no additional burden on water utilities. Including these standards in the proposed regulations, however, provides the Department with an adequate reference standard that can then be enforced by the Department through its normal regulatory oversight of public water systems. It also avoids the need to duplicate those standards in these regulations.

(c)(2) The American Water Works Association (AWWA) provides standards that are used throughout the industry to construct facilities. Although the well construction standards were not referenced in the existing regulations, when the Department began listing design specifications for well construction, it noted that many are included in the AWWA standard referenced here and, for the sake of brevity, is requiring construction pursuant to the standard instead of including its many specifications.

(c)(3) The requirements in this paragraph are not specifically identified in the standards referenced in paragraphs (1) and (2); hence, they are listed here since the Department has found from experience that they contribute significantly to proper construction.

(c)(3)(A) This is needed to ensure proper, consistent, and reliable operation.

(c)(3)(B) and (C) A major contamination problem for wells is flooding by surface water. Loss of the well water supply during major floods has occurred on several occasions. Restoring these wells to useable conditions usually takes at least several days during which time the water utility and the consumers may be out of water. Anytime a water system is out of water, a variety of health hazards may be created. It is important, therefore, to try to minimize the loss of important well sources of supply. For minor inundations, the requirement to locate the surface vents above the finished grade is sufficient to protect the well from surface water entry. However, wells that are located in designated flood zones are frequently inundated, but adherence to the specifications in the reference criteria in paragraphs (b)(1) and (2), along with these requirements, should result in adequate protection.

(c)(3)(D) The Department has found that placing the wellhead and/or controls in a vault can result in flooding and accessibility problems and, hence, is establishing that vaults cannot be used.

(c)(3)(E)1. Most public water supply wells in California utilize chlorine to routinely disinfect the drinking water prior to delivery to consumers, although this is not a mandatory requirement for all wells. Properly constructed wells with no indicated presence of coliform bacteria are allowed to deliver water without disinfection. However, on many occasions it may be necessary to disinfect such a well for short periods of time to correct temporary contamination problems. This cannot be done readily if the well is not equipped with electrical and plumbing hookup

facilities. The Department has determined that these features are important to assure the ability to apply disinfection should it become necessary.

In view of the effectiveness of this safety precaution, the Department proposes to make this a standard requirement for all new public water supply wells. While not yet adopted, the Federal Environmental Protection Agency has proposed federal drinking water regulations requiring mandatory disinfection of all public water supply wells unless a waiver has been granted. One of the proposed provisions for obtaining such a waiver is that equipment be installed to allow the rapid hookup of chlorination facilities. The Department's proposed language would satisfy the proposed federal requirement should it be adopted.

(c)(3)(E)2. Sampling of the water derived from a drinking water well is frequently necessary. This is routinely required if the water is not disinfected. Sampling of the well water is also required following repairs to the well or any time possible contamination of the well water is indicated. Sampling of the well water is difficult if a sampling tap is not provided. Because of the convenience of having a sampling tap on the well discharge line, most water utilities routinely provide such a tap on new wells. The purpose of this section is to require a tap installation on all new wells to allow for the sampling of the well water as needed. This is essential to be able to assure that the water delivered to consumers is free of excessive contaminants.

Requiring the sampling tap to be located between the check valve and the chlorine injection port assures that the samples taken are representative of the raw water derived from the well and not water that may have been subjected to chlorine.

(c)(3)(F) Every new or repaired water supply well is required to demonstrate that the water from the well meets bacteriological standards before the well can be placed into service [section 64421(b) CCR and DWR Bulletin 74-81]. Since this water may be contaminated, it cannot be placed into the distribution system and must be pumped to waste. This obviously poses a significant problem for the water utilities if the well is not equipped with provisions to allow the discharge from the well to go somewhere besides into the distribution system. The Department has encountered this problem with a number of existing wells. The requirement that all new wells include the provision to pump discharge water to waste is proposed to resolve this problem. The Department has determined that imposing this requirement on existing wells, while desirable, would impose an unreasonable burden on water utilities.

The requirement that a check valve be placed on the waste discharge line is necessary to insure that backflow (which may contain contaminated water) from the waste line does not reenter the well.

64560.5. Well Destruction.

When wells are abandoned, if they are not properly sealed off, they can serve as conduits for contaminants to reach the groundwater. Therefore, destruction should be conducted pursuant to the specified procedures in the Department of Water Resources bulletins referenced.

64561. Source Flow Meters.
Existing requirements [Section 116555 (c) HSC and sections 64562 through 64564 CCR] state that each public water system must have an adequate and reliable quantity of water available at all times. Section 64564 in particular requires analysis and records of the source capacity of each source of water used. In order to ascertain the capacity and evaluate the adequacy of individual water sources it is necessary to measure the amount of water being extracted from each source. Most, but not all, water utilities already do this by means of a flow meter.

(a) This subsection would allow the meter to be placed at any point between the source and the entry to the distribution system so that the water utility can take advantage of any other metering (such as at a treatment plant) that is already in place or serve multiple purposes with the meter. Some water systems have inactive sources (disconnected from the water system); these do not need flow meters, since they cannot be used without a permit amendment.

(b) The Department has determined that in order to evaluate compliance with source capacity and reliability requirements, a flow meter needs to be installed on each source; this is particularly pertinent to systems that have multiple sources. Recording the total production of each source on a monthly basis (rather than daily or weekly) provides sufficient information to make the evaluations mentioned above and does not impose an unreasonable burden on the water utility.

Article 4. Materials and Installation of Water Mains and Appurtenances

64570. Materials and Installation
(a) This subsection establishes the material and installation standards for newly installed water mains and is essentially the same as existing requirements (section 64622 Table 1 and section 64624 Table III), except that the AWWA references have been updated to reflect the most current AWWA standards.

(b) This subsection is intended to ensure that water mains are installed in a manner that prevents severe damage to the water main. Breakage of a water main can lead to water outages and/or contamination of the distribution system.

64572. Water Main Separation.
The purpose of existing section 64630 and this proposed section is to establish sufficient safety barriers to prevent the entry of contaminants into the water main as a result of the proximity of a line conveying water that is unsafe to drink.

(a) A water main may be subject to contamination if the surrounding soil becomes saturated with nonpotable water or a hazardous fluid, and the integrity of the water main is compromised by a leak or break in the main, or faulty joints. The hazard increases if the water main suffers a loss of pressure. The presence of a sewer line or other line conveying nonpotable water or hazardous fluid can significantly increase the probability of this type of hazard occurring should the sewer line break or leak.

The proposed separations contain the requirements in existing subsection 64630(c). However, existing subsection 64630(c) uses the term "sanitary sewer" which the Department feels is too broad and confusing. To provide more specificity, the Department proposes to replace this term with a more specific breakdown into the categories of untreated wastewater, and primary or secondary treated wastewater. The term "wastewater", however, does not include recycled water. For this reason, the Department has added the terms "disinfected secondary 23 recycled water (defined in section 60301.225 CCR)" since the quality of this recycled water is similar to secondary treated wastewater.

In addition, the Department is proposing to add paragraph (5) to include in the separation criteria pipes carrying hazardous fluids other than sewage. From experience in the field, staff have learned that this category of pipeline also poses a risk to water mains.

The specified distances are consistent with the existing regulations and with the 1992 California-Nevada Section American Water Works Association "Guidelines for Distribution of Nonpotable Water".

(b) Although disinfected tertiary recycled water and storm drainage pose a lesser health risk if contamination of the water main should occur, a risk does exist since the recycled water can contain unidentified chemicals of concern and the storm drainage is subject to all types of runoff with no subsequent treatment. Therefore, the Department believes it is necessary to specify a separation from new water mains and supply lines of four feet horizontally, and one foot vertically, consistent with the existing regulations for other separations and with the 1992 California-Nevada Section American Water Works Association "Guidelines for Distribution of Nonpotable Water".

(c) Although raw water being conveyed to provide a supply for drinking water would be considered low risk from a health perspective, the Department has found many raw waters to be biologically and/or chemically unsafe for drinking; therefore, while raw water contamination of water being distributed for drinking would pose a lesser risk than sewage contamination, a risk does exist. For this reason, the Department proposes to establish a separation as a safety precaution. The specified distances are consistent with those in subsection (b).

(d) The separation distances described in subsections (a) and (b), apply to parallel pipelines where breaks or leaks can occur at any point in the pipeline. However, it is often necessary for pipelines conveying wastewater and pipelines conveying potable water to cross (such as at intersections). Although the hazard from crossing pipelines is significantly less since there is only a single point at which contamination could occur rather than the entire pipeline, some degree of hazard still exists. Existing section 64630(c)(2) requires that water mains be installed at least one foot above sanitary sewers at crossing points. Proposed section 64572(d) retains this requirement but adds two additional requirements. First, a requirement has been added that the crossing of the two pipelines must be perpendicular. The purpose of this is to minimize the distance within which contamination could occur and prevent a crossing to be made at a narrow angle such that the hazard would be similar to that of a parallel pipeline. A second requirement has also been added that specifies that no construction joints shall be made in the water line

within 8 feet of the wastewater line. The primary entry point for contaminants to enter the water line is through joints used to connect pipeline lengths. By eliminating such joints in the vicinity of the wastewater line, this risk is substantially reduced. The 8-foot distance is as close to the required 10 feet for parallel pipeline construction as possible, because water mains generally come in 18-foot lengths, so that requiring 10 feet would entail significant additional costs.

(e) The purpose of this subsection is to establish that compliance with the vertical separation requirements is only necessary when the pipeline and water main are within ten feet of each other; otherwise, distance provides sufficient protection. The ten feet is consistent with other requirements.

(f) Existing section 64630(c)(3) requires a minimum of 10 foot and "preferably" a 25-foot separation between water mains and cesspools, septic tanks, seepage pits and sewage leach fields. This was deleted because it contained both a mandate (10 feet) and a recommendation (25 feet). Based on its experience in the field during inspections and from reviewing data from site monitoring wells, the Department has determined that the 25-foot separation provides sufficient protection against contamination in all cases. Since groundwater recharge sites also raise potential contamination issues, the Department has included these in the list requiring a 25-foot separation. However, the Department recognizes that in a few instances where special precautions are taken, a lesser separation distance could be allowed. The flexibility language set forth in section 64551.100(b) allows a water supplier to demonstrate the use of special precautions and obtain Department approval for a lesser distance in unusual situations.

Similarly, existing section 644630 (g) simply states that installation of water mains "near" waste disposal ponds, sanitary landfills etc. must be subject to obtaining written approval from the Department. This language was deleted because the word "near" was not defined. The Department agrees that many options are open to water systems to design special precautions (such as the use of special pipe or welded joints) in pipelines that pass near these type of hazardous facilities and that use of these alternatives should be subject to review and approval. The existing language requires this review in all cases. However, the Department believes that this is not necessary if an adequate buffer distance is maintained. The proposed 100-foot separation has been used as an industry recommended standard (AWWA "Guidelines for Distribution of Nonpotable Water", 1992). The Department has determined that this distance represents a safe buffer distance from these types of facilities. Due to the greater size and volume of waste inherent in ponds and landfills, which can cause saturated conditions to expand horizontally to a greater distance, a greater separation is needed than the 25 feet used for septic tanks and cesspools. The Department's experience with monitoring wells in the area of such sites has borne this out. Since storm sewers and tertiary-treated wastewater present lesser hazards, it is not necessary that any specific separation in terms of distance be provided; however, some separation is necessary since they do pose a hazard of contamination and also of breaking/leaking and thereby posing a potential risk to the structural integrity of the water main.

(g) This requirement is the same as in existing subsection 64630(d) and provides for consistent measurement.

(h) The Department recognizes that it may be overly onerous for some repairs or replacements of existing water mains, where a new main is to be installed, to meet the separation distances. Historically, the Department has allowed such installations for relatively minor main installations over short distances, provided that precautionary actions, such as upgrading or sleeving of the piping material, have been taken. Therefore, this section allows for exemptions from the separation criteria under certain circumstances. 1320 feet was chosen for consistency with section 64577 (Isolation Valves) and the exemption would only apply to new mains replacing existing mains. As previously noted, due to the greater size and volume of waste inherent in ponds and landfills, which therefore pose an even greater potential for contamination, exemption from the separation distances subsection (f) would not be allowed by this subsection. Department approval is to ensure that the remedial action chosen in place of meeting the separation criteria will adequately protect the main from contamination.

64573. Minimum Water Main Size.

This section is essentially the same as existing subsection 64628(a). The purpose is to preclude the use of undersized mains that would be insufficient to meet fire flow demands and peak hourly demands while sustaining the required minimum pressures. However, since in certain unusual situations use of a four-inch main may be impractical, alternatives can be considered under subsection 64551.100(b). A proposal to use smaller mains would require submittal to the Department of a special hydraulic analysis to demonstrate the ability to meet specific quantity demands.

64575. Flushing.

(a) Dead end water mains are a particular source of water contamination due to bacterial and other growths that can occur in stagnant or semi-stagnant water. Water located at the end of a dead end main is not subject to continual circulation and may remain in a stagnant condition for long periods of time. In order to prevent the growth of undesirable bacteria and other organisms, the water main should be flushed periodically to remove the stagnant water. Many water utilities conduct routine flushing programs to protect the quality of the water in their distribution systems. However, this cannot be done if the water main does not have a flushing valve or blow-off at the end of the pipe to allow the main to be flushed.

Existing section 64642(a) requires a flushing valve or blow-off to be installed at the end of each dead end water main "where stagnant conditions are likely to develop". This language is extremely ambiguous because it leaves it up to the judgment of an individual as to when a valve is necessary. Furthermore, stagnant conditions are "likely" to develop in any dead end main, so all existing dead end mains should already have a flushing valve. However, this is not the case, but the Department chose not to require a flushing valve on all existing dead end mains (even though one could argue that this is already a requirement) because the cost of installation is considerably higher and would impose an unreasonable burden on water utilities. Installation of the valve on existing dead end mains (of which there are a limited number in California that do not already have a flushing valve), therefore, will occur when the main is replaced. If installed at the time the water main is installed, the cost of providing a flushing valve is minimal in light of the water quality benefits attained. Hence, the requirement has been reframed to clarify that a flushing valve is required on only new dead end mains.

(b) This proposed subsection is the same as existing section 64642(c). These sections assure that sewage from the sewer cannot enter the water main as the result of a backflow condition. An air gap is the most protective backflow prevention device available; others such as a reduced pressure valve would not provide sufficient assurance against backflow given the extremely hazardous nature of sewage.

(c) and **(d)** The required velocity of 2.5 ft/s is the minimum velocity necessary to "scour" the main, as specified in the AWWA Standard C651-05. The purpose of flushing is to remove sediments that accumulate in the main under stagnant conditions. In order to remove these sediments, it is necessary to have adequate water flow in the pipe. This proposed subsection would require that new valves and blow offs be designed to maintain the flows specified in Table 64575-A and produce the velocity of 2.5 feet per second. Table 64575-A is the same as that in existing subsection 64662(c) except that it has been expanded to address 12, 14 and 16-inch pipe diameters since they are so commonly used in distribution systems for larger utilities.

64576. Air Release, Air Vacuum, and Combination Valves.
The proposed requirements would be applicable only to new installations of valves or new valves being used to replace existing valves that are subject to flooding. Existing valves with no problems would not need to be replaced, since it would be costly and unreasonable to adopt such a requirement.

(a) The purpose of this proposed subsection is the same as that for existing section 64636(a)(1), i.e., to ensure that flood water, which may be highly contaminated, does not enter into the well through this type of valve. The difference in the proposed requirement is that the Department's experience indicates it is not necessary to specify a minimum extension; also, in some cases, the use of a modeled 100-year flood level may be more appropriate as a basis than a maximum recorded water level due to a lack of available data on water levels.

(b) Accessibility for inspection, maintenance, and repair is essential for any element of the distribution system in order to ensure that it is functioning properly. This was not addressed in the existing regulations.

(c) This proposed subsection has the same intent as existing section 64636(a)(2), i.e., prevent contamination of the distribution system via inflow of other waters and contact with living creatures that could contaminate the system. However, the details related to meeting the stated requirement are left to the design engineer, since they might differ in different situations.

(d) DWR Bulletins 74-81 and 74-90 specify that wells need to be equipped with inverted screened casing vents. A domed and screened cap is an acceptable alternative. Distribution systems need to be vented and the requirements here are intended to help prevent contamination of the distribution system.

(e) The AWWA standard and manual are referenced because they provide industry-accepted practices for valve installation and support consistent installation throughout the state. Including

these in the proposed regulations provides the Department with an adequate reference standard that can then be enforced by the Department through its normal regulatory oversight of public water systems. It also avoids the need to duplicate those standards in the regulations.

64577. Isolation Valves.

A water system must have the ability to isolate a section of water main in the event of a distribution system emergency, such as a main break. This can occur for a variety of reasons including earthquakes, accidental excavation, pipe failure, or floods. If the affected water main cannot be isolated, the main cannot be readily repaired, consumers could be without water, and the possibility of backflow increases substantially. Existing section 64632 requires that "sufficient" valves be provided on water mains to minimize sanitary hazards during repairs. This language is obviously too general and vague to be of any value. The Department proposes to add three subsections to provide clarity to the location of isolation valves. Since it would be costly and unreasonable to require existing valves to be dug up and relocated, the requirement applies only to new water main construction.

(a) It is standard industry practice to space isolation valves on water mains throughout the distribution system and in California a distance of ¼ mile is used. The Department agrees that this represents a reasonable spacing for isolation valves and has incorporated this requirement into subsection (a). The 12-inch main size is consistent with the existing section 64632.

(b) Where water mains intersect and are tied together, it is important to be able to isolate any one of the three or four arms of the intersected mains. Subsection (b) simply requires that where such an intersected tie occurs, an isolation valve shall be located on each of the crossing mains (those that tie into the primary main) to eliminate the possibility of as much as a ½ mile of mains without a valve. In order to provide the water utility with some flexibility, the Department has set forth a distance of 100 feet as an acceptable distance from the actual inter-tie. This should allow the utility the opportunity to find a suitable location (such as beyond the actual street) and would allow some flexibility relating to the ¼-mile requirement in subsection (a). The 12-inch main size is consistent with the existing section 64632.

(c) Fire hydrants represent a particularly vulnerable aspect of the distribution system due to their exposure and the resulting likelihood of being struck by vehicles. In these instances, it is important to be able to isolate the hydrant quickly without causing major disruption of the remainder of the distribution system. Therefore, installing an isolation valve at each hydrant is necessary and is a common practice in the water industry.

64578. Water Main Valve Construction.

As discussed under section 64577 above, the ability to shut off or isolate sections of the distribution system is critical to effective operation and protection of the distribution system. While inclusion of sufficient valves located at key locations is important, it is equally important that authorized personnel have ready access to those valves. It does little good to have a valve if that valve is buried five feet deep or if the valve cannot be reached with a standard valve closure key. Therefore, this section requires that a valve deeper than five feet either have a riser to

enable access with a standard key or that the valve records indicate the need for a long key to ensure that one is available to close the valve if need be.

Article 5. Disinfection Requirements

64580. Disinfection of New or Repaired Mains.
Newly constructed water mains or mains that have been taken out of service for repair are subject to bacterial contamination. These mains must be disinfected prior to placing them in service. This has been standard industry practice and a Departmental requirement for many years. This proposed section is identical to existing section 64630(f) except that the reference has been changed to reflect a more recent AWWA standard and a requirement has been added that the samples be total coliform negative prior to use to avoid any problems.

64582. Disinfection of Reservoirs.
New or repaired reservoirs that have been taken out of service are subject to contamination similar to water mains. This is the same requirement as existing section 64600(g) except that the referenced AWWA standard has been updated to reflect a more recent standard.

64583. Disinfection of Wells.
Similar to construction of mains and reservoirs, newly constructed or repaired wells can become contaminated with bacterial organisms during construction. If the well is put into or returned to service without disinfection, these organisms could be distributed throughout the distribution system creating a risk to consumers. For this reason, for a number of years the Department has required all new wells to be disinfected prior to use. It has also been standard industry practice to disinfect new or repaired wells prior to use. The AWWA, which represents the water works industry, has had a standardized method for disinfecting new or repaired wells since at least 1987. This standard (C654-03) has been recognized throughout the country as the standard method for disinfecting wells. While the Department has routinely recommended disinfection using this standard, it now proposes to incorporate the AWWA standard into the regulations. Before proceeding with disinfection, the well is to be sampled first for bacteriological quality to determine whether it is actually necessary to disinfect. One reason for first evaluating the well is that some consumers have strong negative feelings about adding disinfectant chemicals to wells, unless it has been specifically determined that it is necessary to protect public health.

The language for inclusion of wells that have been out of service for more than three months is a new requirement. It has been the Department's experience over the years that wells that have not been pumped for a period of time tend to reflect higher incidences of contamination by coliform bacteria. This is likely to occur as a result of stagnant water conditions in the well which allows the growth of bacteria to occur. To assure that water that may be contaminated by bacteria is not pumped into the distribution system, the Department is proposing to first sample these wells prior to use and, if necessary, require disinfection, similar to repaired wells. Many water systems already do this as a matter of practice in order to avoid violations of the coliform regulations in the distribution system. While it is difficult to establish a specific time interval that would lead to bacterial growth, the Department believes that a three-month period could create such conditions. Requiring sampling and possibly disinfection for wells that have been

out of service for less than three months would obviously provide a much higher safety factor, but would create undue hardships for many systems and does not appear to be warranted.

Article 6. Distribution Reservoirs

64585. Design and Construction of Distribution Reservoirs.
Distribution reservoirs are an important element of a water distribution system. Because the water may be held in these reservoirs for some period of time and the reservoirs frequently contain atmospheric openings that could allow the entry of contaminants, the design and construction of these facilities is important to assure that the water quality is not degraded as a result of storage in the reservoir. The requirements in subsection (a) would apply to all reservoirs, new and existing, since existing reservoirs could be retrofitted at minimal cost, if necessary to comply; those in subsection (b) would apply only to new reservoirs, since it would be costly, onerous, and unreasonable to require compliance by existing reservoirs.

(a)(1) The interiors of most storage tanks are coated with a variety of materials to protect the interiors and the water. Some of these coatings contain materials that if leached into the water could cause the water to exceed drinking water regulations for chemical quality. The specific type of coatings that can be used is covered under proposed section 64591(a). However, even if an approved coating material is used, leaching can still occur if the coating is not properly applied (e.g. temperatures, curing time). Paragraph (1) would assure that the manufacturer's application instructions are followed. The testing and subsequent certification of a particular material is carried out in accordance with manufacturer's instructions and the certification approval is thus predicated on the presumption that the manufacturer's instructions for application will be followed.

(a)(2) This is essentially the same as existing section 64600(b).

(a)(3) Sampling of the water for coliform bacteria from a reservoir is necessary following any construction or repair (proposed section 64582). Similarly, sampling for chemicals is often necessary following recoating or certain repairs. Sampling from distribution reservoirs may also be necessary to locate the source of bacterial problems in the distribution system. To facilitate the sampling of a specific reservoir, a sampling tap must be provided. While this is generally on the outlet pipe, the Department prefers to leave it up to the water system to select the location that is most representative of the water in the tank.

(b) The Department proposes to require the submittal of design drawings and specifications for review prior to construction to ensure that proposed reservoirs meet the regulatory requirements.

(1) There is no standardized design for reservoirs due to the variability in location, elevation, type of use, materials, etc. It is necessary, therefore, to provide a great deal of latitude to the design engineer in order to meet the needs of the system.

For this reason, the Department has determined that the waterworks regulations should only set forth the minimum safety requirements that are inherent to all distribution reservoirs and allow

water systems to select the best alternative that meets the minimum requirements. The referenced AWWA standards would also provide a measure of safety for the water supply by ensuring that the reservoir is properly constructed. Including these standards in the proposed regulations, provides the Department with an adequate reference standard that can then be enforced by the Department through its normal regulatory oversight of public water systems. It also avoids the need to duplicate those standards in these regulations.

(b)(2) This is necessary to ensure that systems, particularly small systems, do not submit design proposals to use materials such as wood in their reservoirs.

(b)(3) The Department has determined that floating covers can be utilized if the requirements in the AWWA guidelines are met. Including these standards in the proposed regulations provides the Department with an adequate reference standard that can then be enforced by the Department through its normal regulatory oversight of public water systems. It also avoids the need to duplicate those standards in these regulations.

(b)(4) The purpose of this requirement is to ensure that water stored in the reservoir does not become stagnant due to a lack of circulation of the water inside of the tank. Having only one common inlet/outlet tends to create conditions in which the water is not forced to circulate throughout the tank before withdrawal. The Department prefers to allow the design engineers to select the exact locations of the separated inlets and outlets that would best meet the goal of minimizing short-circuiting of the water since this would vary with each individual reservoir.

(b)(5) This paragraph contains essentially the same requirement as existing subsections 64600(b) and (c) except that it has been rewritten for clarity.

(b)(6) In order to insure proper reservoir operation, the water level needs to be automatically monitored and controlled; smaller systems sometimes overlook this, so it is necessary to establish a specific requirement.

(b)(7) The presence of such a reservoir opening (which is usually located on the roof) provides an opportunity for unauthorized access, vandalism, or sabotage. There are also other ways that the reservoir might be inappropriately accessed. Therefore, this paragraph requires that the reservoir be equipped to prevent unauthorized access, but allows flexibility as to how that should be accomplished. Early drafts were very detailed and proscriptive; however, Stakeholder comments indicated that water utilities are involved in developing complex and, in some cases, highly individualized, approaches to security and should not be hampered in doing so by constraining regulations.

(b)(8) All reservoirs are subject to varying degrees of sediment buildup, interior deterioration of coatings, and possible growth of organisms. Therefore, it is necessary to periodically inspect and clean or repair reservoirs and to remove floating material as necessary to avoid water quality degradation. This paragraph would enable this maintenance to be done. A tank that has no access opening, as required by this subsection, obviously cannot be inspected or maintained.

(b)(9) This requirement is similar to existing section 64600(e), except that a maximum distance from the reservoir for the isolation valve has been added and a requirement specific to reservoirs used for CT credit under the Surface Water Treatment Rule, Chapter 17, Title 22; the latter was added to ensure that the use of such a reservoir to meet CT requirements would not be inadvertently compromised. This is necessary to provide clarity that the isolation valve cannot be located out in the distribution system. 100 feet was selected to give the water systems some flexibility in locating the valve while maintaining a reasonable proximity to the reservoir.

(b)(10) The purpose of this requirement is to ensure that surface water (e.g. rainfall) or drainage water does not enter the reservoir. This type of water can be contaminated and would affect the quality of the stored water if it were allowed to enter the reservoir. The requirement in paragraph (b)(2) for appropriate roofing combined with appropriate grading around the site would generally prevent this from occurring.

(b)(11) The purpose of this requirement is to ensure that the interior walls are not subject to corrosion which could affect the quality of the stored water and/or allow the entry of contamination from outside the reservoir if the corrosion resulted in small holes.

(b)(12) Subsurface reservoirs are a subset of reservoirs and have additional requirements to ensure against contamination of the stored water that could occur as the result of their construction. In the Department's experience, the use of subsurface reservoir roofs poses a high risk for a number of reasons. There have been instances of biological contamination and structural damage. These reservoirs are subject to flooding and the entry of groundwater and runoff if not properly constructed, so several of the requirements [subparagraphs (A), (B), and (D)] are necessary to ensure that these problems and associated contamination do not occur. Subparagraph (E) requires monitoring wells to track the groundwater levels; these are necessary since such levels can vary considerably over time for various reasons and pose a risk of reservoir contamination. Subparagraph (C) is intended to provide adequate separation from potential sources of contamination to the reservoir; the separation distances are consistent with those specified for siting wells in the California Department of Water Resources Bulletin 74-90. Subparagraph (F) is again intended to prevent contamination and/or damage to the reservoir.

Article ~~1~~7. Additives

This article would be renumbered "7" and removed from Chapter 18 to be included with the Waterworks Standards Chapter 16 for cohesiveness. The Waterworks Standards are intended to ensure that the public is served potable water. A public water system's selection and use of additives, both direct and indirect, is integral to issues frequently arising during design, construction and repair of distribution systems. Therefore, the subject of additives is most appropriately placed in the Waterworks Standards.

64700. Direct Additives.
This existing section would be renumbered as 64590 to fit into Chapter 16, Waterworks Standards. The term "as part of the treatment process" would be deleted because the Department believes all additives to drinking water should meet the standard, regardless of whether it's being

added as part of a treatment process or not. It would also be amended to update the reference to the certification specifications and allow for material to be used that meets future versions of ANSI/NSF Standard 60. Additionally, although most ANSI accredited certification organizations include the annual criteria specified in the proposed section as part of their certification system, ANSI's accreditation guidance for such organizations is not yet of a level of detail that includes such criteria. Existing subsection (b) would be repealed since it is obsolete.

64591. Indirect Additives.

(a) Materials that come into contact with drinking water can be the source of contaminants (primarily chemicals) leaching into the water depending on the type of material. The purpose of proposed section 64591(a) is to prevent the use of materials that are likely to leach contaminant chemicals into the drinking water in places where such materials come into contact with the water.

Since the existing sections were adopted, a new testing and certification program for evaluating drinking water materials has come into being and is now widely recognized and used. The standard reflected in proposed section 64591 is the NSF/ANSI Standard 61. These testing standards were developed under the auspices of a joint consortium made up of industry representatives from the American Water Works Association (AWWA), state regulatory agencies, and the federal Environmental Protection Agency. These standards, and the certification programs that implement the standards, were designed specifically to protect drinking water from contaminants caused by leaching of chemicals from materials in contact with the water. This approach is essentially the same as the regulations for "direct" drinking water additives (substances that are added directly to the water). The Department has determined that this approach provides the best and most practical way of assuring that materials with known potential for degrading the quality of water are not used in the construction or repair of drinking water systems.

(b) This subsection would address the generation of treatment chemicals on site, both the equipment and the chemicals used, requiring certifications as appropriate, Standard 61-2005 and 60-2005 respectively. The reasons for using these standards has already been provided above.

(c) This subsection would be adopted to address the specifications for chemicals used to clean water treatment facilities, because these chemicals have the potential to end up in the drinking water; to protect the public, these chemicals must have been tested and certified as specified in the regulations.

(d) This provision is intended to allow water systems to utilize items for which contracts are in place when the proposed regulation is adopted to avoid any undue economic burden; however, the timeframe of the exemption is limited to six months to ensure that compliance with the new requirements is not unnecessarily delayed.

64710. Exception.

This existing section would be renumbered 64593 to fit into Chapter 16 and retitled for clarity (Use of Uncertified Chemicals, Materials or Products). The section would also be split into two

subsections for clarity and references updated to reflect the proposed changes in the section numbers.

Article 8. Distribution System Operation

64600. Water System Operations and Maintenance Plan.

There are numerous activities that are important to the operation and maintenance of a distribution system. Failure to routinely perform these types of activities can often lead to degradation of the quality of the water in the distribution system and result in an increased risk to consumers of the water. For example, failure to periodically flush dead end mains can lead to stagnation and microbial growth in these mains. While these functions are important, it is difficult and impractical to specify in regulations the frequency and manner in which these functions should be performed as they tend to vary with the nature of each system and other factors.

Department staff has observed that if a system is operating with no identified deficiencies, it most likely has a plan or has otherwise managed to organize itself to address necessary operation and maintenance activities.

Most of the larger and more sophisticated systems already include an operation plan in their normal operations. Some of the smaller systems, however, may not have addressed all of the listed factors or may not have any organized plan for covering those activities. An operations plan ensures that a system's operators (many of whom may be inexperienced) are aware of the activities that need to be conducted to protect the quality of the water delivered via the distribution system. Many small systems only have one operator. While this operator may or may not be familiar with the operational functions of the distribution system, a new operator coming on board frequently has no clue as to the procedures necessary to operate and maintain the distribution system effectively. The existence of an operation plan provides the necessary guidance for persons unfamiliar with the system.

(a) This subsection sets forth those operations activities that the Department has determined are essential to the effective operation and maintenance of a distribution system. As noted above, many systems may have already addressed most if not all of these. However, if the Department determines that a system is not operating properly in some way that poses a risk to public health, it will inform the water system and designate those plan elements that must be submitted to the Department to ensure proper attendance to good operational practices. The importance of each of the elements is explained below:

(a)(1) and (a)(2) These two paragraphs require basic schedules to insure that the water treatment processes are operated and maintained regularly so that they operate optimally and reliably.

(a)(3) The reason for flushing dead end mains has been described under proposed section 64575. This element requires a description of the type of schedule for flushing that the system intends to follow and the procedures to be used for disposal of the flushed water to ensure that adequate flushing is being conducted and disposal is being handled properly.

(a)(4) As discussed under proposed section 64585, it is necessary to periodically inspect reservoirs and conduct cleaning as may be necessary. This element would serve to provide the system's schedule for routine inspection of the tanks and reservoirs and the proposed procedures to be used to clean the tanks to ensure adequate maintenance.

(a)(5) All water mains in a distribution system deteriorate and need repair and/or replacement over time. As water mains age, the probability of leaks increases. In addition to loss of water and pressure, leaks can create more acute distribution system failure. Repairing a main means taking that main out of service. Unless done properly, this can lead to contamination during construction or backflow due to loss of pressure. Due to the seriousness of this problem, most water systems have some form of program for inspection and repair or replacement of old or worn out water mains. This element would simply require the system to describe its program for water main inspection, repair and replacement in order to assure the continued integrity of the distribution system.

(a)(6) This element involves the description of a water system's plan for responding to emergencies that may occur in the distribution system. Emergencies can result from natural disasters such as an earthquake, flood or fire that may rupture water mains or storage tanks, from accidents (a vehicle knocking over a fire hydrant or a failure of a storage reservoir) or from a contamination incident (such as a backflow of contaminated water into the system). Emergencies can seriously disrupt the ability of the distribution system to supply water to consumers. Therefore, it is important to public health and safety for the system to have a response plan thought out in advance of the emergency so that all operating personnel can respond effectively and without undue delay.

(a)(7) Consumer complaints provide important feedback to the water system as well as the Department about possible problems in the distribution system. Consumer complaints are often the first indication of a possible contamination problem or a significant leak. Most water systems do not, and should not, take consumer complaints lightly. This element involves the description of how the system responds (e.g. handling of calls, responsibility for follow-up, procedures).

(a)(8) Section 7604, Title 17 of the California Code of regulations requires the installation of backflow prevention devices at premises that may pose a backflow problem. Section 7605 of that article also requires that these devices be inspected and tested annually by the water system. Since this function is an integral part of the operation of a distribution system, the Department has included this element as part of the operations plan even though it is already a requirement elsewhere.

(a)(9) The purpose of having a valve is to enable the system to shut off the flow of water. This is particularly important in times of emergency. Without use, a valve can become stuck or even rusted shut. The inability to close a valve during an emergency because the valve is rusted or stuck can have serious consequences for the water system and for the public. For this reason, it is important to periodically test each valve by opening and closing it several times (exercising

the valve). This subsection would require the water system to describe the manner by which it routinely intends to accomplish this task.

(a)(10) Proposed section 64561 requires the installation of master flow meters on all water sources and the recording of water flows. In order for a flow meter to accurately measure the flow of water, it must be maintained and periodically calibrated. Therefore, this element is to assure that the water system has a specific plan for doing this.

(a)(11) Because of the complexity of operating a distribution system effectively, it is important that the operator have appropriate training and qualifications. This could take many forms including experience, instructional courses, industry certifications etc. State regulations require that distribution system operators be certified, similar to the certification required for water system operators. This subsection merely requires the water system to describe the certification, qualifications and training that operators of their distribution systems have attained.

(a)(12) Water mains, particularly larger mains, can experience growth of biological organisms on the interior walls of the water mains. If not controlled, these growths can lead to taste and odor problems and possible increases in coliform bacteria. It was suggested by the Stakeholder Group that larger systems should be required to describe their program for controlling biofilm growth in their distribution system.

(a)(13) The surface above or adjacent to a subsurface reservoir with a buried roof is sometimes used for location of playgrounds or other functions. Because any such additional use increases the risk for contamination of the reservoir, a comprehensive plan that includes inspections and monitoring would be required.

(b) Once a water system has been directed to develop a Plan to include the elements specified by the Department and it has been approved by the Department, in order to ensure that the system operates properly, it must operate in accordance with the Plan. Specifying this clearly in the regulation precludes any ambiguity regarding the Department's intent related to the Plan's implementation.

(c) This subsection requires that any operations plan submitted pursuant to subsection (a) be updated every five years. This is necessary because the original plan could become obsolete if significant changes take place in the water system. Requiring an update at five-year intervals would keep the operations plan acceptably up-to-date and would not impose an unreasonable burden on the system. For systems that undergo little or no significant changes, updating the original plan would likely involve only minor changes. It is the Department's opinion that the five-year update interval is the most reasonable and appropriate time frame for updating the plan.

64602. Minimum Pressure.

This proposed section replaces existing section 64566 relating to minimum pressures in the distribution system. The proposed section simplifies the requirements by separating them into a design standard of 40 pounds per square inch (psi) and an operating standard of 20 psi. The Department determined that the previous pressure requirement of 20 pounds per square inch

(while perhaps adequate for an operating standard) was not adequate for a design standard for a new water system since it provided no safety margin or operational flexibility and thus could not assure a dependable supply at all times. The design standard of 40 psi was selected because it is already a commonly used industry standard for design of new systems and is consistent with standards used by the Public Utilities Commission and by the 1992 Recommended Standards for Water Works (10 State Standards).

California has had numerous incidents of backflow contamination due to pressure losses resulting from inadequate pressure. Loss of pressure in a distribution system can lead to significant contamination through backflow from unapproved sources. These proposed requirements apply to the design of all new systems or modifications [consistent with proposed section 64556(a)(5)] to existing distribution systems in which the pressure may be affected.

Even though a water system may be designed for a higher pressure, there are numerous factors that may cause reductions in pressure later. The addition of service connections, increases in water demand, excessive water leakage, aging equipment, poor operation, etc., can all contribute to reduced pressure in the water distributed to consumers. The existing section 64566(b) and 64568 attempted to address reductions in operational pressures. The Department determined that a section setting forth a single minimum operating pressure would be more easily understood and would simplify enforcement. A minimum pressure of 20 psi was determined to be the minimum pressure necessary to meet sanitary needs of consumers. Pressures below this level would likely create potential health hazards. The proposed requirement of 20 psi assures that adequate pressure can be maintained to allow proper functioning of backflow prevention devices and assures that consumers (particularly those with two story houses) will have sufficient water pressure to meet sanitary and domestic needs.

64604. Preparation and Maintenance of Records.
This proposed section sets forth the types of records that each water system must maintain with respect to the distribution system.

(a) This subsection requires that records relating to new construction be maintained. Water systems are allowed to make additions or modifications to their distribution systems without the review or approval of the Department provided the systems comply with the Waterworks Standards. Since the Department does not inspect these facilities during construction, maintenance of "as-built" plans are the only practical means by which the Department can ascertain compliance with the Waterworks Standards. Since the plans are already available, maintaining them for future inspection by the Department poses no unreasonable burden on the water system.

(b) Essential to the operation of any water system is some type of map or drawing that shows the location of all of the critical features of the system. Knowing the location of water mains is necessary in order to check, repair, or replace them. Similarly, it is essential during an emergency to know where the isolation valves are. Water cannot be shut off if the shutoff valves cannot be located. While most systems already have this, the Department feels that this is such an important element that it should be required of all public water systems.

(c) This subsection requires that the results of laboratory tests conducted pursuant to various sections of these proposed regulations be maintained for three years. Similarly, the results of any flushing or cleaning conducted by the systems should be kept for a similar period. Three years was the period that the Department felt was most appropriate since it represents the maximum time interval between routine water system inspections conducted by the Department and would thus assure that these records were available during the inspection.

Chapter 17

Article 2. Treatment Requirements, Watershed Protection Requirements, and Performance Standards.

64654. Disinfection.

(c)(1) This subsection refers to sections 64566 (System Pressure) and 64630 (Water Main Installation), two sections proposed to be repealed. Therefore, subsection (c)(1) would be amended accordingly to refer to the proposed sections (or subsections) pertaining to the same subjects.

64658. New Treatment Plants.

(b)(4) This subsection refers to sections 64562 (Quantity of Supply) and 64566 (System Pressure), two sections proposed to be repealed. Therefore, subsection (b)(4) would be amended to refer to the proposed sections pertaining to the same subjects.

Note that the Department finds that adoption of the subject regulations constitutes action by a regulatory agency, which action is expressly authorized by state statute for protection of the environment and does not involve the relaxation of any standard for protection of the environment; and is therefore categorically exempt from compliance with the California Environmental Quality Act (CEQA) as a Class 8 exemption pursuant to CEQA Guidelines, 14 CCR 15308. The Department further finds that the adoption of the subject regulations does not fall within any exception to categorically exempt projects described in Public Resources Code 21084.

Waterworks Standards Stakeholders Group

Name	***Affiliation***
Bill Gedney	Southern California Water Company
Chet Anderson	Association of California Water Agencies/American Water Works Association
Cindy Forbes	California Department of Public Health
Cliff Sharpe	California Department of Public Health
Gary Lynch	Park Water Company
Jean Thompson	California Rural Water Association
John Corella	Coachella Valley Water District
Jose Rios	East Bay Municipal Water District
Lucinda Norried	Riverside Water District
Manouch Boozarpour	San Francisco Public Utilities District
Mike Gilton	South San Joaquin Valley Irrigation District

Addendum 1

Response to Comments, Period Ending February 16, 2007

The Department solicited written comments on the proposed regulation package R-14-03; seventeen sets of comments were received. The Department of Public Health did not receive a request for a public hearing.

Table 1: Commentators Providing Written Comments

Number	*Commentator(s)*	*Representation*
1	Barber, George	Paradise Irrigation District
2	Bigley, Steve	Coachella Valley Water District
3	Cabral, Bruce	Santa Clara Valley Water District
4	Chun, Douglas	Alameda County Water District
5	Clark, Krista	Association of California Water Agencies
6	DeGraca, Andrew	San Francisco Public Utilities Commission
7	Duerig, Jill	Zone 7 Water Resources Agency
8	Echols, Ralph	Placer County Department of Health and Human Services
9	Goldstein, Sid	Not Provided
10	Hills, John	Irvine Ranch Water District
11	Hitchman, Erik	Walnut Valley Water District
12	Hunsinger, Ron	East Bay Municipal Utility District
13	Mortensson, Michael J.	California Groundwater Association
14	Nasser, Mansour	San Jose Municipal Water System
15	Nelson, Kent	Contra Costa Water District
16	Robinette, Rob	Plumas County Environmental Health
The following commentator provided comments that were received after the close of the formal public comment period		
17	McIntyre, Drew	North Marin Water District

The following summarizes and responds to the comments.

GENERAL COMMENTS

Commentator 4 noted that "affect" in section E(3) of the Notice of Proposed Rulemaking prepared by the Office or Regulations should be "effect".
Response: Thank you.

Commentator 6 noted that the Department's establishment of a stakeholder group to provide valuable input and reviews regarding existing industrial standards and utilities' experience during the development process for the proposed standards is a commendable approach. Commentator 6 further noted that because there are no similar regulations adopted at the federal

level, the proposed standards will be a model for future federal rule-making consideration (e.g. the Total Coliform Rule Revisions and Distribution System Rule). Additionally, Commentator 6 also noted that they "applaud your [the Department's] staff's efforts to clearly define what provisions and requirements in the proposed regulations apply to new systems versus existing systems. This differentiation will significantly help water systems with many existing/old infrastructures comply with the proposed regulations without overburdening their operating and maintenance costs. Additionally, Commentator 6 stated their belief that the clear and explicit references to new systems/pipelines/appurtenances will help the Department's field staff in consistent interpretations and enforcement of the requirements."
Response: Thank you. The Department continues to believe that it is in the best interest of water systems, the Department, and the public to work together.

Commentator 6 questioned whether the proposed regulations considered a balance of water quantity and water quality. While referring to their specific comments pertaining to proposed Sections 64573 and 64602(b), Commentator 6 questioned whether the Department's staff considered the potential impacts or consequences of changing the existing requirements.
Response: The Department, in concert with the stakeholders, made every effort to consider the impacts of the proposed regulations while, at the same time, developing a regulation intended to be protective of public health. Please see specific responses to the comments regarding proposed Sections 64573 and 64602(b).

Commentator 6 expressed the belief that some of the requirements, in particular Sections 64554(a)(1) and 64556(a)(5), should not be applicable to wholesale systems, and recommended that the proposed regulations be revised to include an explicit exemption for wholesale systems.
Response: Please see specific responses regarding proposed Sections 64554(a)(1) and 64556(a)(5).

Commentator 16 expressed concern that the proposed regulations incorporate by reference many AWWA standards and that many small water systems may not have the resources to purchase standards that are revised periodically without public notification. Therefore, Commentator 16 suggested incorporating the text of the AWWA standards directly into the regulation.
Response: Inclusion of the referenced AWWA standards would lead to unnecessarily voluminous regulations. AWWA has developed drinking water industry standards for nearly a century and is the world's oldest and largest nonprofit scientific and educational water quality and supply related organization. In brief, AWWA is a well known and common source of drinking water related standards. The referenced documents are readily and reasonably available to the public. Hard copies or electronic copies of the AWWA standards may be purchased from AWWA's bookstore on their website at:
http://www.awwa.org/bookstore/productlist.cfm?cat=0

Section 64551.10
Commentator 6 suggested revising the definition of "Distribution reservoir" to include "any tank or other structure located within **and** connected to the distribution system and used to store treated/finished drinking water [emphasis added by Commentator 6]. Commentator 6 noted that with the suggested change and in conjunction with the definition of the distribution system, the

term "distribution reservoir" would exclude the treated water storage tanks and reservoirs located in a treatment plant.
*Response: The intent is **not** to exclude treated water storage tanks that distribute drinking water and are located at water treatment plant sites, such as those located in a treatment plant.*

Section 64551.20
Commentator 6 suggested adding "and water meters" to the list in the definition statement, making it clear that any water meters in the service connection are part of the distribution system. Additionally, Commentator 6 requested clarification how this definition would apply to the their approved unfiltered source, for which there is no filtration treatment but pH adjustment is made using lime addition and disinfection by hypochlorite injection is at separate facilities. In other words, Commentator 6 asked if the water transmission pipelines located between the lime and hypochlorite facilities will be considered part of the distribution system.
Response: Because all water systems do not have meters, an addition of "water meters" may not always be appropriate. The Department's intent was not to provide an exhaustive list, but instead provide a list that captures the meaning of the definition provided. If a water meter exists, it would be considered part of the distribution system. For the situation described by Commentator 6, the transmission line, which is still receiving treatment, would not be considered part of the distribution system.

Section 64551.40
Commentator 6 suggested that the definition of "source capacity" should specify whether or not the capacity is expressed in volume or flow.
Response: The Department agrees and has revised the language accordingly.

Section 64551.100
Commentator 6 commended the inclusion of the general provision for waivers and alternatives for complying with the proposed regulations, noting it as a major improvement. Commentator 6 stated that the provision makes it clear to water systems that there are other alternatives for complying with the proposed regulations if the existing physical constraints prevent a water system from implementing all specified requirements. However, Commentator 6 suggested that the proposed regulations include more guidance or explicit examples of alternatives that can be acceptable by the Department's staff based on their experience. Commentator 6's example of a need for more explicit alternatives was related to the requirement of air valve location above grade and above the 100-year water level, citing their specific comment on Section 64576(a).
Response: Thank you. Because the need for alternatives will be water system and situation specific, inclusion of explicit examples would not be appropriate, especially in the framework of a regulation. For a response to the specific comment on Section 64576(a), please see the discussion specific to the section below.

Section 64554

General

Commentator 13 recommended the inclusion of specific procedures for determining the capacity of wells. Commentator 13 provided suggested language, including a large portion of text previously discussed by the Department and the commentator during the development of the regulation package.

Response: The Department agrees that requirements more specific than those in existing text would be beneficial, particularly with the ever- growing concerns over the quantity and quality of drinking water availability in California. Although the Department did not incorporate the suggested text verbatim as originally presented, the Department appreciates the extensive time and effort the commentator provided in developing proposed text amenable to both parties. The Department has revised the proposed language accordingly to include the agreed upon text.

(a)

Commentator 6 suggested deleting the words "water source(s)" from the first sentence, and revising it to "At all times, a public water system shall have capacity to meet the system's maximum day demand (MDD)". Commentator 6's rationale was that a system should have sufficient treatment capacity, storage, or emergency connections to meet the high demand periods. Commentator 6 also asked for clarification regarding the proposed requirement that a public water system's water source(s) shall have the capacity to meet the system's MDD at all times. Commentator 6 noted their concern that this may be applied during major disasters, such as an earthquake. Commentator 6 suggested an exemption for major disaster. Additionally, Commentator 6 asked what the outcome would be if an existing water system did not meet the MDD or PHD requirements. [*Note: Commentator 6 referenced this comment to proposed Section 64552(1). Based on the nature of the comment, the Department believes the comment was referencing this section.*]

Response: A water system should be able to meet demand on its maximum day solely from its water sources, thereby ensuring that the system can meet the demand on the days to follow. An existing water system that fails to meet the requirements may be required to develop a Source Capacity Planning Study pursuant to proposed Section 64558 and would need to take remedial action. The phrase "at all times", as used in proposed section 64554, is intended to clarify the requirement of Health and Safety Code Section 116555(a)(3), consistent with the express requirements of Health and Safety Code 116540. The phrase is commonly used in California law and regulations and the Department does not find it necessary to include "force majeure" type exemptions.

(a)(1)

Commentator 6 asked for clarification whether this would not apply to wholesale water systems.

Response: The Department believes this is clear. If a wholesale public water system has less than 1,000 service connections, this would not apply.

(b)

Regarding (b)(1)-(3), Commentator 6 noted that water usage calculations for distribution systems and each pressure zone will require installation and routine calibration of flow meters. Although routine service meter reporting can be used, it requires tremendous data management and may

not account for water loss. Commentator 6 questioned whether hydraulic models or alternative methods may be used for MDD and/or PHD determinations if there are no meters in some parts of the system.
Response: Subparagraph (4) addresses situations where water usage data may not be available. That said, yes, hydraulic models or alternative methods may be used to determine MDD and/or PHD, pursuant to the requirements of proposed Section 64551.100(b).

Regarding (b)(4), Commentator 6 asked what alternatives would be acceptable to the Department if information was not available from similar systems.
Response: Alternatives would need to be addressed and approved on a case-by-case basis. Because the need for alternatives will be water system and situation specific, inclusion of explicit examples would not be appropriate, especially in the framework of a regulation.

(c)
Commentator 17 questioned whether "this should be renumbered part (b)(4)(a), not (b)(4)(c)." Additionally, while noting that they have two wells in close proximity, Commentator 17 questioned whether their system will have to develop a separate alternate source of groundwater supply.
Response: Paragraph (c) does not fall under paragraph (b), is not currently denoted as (b)(4)(c), and should not be renumbered as (b)(4)(a). Proposed section 64556(c) applies to community water systems "using only groundwater." Therefore, because Commentator 17's water system (North Marin Water District) has sources other than groundwater sources, the requirement would not apply and an alternative groundwater source would not have to be developed.

Section 64556
(a)
Commentator 14 suggested that the submission and content requirements be specified for permit amendments.
Response: Many elements would be water system, project, or location specific. The diverse nature and complexity of what may be specifically needed, with respect to a permit amendment, does not lend itself to being detailed in regulation. Therefore, the Department believes it would be best to deal with such specifics through its District offices, as has been historically done.

(a)(1)
Commentator 8 noted concern that for small systems (e.g., less than 200 service connections), any size reservoir may be significant and that a permit amendment provides a better tool for assuring such small systems submit plans, have them reviewed, and have them approved. Therefore, Commentator 8 proposed alternative language that would require a permit amendment for the addition of any reservoir for systems serving less than 200 service connections.
Response: Although the need for a permit amendment may not be specifically required in the proposed regulation for reservoirs of less than 100,000 gallons, it would not negate the need for the reservoir to meet the requirements of proposed Section 64585 or the ability of the regulatory

agency overseeing the water system to assure the reservoir meets the requirements by way of a review of the construction plans.

Commentator 17 suggested revising the requirement to apply only to tanks of 1,000,000 gallons or more.
Response: It has been the Department's experience that the addition of a reservoir of 100,000 gallons or more would constitute a change to a distribution system that could impact the quantity and/or quality of a water system's water supply, thus necessitating application for a permit amendment pursuant to Section 116550 of the Health and Safety Code.

(a)(3)
Commentator 14 noted that (a)(3)(C) should be clarified, noting that what "could" affect water quantity or quality would be subject to interpretation. As an example, Commentator 14 cited a situation where a well pump was being replaced with another of a different capacity.
Response: The Department is clarifying the expressed requirements of Health and Safety Code Health and Safety Code Sections 116525(c) and 116550 in that the need to submit an application for a permit amendment for a modification of a water supply is dependent on the potential for such a modification to affect the quantity or quality of the supply. Certainly, changing the capacity of a source would modify the quantity of the supply.

(a)(5)
Commentator 6 requested clarification whether the customer service connections within a retail water system being served by a wholesale water system would be counted as service connections for the wholesale water system.
Response: Because the wholesaler or the wholesaler's water system permit would not include, as ownership or their sole responsibility, the number of service connections from within another water system, the Department believes the proposed regulation needs no further clarification.

(a)(7)
Commentator 14 asked, "What does this mean?" and "Would an amendment be required based on actions/events outside the control of the water system?"
Response: A change in regulatory jurisdiction would be applicable if, for example, a water system for which the delegated local primacy agency has historically had regulatory oversight was transferred to the jurisdiction of the Department (or vice versa). As with many changes that may occur in the operation of a water system, events or actions leading to the change may often be outside the control of the water system.

(a)(12)
Commentator 4 and Commentator 17 requested clarification on how the hand washing exclusion applies to a permit amendment.
Response: Any transient noncommunity water system seeking to apply the hand-washing exemption under Health and Safety Code Section 116282 would be required to apply for an amendment to their permit. The Department has revised the proposed language to provide further clarification.

(a)(14)
Commentator 8 stated that Section 116525(a) of the Health and Safety Code requires a public water system submit a new application and "therefore obtain a new permit when there is a change in ownership." The commentator believes the proposed subsection contradicts the Health and Safety Code requirements in that a new permit should be required, as opposed to a permit amendment. Commentator 8 suggests deleting subsection (14).
Response: Although the Department may not necessarily be in agreement with each of the commentator's reasons, the Department finds that the proposed requirement is unnecessary because it is substantially duplicative with the Health and Safety Code and the Department has deleted the subsection.

Section 64558
(a)
Commentator 14 stated their belief that the conditions under which a Source Capacity Planning Study may be required are vague.
Response: The conditions under which a study may be required are varied and water system specific, not lending each of them to be specifically identified in regulation. For example, if the Department's evaluation indicates the water system may not meet source capacity related regulatory requirements, a Source Capacity Planning Study may be required. The Department believes the basis for its determination is clear and consistent with the expressed requirements of sections 116540 and 116555 of the Health and Safety Code.

(a)(3)
Commentator 6 suggested adding a survey of the number of un-metered service connections as part of the source capacity planning study. Additionally, Commentator 6 noted that "tanks" should follow "hydropneumatic" in (3)(B) and suggested adding "flow meters" to the list of appurtenances.
Response: The Department agrees that the addition of "flow meters", as well as "unmetered service connections", is appropriate and thanks the commentator for pointing out the fact that the term "tanks" was inadvertently left out.

Section 64560
(a)(2)
Commentator 10 and Commentator 14 noted that the 50-foot radius control zone may not always be practical, especially for wells located in parks, schools, etc. Commentator 10 suggested that other security measures should be allowed to be substituted and Commentator 14 suggested incorporating leniency to account for such situations.
Response: Section 64560(a)(2) already provides for an alternative. Therefore, no revision is necessary.

(c)
Commentator 17 stated that one of their wells cannot meet this requirement and recommended the addition of a waiver provision if it can be demonstrated that the "constructed well can provide a reliable and adequate supply of water at all times that is pure, wholesome, potable, and does not endanger the health of consumers."

Response: Section 64560(c) applies to "each new public water supply well" and, therefore, would not be applicable to an existing well. That said, regarding "waivers", the commentator may want to note that proposed Section 64551.100(b) allows for water systems to propose alternative means of meeting the requirements of the proposed Waterworks Standards.

(c)(3)(C)
Regarding the wellhead termination 18-inch minimum requirement, Commentator 10 believes that water systems should be able to substitute other measures for the requirement that provide an equivalent level of protection.
Response: An alternative would be allowed pursuant to proposed Section 64551.100(b).

(c)(3)(F)
Commentator 6 suggested adding a requirement that a "casing vent should be properly screened for [to] prevent foreign object intrusions" to (c)(3).
Response: The need to have casing vents screened is included in the California Department of Water Resources Bulletins 74-81 and 74-90, which are referenced in proposed Section 64560(c)(1).

Section 64570
(a)
Commentator 3 stated that references to AWWA standards should only refer to the standard number, without the year, to avoid becoming obsolete. For example, Commentator 3 suggests that the regulatory language should refer to AWWA C301, not AWWA C301-1997.
Response: Without the year present, a water system could comply by meeting a standard that is outdated and may no longer be appropriate. Although this could be remedied by stating, for example, "…the most recent version of AWWA C301…", it is not appropriate for the Department to propose a requirement for which the criteria is unknown because it has yet to be established.

Commentator 4 suggested adding language to include "lead free" requirements. Similarly, Commentator 5, Commentator 10, and Commentator 12 suggested adding language referencing the new lead free statutory requirements.
Response: It is unclear whether the Commentator 4 is referring to the existing standards set forth in Section 116875 or the new standards resulting from recently passed Assembly Bill 1953, which takes effect January 1, 2010. Regardless, Section 116875 already sets forth requirements for lead free materials, which also extends to introducing such items into commerce. The concern regarding the lead free requirements, as well as other potential leaching of contaminants from products, is addressed in proposed Section 64591. Therefore, the Department believes including such requirements in this section would be duplicative and is unnecessary, especially when one considers that statutory requirements take precedence over regulatory requirements.

Commentator 16 suggested a standard for mains made from PVC for less than 4 inches in diameter.

Response: Proposed Section 64573 requires mains to have a minimum diameter of at least 4 inches. Therefore, standard for those less then 4 inches is unnecessary.

Section 64572

General

Commentator 17 suggested that the proposed section be modified to include alternative criteria, such as that used in the Department's "Guidance Criteria for the Separation of Water Mains and Non-Potable Pipelines", in the event the separation criteria cannot be met.
Response: Proposed subsection (h), as well as proposed Section 64551.100, allows for such alternatives.

(b)

Commentator 6 requested clarification whether subsection (b) is intended to restrict installation in the same trench as in (a).
Response: Installation in the same trench would be allowed as long as the vertical and horizontal separation distance requirements are met, as indicated by the "not installed in the same trench" language in (a) being conspicuously missing in (b).

(d)

Commentator 2 suggested revising this section to allow crossing under a pipeline in (a) or (b) in cases when complying with section 64570(b)(2) would necessitate doing so. Similarly, Commentators 5, 10, and 11 suggested that a crossing under a pipeline conveying fluid listed in (a) or (b) should be acceptable, without Department approval, if the crossing would create a conflict with proposed section 64570(b)(2) or the manufacturer's recommended minimum depth of cover.
Response: While the Department agrees that the need for crossing under such pipelines may occur, the Department does not feel that the proposed criteria for crossing over non-potable lines is appropriate when new water mains are crossing under such pipelines because of the increased likelihood of contamination. When this situation arises, crossing under non-potable lines would be allowed, with Department approval, via section 64572(h). However, the Department believes its approval is necessary in such circumstances to ensure the remedial action is adequately protective of public health.

Commentator 4 stated that the perpendicular crossing requirement will cause construction problems and reduced hydraulic efficiencies. Commentator 4 suggested less restrictive requirements, such as allowing crossings no less than 45-degree angles. Similarly, Commentators 5, 10, and 11 suggested allowing 30 to 45 degrees crossings.
Response: The intent of the requirement is to prevent narrow angle crossings. However, the Department agrees that strict adherence to the perpendicular construction requirement may lead to unintentional limiting of hydraulic efficiencies. The Department agrees that a 45-degree limitation, coupled with the eight-foot joint restriction, would suffice and has revised the proposed text accordingly.

Commentator 9 seeks clarification as to whether the proposed separation criteria are expected to apply to new septic tanks. In other words, Commentator 9 questioned whether new septic tanks would be required to maintain a 25-foot separation from *existing* water mains.
Response: The proposed regulation regulates public water systems and does not set forth requirements for other entities. The water system will need to work closely with the other agencies to ensure the protection of public health.

(f)
Commentator 1 expressed concern that the section would restrict replacement of water mains because "a corridor 50 feet in width without septic tanks or sewage leach fields would not exist" and roadway right-of-ways rarely exceed 40 feet in rural areas. Therefore, Commentator 1 suggested that subsection (f) not be excluded from subsection (h), allowing Department approval for exemptions under such situations. Further, Commentator 1 stated that the "Departments familiar with their local areas should have the authority to grant waivers to all aspects of the proposed Section 64752." Similarly, Commentator 5 and Commentator 10 expressed the same concern regarding right-of-ways. Commentators 5 and 10 also suggested removing "except subsection (f)" from subsection (h) or retain the existing language (proposed to be repealed) found in section 64630.
Response: While subsection (f) is excluded from (h), the commentator should note that alternatives for meeting the requirements of section (f) are possible via proposed section 64551.100(b). The Department believes the elevated potential for contamination from the situations described in (f) necessitate a more formal written Departmental approval, on a case-by-case basis, as required in proposed section 64551.100.

Commentator 6 suggested adding "horizontal" after "25" for clarification and also suggested adding "underground hazardous material storage tanks" to the list.
Response: The Department agrees with Commentator 6 and has revised the section accordingly.

Commentator 6 and Commentator 14 noted that subsection (f) does not include a measurement description similar to that in subsection (g) for those hazards listed in subsection (f).
Response: The Department has revised the language in proposed subsection (f) for clarification.

(h)
Commentator 2 suggested the inclusion of subsection (f), noting that the suggested criteria in (h) would suffice for subsection (f) situations as well. Additionally, Commentators 2, 5, and 10 believe that it is unreasonable to require water systems to obtain Department approval for every instance. Commentators 5 and 10 also suggested that (h)(2) allow the replacement main to be "within six inches of the same size main it is replacing" to allow water systems the opportunity to more easily replace a main that is slightly larger (e.g. for increased fire-flow capacity).
Response: The Department agrees that criteria similar to those in (h) may ultimately be applied by way of proposed section 64551.100(b) when the separation criteria in (f) cannot be met. However, the Department believes the elevated potential for contamination from the situations described in (f) necessitate formal written Departmental approval, on a case-by-case basis, as proposed section 64551.100(b). Regarding the commentator's belief that it is unreasonable to require the Department's approval for every instance, Department approval must be currently

sought under the existing regulations and, with the proposed regulations being less broad, the Department believes the need for approval will be lessened. Given the potential for contamination in such instances, the Department believes approval should be obtained to ensure the Department has reviewed each situation; not only to ensure protection of the public health when separation criteria cannot be met, but to also ensure the separation criteria in this section truly cannot be met and an alternative is necessary. The Department agrees that some flexibility regarding the size of the replacement main should be provided and has revised the text accordingly.

Section 64573

Commentators 2, 5, 6, and 10 commented that this section should be flexible, allowing pipe that is less than 4 inches when, for example, the main serves only a few homes and a 2-inch main may help prevent the degradation of water quality. Commentator 10 also notes that such a requirement would limit a water system's ability to manifold meters and also suggests that the requirement apply only to systems that include fire hydrants. For similar reasons, Commentator 12 suggests that a clause similar to existing 64628(d)(1) & (2) be retained.
Response: The intent of the proposed section, which is essentially the same as existing section 64628(a), is to preclude the use of undersized mains that may not sustain required minimum pressures during fire flow and/or peak hourly demands. The Department recognizes that unique situations may exist where a 4-inch main may not be practical, but believes alternatives should be addressed via proposed section 64551.100(b). The application of proposed section 64551.100 to proposed section 64573 is substantially identical to existing section 64628(d)(1) and (2).

Commentator 16 questioned whether proposed section 64573 is intended to apply to small, non-community, water systems.
Response: As noted in the section and its title, the requirement applies to community water systems.

Section 64575

(a)

Commentator 4 suggested that fire hydrants be included as an option for flushing a main at a dead-end.
Response: The Department agrees that a fire hydrant is a commonly considered and used as a flushing valve. The Department has added language regarding the use of fire hydrants to clarify their acceptable use for flushing.

(d)

Commentator 6 questioned whether the minimum velocity of 2.5 feet per second to calculate the minimum flushing flow rate for pipelines with a diameter above 16 inches applies since it isn't included in the table. Additionally, Commentator 6 noted that the table does not specify the minimum flushing duration and questioned whether the flushing duration is intended to be system and situation specific. Commentator 6 recommended that flushing continue until water quality parameters, such as the chlorine residual and pH, are similar to those within the main areas of the distribution system.

Response: Yes, as noted in (d), flushing velocities should be at least 2.5 ft/s. The table is not intended to be exhaustive; it merely provides the minimum flushing flows, already calculated for convenience, for some of the more common pipe diameters. Yes, flushing duration would be on a case-by-case basis, which may be specifically addressed in the Water System Operations and Maintenance Plan specified in proposed Section 64600, if necessary. The purpose of the section is to set forth minimum design requirements, not to establish flushing durations, which will vary depending on the nature of the need for flushing.

Section 64576

A number of commentators [Commentators 2, 3, 5, 10, 12, and 15] questioned whether proposed section (a) applied to the valves or the vents, suggesting it should refer to the vents only. Commentator 2, while apparently erroneously referring to proposed section 64573, recommended a revision of this section to allow the installation of such valves so that the height of the *vent* opening is at least 24-inches above grade, citing the need to balance the risks of the valves being flooded with valves being within public access. Commentator 17 suggested that air release valves in vaults be allowed in locations that are not prone to flooding.

Commentator 3 stated that because replacement of these valves is fairly common, this requirement would be onerous to comply with when, for example, existing valves are located in pits in the middle of roads, which would then require significant work to rectify. Commentator 3 also questioned whether the intent is to have the valve or just the vent above grade. Commentator 3 proposed several remedies for their concern, including alternative language, new regulatory language, grandfathering of existing valves to their current elevation, or the deletion of "and any such valve installed to replace an existing valve." Additionally, Commentator 3 suggested including "whichever is higher if both numbers exist" to subsection (a), to clarify the level at which the valve should be installed, and suggested an exemption for manually operated air release valves not used for continuous air release. Commentator 3 also suggested requiring vent protection from vandalism under subsection (c). Commentator 4 suggested that a statement be included to define a new valve as a major replacement, such as the replacement of a valve body and lateral, as opposed to a minor replacement. Commentator 4 also suggested allowing for an equivalent form of protection in situations where having the assembly above grade may not be practical. Provisions to ensure against tampering were also suggested by Commentator 4. Commentator 6, while agreeing in principle with the intent of the section, noted that locating air valves outside flood plains or above high-water points may not always be feasible. Therefore, Commentator 6 suggested an alternative form of protection, such as proper sealing, flushing, and disinfection, if it is suspected that contamination has occurred in the water main. Similarly, Commentator 14 expressed concern that locating air valves as proposed may not always be feasible since, citing the example that some existing street locations are below sea level.
Response: The intent is that the valves be installed above grade, as noted in the proposed section. These types of valves are typically installed above grade (or should be) to minimize the potential for contamination via a cross connection and allow manufacturer recommended annual inspections and periodic maintenance. Additionally, if buried below grade, the valve bodies would be subject to corrosion, leading to direct contact of run-off water with the potable water supply. Although there may be instances were an alternative means of meeting this requirement may be necessary, the Department believes such cases are the exception, not the rule, especially when one considers that such devices are typically located in relatively high

points within the distribution system. Therefore, the Department believes equivalent alternatives would be best addressed utilizing a waiver via proposed section 64551.100(b).
Regarding Commentator 4's suggestion to include a definition for what would constitute a new valve replacement, the Department believes this is a commonly understood term, not requiring further defining. For example, if there was the need to repair a valve's seal or float, which would not require the need to obtain a new valve, then the proposed requirements would not apply.
The Department agrees with Commentator 3 that the language in (a) regarding the water level needs clarification. Although the Department did not use the language suggested by Commentator 3, the subsection has been revised to address the commentator's concern. Additionally, the Department agrees with several comments received regarding the need to address the potential for tampering or vandalism and has revised subsection (c) accordingly. [Note: Although no revision was made directly as a result of the comments received during the 45-day comment period, subsequent discussions with the commentators led the Department to revise this section such that the water level requirements would apply to the vent openings. As revised and indicated by the commentators, the concerns of the Department and the commentators have been addressed by the revision made for the second 15-day comment period.]

Section 64577

Commentator 6 questioned whether the requirements apply to mains with a diameter greater than 12 inches. Additionally, Commentator 6 questioned how a 12-inch diameter was determined and suggested that the requirement apply to 18-inch or less diameter mains.
Response: The requirements of (a) and (b) apply to mains that have a "diameter of 12 inches or less." Therefore, the requirement would not be applicable to a main greater than 12 inches in diameter. The application of the requirement to a 12-inch diameter main is consistent with the existing section 64632, which has been ample. That said, there is nothing to preclude a water system from voluntarily applying similar criteria to mains exceeding 12 inches in diameter.

Commentator 11 suggested that farther valve spacing should be allowed for situations where the addition of such a valve would provide no value, such as cross country main installations or mains that traverse undeveloped open space areas.
Response: Although there may be situations where the installation of isolation valves may not be necessary as proposed, the Department believes such situations would not be prevalent would be best addressed by obtaining approval of an alternative pursuant to proposed Section 64551.100(b).

Section 64578

Commentator 6 suggested requiring valve boxes to be manufactured to within traffic loads and the box cover to be imprinted with a label like "Do Not Dump".
Response: Although the Department agrees in principal with the commentator's suggestions, the Department believes the additions would be overly prescriptive considering that it would behoove water systems to take similar precautions.

Commentator 11 stated that there should be an option for systems to used valve extension keys in lieu of valve stem extensions. Additionally, Commentator 11 noted that the requirement to have the long key notation on the valve card may not produce the desired effect and that it may be more beneficial to include the depth to the operating nut. Commentator 11 further noted that it is unlikely that personnel will look up valve cards prior to operating a valve under emergency situations.

Response: The Department does not disagree that further information on valve records may be beneficial in certain circumstances and nothing precludes a water system from adding such information to their records. However, the Department believes the water system should have the flexibility to address such concerns, beyond what's required in the proposed regulation, in a manner that best suits their needs.

Section 64580

Commentator 4 requested clarification as to what constitutes a main being out of service, noting that there are frequent instances where a short-term shutdown can be accomplished using best practices that only warrant verification samples. Commentator 6 stated that the requirement should be flexible in the case of major disasters where quick restoration of the water supply would be a priority. Commentator 10 requested clarification that the Department will be maintaining its existing criteria of allowing systems to take samples from repaired mains and return them to service prior to receiving analytical results.

Response: The Department believes the language regarding whether a main has been taken out of service is clear and well understood. A short-term shutdown leading to the main no longer serving the area would constitute the main being taken out of service. However, in response to Commentator 10's comment and Commentator 4's comment regarding verification sampling, the Department has added language to clarify such that in situations where the main is repaired but a minimum pressure of 20 psi is maintained during the repair, the main may be placed back into service prior to receipt of bacteriological monitoring results. Regarding Commentator 6's comment, the Department does not find it necessary to include "force majeure" type exemptions. Operating procedures during major disasters should be addressed in the water system's emergency response plan and should be protective of public health, consistent with the express mandates of Health & Safety Code Section 116555(a)(3). [Note: In an effort to provide clarification regarding placement of mains back into service, the Department's revision unintentionally implied and may have led to overly prescriptive requirements that were inconsistent with the referenced AWWA standard and the Department's historical recommendations. As a result, the revised language was subsequently deleted for the second 15-day comment period.]

Section 64582

Commentator 4 stated that a positive bacteriological sample should be handled as outlined in the standard and should not require Department approval. Commentator 4 expressed concern regarding the time it may take to get approval and suggested a requirement of 24 hours for the Department for such approval. Commentator 6 noted that the Initial Statement of Reasons does not explain why the sampling and reporting requirements for reservoirs are different from those proposed for mains. Commentator 6 stated that it is unclear if, for example, a reservoir can be placed back into service if the second bacteriological results are positive. Similar to

Commentator 6, Commentator 11 stated their belief that Department's approval is unnecessary since positive results always prompt two total coliform negative results before placing the reservoir into service. However, Commentator 11 noted that they do believe the Department should be notified in the event of an E. coli positive result. Commentator 17 questions why volatile organic compound (VOC) testing for linings used in new tank construction wasn't addressed.

Response: Commentator 4 may want to note that AWWA Standard C6520-02 states, "If the test shows the presence of coliform bacteria, then the situation shall be evaluated by qualified personnel." The Department feels review and approval of situations where there were positive results is necessary to ensure the situation has been "evaluated by qualified personnel", whether that be Department personnel or the system's personnel. Additionally, the Department believes it is imperative to be made aware of positive results in order to help determine the origin of the positive result. The Department understands that the need to have a reservoir placed into service may be imperative and will place a high priority on review of the test results, as we have historically. The Department does not foresee a lengthy approval process. Regarding Commentator 6's comment concerning a difference between the reservoir and water main disinfection requirements, without specific being concerns being noted, it is difficult to address the comment. Possibly, Commentator 6's question of whether a reservoir could be placed into service if the second result is positive would help address Commentator 6's concern. As noted in C652-02, the reservoir may be placed back into service if the test for coliform organisms is negative.

Regarding Commentator 17's question as to why VOCs are not addressed in this section, this section describes the requirements for disinfecting reservoirs. VOC contamination is not addressed via disinfection. Commentator 17 may want to note that proposed Section 64591 will address potential VOC concerns by way of requiring products used to be ANSI/NSF 60 and/or 61 certified.

Section 64583

Commentator 4 stated that a positive bacteriological sample should be handled as outlined in the standard and should not require Department approval. Commentator 4 expressed concern regarding the time it may take to get approval and suggested a requirement of 24 hours for the Department for such approval. Commentator 6 suggested that the section exclude the inactive well that has been equipped with a chlorine dosing system for meeting the disinfection requirements, noting that if the well is so equipped, the requirements of initial bacteriological sampling and subsequent well disinfection becomes superfluous.

Response: The Department feels review and approval of situations where there were positive results is necessary to ensure the situation has been appropriately addressed and made in accordance with the standard. Additionally, the Department believes it is imperative to be made aware of positive results in order to help determine the extent of the positive result(s). The Department understands that the need to have a well placed into service may be vital and does not foresee a lengthy approval process.

Regarding Commentator 6's comment, a well that has not been in operation for three months may have significant changes to the water conditions, which may no longer be appropriately addressed with the current treatment regime. Therefore, the Department believes the section should also apply to such wells and will also provide valuable water quality data.

Commentator 7 suggested that the requirement only apply to new or repaired mains, noting that with many wells being off-line for three or more months, an unanticipated failure in another production facility may necessitate bringing such wells on-line with little or no advanced notice.
Response: It has been the Department's experience that wells that have not been pumped for a period of time tend to have higher incidences of contamination by coliform bacteria, likely resulting from stagnant water conditions in the well allowing the growth of bacteria to occur. To assure that water that may be contaminated by bacteria is not pumped into the distribution system, the Department is proposing to first sample these wells prior to use and, if necessary, require disinfection, similar to repaired wells. Many water systems already do this as a matter of practice in order to avoid violations of the coliform regulations in the distribution system.

Section 64585

(a)

Commentator 6 noted that requirements consistent with existing section 64600(f), which restricts use of reservoirs from non-drinking water related activities, is not included in the proposed regulation and questions whether its omission is intended to mean that the Department is now allowing such use. If not, Commentator 6 suggests the addition of language stating so.
Response: Existing section 64600(f) restricts use of a reservoir for non-waterworks purposes that would (1) result in unrestricted public access and (2) create a contamination hazard. While proposed subparagraph (b)(7) imparts the same basic restriction as existing subparagraph (f)(1), and the other requirements of subsection (b) restrict contamination hazards in a manner similar to existing subsection (f)(2), proposed subsection (b) is applicable to new reservoirs only. Additionally, the commentator essentially raised the question of whether the omission of a general restriction means that other activities not specified in the proposed regulation, yet having the potential for contamination, would now be acceptable. As a result, for clarification, the Department has revised the proposed regulation to provide a general, yet explicit, statement clarifying that existing reservoirs are not to be designed or constructed for any activities that may lead to contamination of the drinking water. Therefore, in response to Commentator 6's concerns, incidents not specifically addressed in the previously proposed language will be addressed. Because unrestricted public access, as noted in existing subsection (f)(1), would constitute "an activity that creates a contamination hazard," the Department believes the revised language addresses the commentator's concern.

(b)

Commentator 2 suggested that section 64585(b) be revised to require water systems to submit design drawings and specifications for all new reservoirs after construction as part of the permit application process, citing that it is unreasonable to require water systems to submit design drawings and specifications prior to construction. Commentator 2 further stated that water systems should be given the flexibility of submitting design drawings either before or after construction of new reservoirs and that the additional review process is unnecessary for systems routinely constructing new reservoirs using standard specifications previously accepted by the Department.
Response: Submittal of design drawings and specifications after construction would defeat the primary purpose of subsection (b), which is to ensure that the proposed reservoir(s) meets the

regulatory standards. Additionally, it would behoove the water system to obtain prior Departmental review to minimize the possibility of a change, which may be quite costly after construction is complete. Should the water system have a standard reservoir design that is often used, the water system may reference the fact that the Department has previously reviewed the design for a more efficient review. However, it should be noted that some of the requirements are site specific and, as such, would require the requisite supplement information.

Commentator 11 posed the following questions with respect to the review of designs and specifications (response follows in *italics*):

1. What type of turnaround can be expected and who will be reviewing the drawings? *There are too many extenuating circumstances to provide an accurate estimate of the time for review turnaround. The Department's District offices (or authorized Local Primacy Agency) will be reviewing the drawings. Each District office oversees specific public water systems, depending primarily on which county the water system is located.*

2. As it is presumed each supplier that has plans prepared for the construction of a new tank utilizes the services of a registered engineer, will the Department be checking specific design items or for general compliance with the applicable AWWA requirements? *The Department will be checking for conformance with the requirements of the Waterworks Standards, including any applicable AWWA standards or design criteria that may adversely affect water quality.*

3. With regard to the issue of water system security, once the plans and specifications have been submitted to the Department, are they subject to the Public Records Act? *As a general rule, the design plans and specifications would be subject to disclosure under the Public Records Act. However, the Department has determined, due to security concerns, not to disclose the geographical (physical) location of drinking water sources and major distribution or treatment facilities. In order to exclude such information from public disclosure requirements, the Department uses the balancing test provided by Section 6255 of the Government Code. The "balancing test" of 6255 must be determined on a case by case basis.*

Commentator 17 expressed the opinion that submittal of design drawings and specifications would be too time-consuming and onerous and suggested that the requirement apply only to reservoirs of 1,000,000 gallons or more. *[Note: Commentator 17 referred to proposed "Section 64586", which doesn't exist. Because of the nature of comment, the Department has assumed Commentator 17 made a typographical error and was referring to proposed Section 64585.] Response: The Department does not believe the submittal of drawings and specifications, which should already be in the possession of the water system, should be onerous. Submittal of design drawings and specifications is necessary in order for the Department to ensure that the proposed reservoir(s) meets the regulatory standards.*

(b)(1), (2), & (3)

Commentator 2 suggested deleting (b)(2), suggesting that it is redundant with (b)(1). Furthermore, Commentator 2 states that the term "impervious" implies the material cannot be penetrated and that this condition does not apply to construction material currently used [no examples were provided by Commentator 2] or those materials listed in proposed section 64570.

Commentator 2 suggested revising the language in (b)(3)(A) to read, "A rigid structural roof designed to prevent the movement of water into or out of the reservoir".
Response: While the Department acknowledges that the AWWA standards for construction cited in (b)(1) may inherently or indirectly lead to compliance with (b)(2), the need for the material to be impervious to water may not be abundantly clear and needs to be emphasized. The Department agrees that the language in (b)(3)(A) should include a reference to water (or fluids) and has revised the language accordingly.

(b)(4)
Commentator 2 noted that water systems have found "operating criteria for exercising water levels" in reservoirs to be "an effective method to balance water quality with water storage needs." Additionally, Commentators 2, 14, and 17 stated that the installation of a manifold that includes separate inlet and outlet valve structures should be allowed rather than separate external lines and valves. Similarly, Commentators 5, 10, 11, and 14 suggested providing language to allow systems with the flexibility to design tanks that meet the intent of the proposed regulation. Commentator 12 noted that it has been their experience that separate inlet/outlet lines on a tank do not necessarily increase mixing. Similarly, Commentator 6 noted that despite the proposed language requiring a separate inlet/outlet designed to minimize short-circuiting, stagnation and short-circuiting may result from for other reasons. Therefore, Commentator 6 suggested the following language for (b)(4): "Equipped with at least one separate inlet and outlet, and designed to minimize short-circuiting and stagnation of the water flow through the reservoir." *[Emphasis added by the commentator.]*
Response: Subsection (b)(4) does not require separate external lines and does not preclude the use of the installation of an internal manifold that includes separate inlet/outlet structures. The Department believes that exercising reservoirs is generally not an adequate means of minimizing short-circuiting for common inlet/outlet reservoirs. Any plan to do so in lieu of the requirements of (b)(4) would need to be evaluated and approved on a case-by-case basis via proposed section 64551.100(b). The Department agrees that Commentator 6's suggested language better describes the Department's intent and has changed the proposed language accordingly.

(b)(5)
Commentator 6 noted that it is sometimes difficult to not directly connect an overflow to a sewer in urbanized settings without flooding hazards. Commentator 6 suggests allowing a direct connection if a check valve is provided, as well as a sufficient separation setback to make back siphoning unlikely. Commentator 14 expressed the same concern, noting that geography may prohibit gravity drainage to locations other than storm drains.
Response: The Department agrees that there may be unique situations where connecting an overflow to a sewer or storm drain may be necessary. However, the means of mitigating backflow under such circumstances will vary depending on the site and the conditions. Therefore, the Department believes it would be best to have such situations evaluated on a case-by-case basis via proposed section 64551.100(b).

(b)(7)

Commentator 6 questioned whether the requirement is to prevent access to the interior or exterior of the reservoir, noting that the clarification would be useful when a reservoir is used for non-waterworks purposes such as recreational activity.
Response: The intent is to prevent any access that may lead to circumstances that have the potential to adversely affect the quality of the drinking water. In some cases, preventing access to the exterior of the reservoir may be necessary to make such assurances. Because approaches to security are highly individualized among water systems, flexibility is provided to the water system, allowing the water system to determine the appropriate measures to be taken.

(b)(9)
Commentator 6 noted that reservoirs may provide critical pressure relief for pumps and without alternative relief in a closed network, the requirement of having a bypass line may cause over-pressurization, leading to main breaks, water heater damage, etc. They also noted that since the water supply may be provided from another source or reservoir, this requirement may not always be necessary. Commentator 6 suggested replacing the requirement with a general provision such as "Distribution reservoir designs and operations should allow for continuous service with reservoir out of service."
Response: The Department agrees that flexibility should be provided and has revised the proposed language accordingly.

(b)(12)
Commentator 14 questioned whether this subparagraph applies to partially buried reservoirs.
Response: Yes. This is implicit by the existence of (12)(F), which includes additional requirements for reservoirs that are fully buried.

(b)(12)(C)
Commentator 6 suggested the inclusion of language to reflect that the distance is intended to be horizontal.
Response: The Department agrees that such an addition would provide clarity and has revised the proposed language accordingly.

(b)(12)(E)
Commentator 14 asked for the purpose of this requirement and whether there are planned/proposed groundwater monitoring requirements around subsurface reservoirs. Commentator 14 suggested incorporating flexibility to account for situations in which construction of monitoring wells is not geographically possible.
Response: The purpose of the monitoring wells is to track the groundwater levels, which is necessary since groundwater levels can vary considerably over time and pose a risk of contamination or structural damage to a subsurface reservoir. Being below ground level, subsurface reservoirs pose a higher risk of contamination. Section 64551.100(b) provides flexibility by way of allowing the water system to propose an alternative.

Commentator 2 suggested subsection (b)(12)(E) be revised to include a provision that monitoring wells would not be necessary if hydrological data shows that specified groundwater conditions exist such that no groundwater occurs in the vicinity of the reservoir.

Response: A hydrological study, such as that referenced by Commentator 2, may be submitted via section 64551.100(b) in support of an alternative from constructing monitoring wells.

Section 64590

Commentator 4 asked for clarification as to whether organizations other than NSF, such as Underwriters Laboratory, can provide equivalent certifications. Commentator 6 stated that water systems should only be responsible for assuring that a chemical used is ANSI/NSF certified, but not that it meet the quality assurance criteria. Commentator 6 expressed the opinion that this is the responsibility of the Department. Additionally, the commentator questioned whether water systems will need to maintain certificates and, if so, for how long. Commentator 12 requested that the Department define "NSF". Commentator 12 also noted that the water system should only be responsible for assuring that the product has current ANSI/NSF-60 certification, not for assuring the testing lab is accredited and meets the criteria. Commentator 12's comment was also expressed with respect to ANSI/NSF 61 criteria. Commentator 15 noted that a portion of the existing language is not present as being struck or retained.

Response: In 1990 the National Sanitation Foundation merged with the National Sanitation Foundation Testing Laboratory and changed the name to "NSF International", with no meaning applied to the acronym "NSF".

The excluded existing text was intended to be shown as repealed text. The Department appreciates the commentator pointing out the oversight and has included the text (as struck) accordingly.

Any ANSI accredited product certification organization that includes the criteria listed when certifying a product would be acceptable. Therefore, yes, organizations other than NSF would be acceptable. The annual criteria listed are included as part of the "system", or protocol, for most ANSI accredited product certification organizations. Therefore, the Department does not think substantiating this will be overly onerous to the water system. The water system should be able to substantiate this via a letter, certificate, or copy of the organization's protocol for certification, or some other means of communication. Some form of documentation should be maintained while the product is in use. Since the criteria are not yet currently part of the ANSI criteria for being an accredited organization, the Department believes it is important to include the criteria as a requirement.

Section 64591

General

Commentator 7, while supporting the intent of the proposed section, noted that many small appurtenances (e.g., probes for pH, conductivity, and pressure sensors, etc.) may not be available as NSF 61 certified devices. Commentator 7 suggests adding language to allow use of the devices. Additionally, Commentator 7 suggested modifying the language to clarify that the proposed requirements apply to new installations only.

Commentator 17 sought clarification as to whether or not proposed Section 64591(a) would apply to existing tanks that have existing coatings that do not meet ANSI/NSF 61 or 60.

Response: The Department agrees with the commentators and has added text to proposed section 64593 to address the concern.

(b)(1)

Commentator 3 stated that "contact" needs to be better defined. In particular, the commentator questions whether the holding tank for the generated chemical would be considered part of the generation equipment. Commentator 3 questions whether this means direct contact or indirect.
Response: While the Department does not feel that "contact" needs to be defined in the proposed regulation, the Department agrees that clarification regarding indirect contact is needed and has revised the language accordingly. Therefore, as revised, a holding tank containing chemicals to be added to drinking water would need to meet the requirements of the proposed section.

(b)(2)

Commentator 6 noted that on-site generation of ozone using atmospheric air may have difficulty complying with the requirement, as there is no NSF 60 certification for atmospheric air. Commentator 6 suggested that the proposed regulations explicitly exempt the air from complying with this requirement, unless the Department clarifies that air is not considered a chemical used in the on-site ozone generation process.
Response: The Department does not consider atmospheric air to be a chemical and has revised the language accordingly [see newly proposed section 64593(c)].
Commentator 15 stated that the proposed language includes the provision that any input chemical in the generation process must meet the requirements of section 64590 (ANSI/NSF 60), but feels the provision does not address the following:
1. How the generation process changes the ANSI/NSF 60 certification of the input chemical or creation of other non-ANSI/NSF 60 products, such as oxygen to ozone, salt brine to sodium hypochlorite, or sodium chlorite to chlorine dioxide.
Response: The Department agrees with the commentator that further clarification is needed and has added text to proposed section 64593 to address the concern.
2. How air preparation systems for ozone generation will satisfy the ANSI/NSF 60 certification for their "input" oxygen in air.
Response: Although the Department does not consider atmospheric air to be a "chemical" (see above response), oxygen purchased for use in ozone generation processes would be and the commentator should note that ANSI/NSF certified oxygen is available.
3. How compressed air in blower systems, either for oxidation or filter air scour, will satisfy the ANSI/NSF 60 certification.
Response: If the blower system utilizes atmospheric air only, which is not considered a chemical, and the blower system itself does not come in contact with the water, then the ANSI/NSF 60-61 certification requirements would not apply since there would be no direct or indirect contact. However, if the blower or other equipment does come in contact with the water, the equipment or its constructed components would need to be certified. The Department has added language to proposed section 64593 to clarify that products and materials constructed of certified products and materials would not necessarily need further certification of the constructed unit itself. However, because in rare instances combining two or more certified chemicals, materials, or products may potentially create a reaction leading to the

production of undesired contaminants, the Department has included language allowing the Department to nullify the exemption if such an event occurs.
4. Should a process water softening system be considered a generation process, and if so, should it require ANSI/NSF 60 certification for the use of salt, resins, etc.
Response: Yes. The Department believes the proposed regulation is clear on this issue.

(c)
Commentator 4 questioned whether products used off-line for membrane cleaning, including citric acid and powder sodium hydrosulfite that the commentator states is not available as NSF certified, will be allowed for use if certified by an equivalent entity such as U.S. Pharmacopeia or the Codex Committee on Food Import and Export Certification Systems.
Response: Any product certified by an organization meeting the requirements of proposed section 64590 will be acceptable. Additionally, the commentator may want to note that there are many off-line chemicals (including citric acid) presently available by ANSI/NSF certified organizations such as those certified by NSF, for example, which can be viewed at www.nsf.org.

(d)
Commentator 2 noted concern that the effective date of the regulation may not provide adequate time for certification of indirect additives currently in use by water systems. Further, Commentator 2 expressed the fear that mandating certified products may have the unintended effect of forcing water systems to use substandard materials in such special cases. Commentator 2 notes that it is important that the indirect additives standard allow adequate flexibility to allow water systems to use the best product for the consumer and suggests deleting the section.
Response: Subsection (a) is applicable to indirect additives to be used after the effective date of the regulation and would therefore have no impact on indirect additives currently in use. The proposed revision to section 64593 provides further clarification of this intent. The Department believes the best products for the consumer are those that have been certified as not leaching contaminants into the water supply at levels that may be detrimental to one's health. "Special cases" can be addressed via proposed sections 64551.100 or 64593.

Commentator 3 noted that some water systems have their chemical contracts signed on an annual basis and six months may not be a long enough grace period.
Response: The Department agrees that a 12-month grace period would be more appropriate and has revised the proposed text accordingly.

Commentator 6 suggested adding another subsection that reiterates the "lead-free" requirements of Section 116875 Health and Safety Code, as recently enacted by Assembly Bill 1953. Commentator 6 provided suggested language.
Response: Any statutory requirement takes precedent over a regulatory requirement. Additionally, considering that the statute prohibits the sale and commerce of pipes and fixtures not meeting the requirements, there should not be an issue because components not meeting the statutory requirement would not be available. However, the Department believes that the addition of a statement clarifying that the proposed requirements would not apply in the event of a more stringent statutory requirement may be beneficial and has amended the proposed text accordingly.

Section 64600

(a)

Commentator 6 noted that the requirement of developing and submitting an operations plan based on an "identified deficiency" may be too subjective and interpreted inconsistently among Department staff. Commentator 6 suggested that the regulation include some descriptions of what constitutes "deficiencies", further noting that the U.S. Environmental Protection Agency's recent Ground Water Rule includes some descriptions of deficiencies that may be considered. Commentator 6 noted their concern that this may result in an undue burden on the water system for a potentially minor deficiency.

Response: Because the requirement only requires the water system to address those items relevant to the identified deficiency, a minor deficiency that is identified would likely only lead to a minor resolution that would be necessary to be addressed in the operations and maintenance plan. Therefore, no change is necessary.

(a)(10)

Commentator 6 suggested the inclusion of "other online instruments" in the requirement of schedule and program for maintenance and calibration, in addition to source flow meters.

Response: The Department agrees that such an addition would be valuable and has revised the language accordingly.

(a)(11)

Commentator 3 suggested the inclusion of a backflow prevention assembly testing certification requirement in (a)(8) or (a)(11).

Response: The requirement to have backflow prevention assemblies tested by appropriate personnel is already required in Section 7605(b) of Title 17 and it would be duplicative to include it in this section.

(a)(12)

Commentator 3 stated that "biofilm control" needs to be better defined because it is too general and confusing.

Response: Although "biofilm" is a commonly used term in the water industry, the Department agrees that further clarification is justified and has revised the proposed language accordingly.

(b)

To be consistent with subsection (c), Commentator 2 suggested revising subsection (b) to read, "Each water system that has prepared a Plan pursuant to subsection (a) shall operate in accordance with this Department-approved Plan". Similarly, Commentator 3 and Commentator 4 expressed their belief that subsection (b) implies that each water system must have such a plan, as opposed to only those required to develop one pursuant to (a). Commentator 14 also noted that (b) appears to be a "blanket statement", as opposed to the more specific phrasing in (a).

Response: The Department agrees that a nexus between (b) and (a) would provide clarification and has revised (b) accordingly.

(c)

Commentator 3 questioned whether "change in method of treatment" is referring to a treatment change in water treatment plant, distribution system, or both.
Response: This would apply to changes in method of treatment having an effect on distribution system operation (see title of the Article). In some cases, this may include changes in the water treatment plant, especially if those changes are required to be addressed by existing section 64661 for surface water treatment plants.

Commentator 6 noted concern that the proposed requirement of updating the Water System Operations and Maintenance Plan following any other modification to the system requiring a change in the systems operations and maintenance is too vague and could be easily subject to individual interpretations of the Department's staff. Commentator 6 suggested revising the language or clarifying via guidance.
Response: As noted in the proposed text, (c) pertains to plans that have been prepared pursuant to subsection (a). Because (a) specifies that the plan need only address identified deficiencies, only those changes or modifications pertaining to such deficiencies would be applicable.

Section 64602

(a)

Commentator 6 questioned whether the Department considered the potential increase in water losses by the minimum operating pressure to 40 pound per square inch (psi). Commentator 6 noted that the quality of water may increase by potentially preventing groundwater intrusions but questioned whether the price is more water losses. Commentator 6 suggested the regulations consider a balance between water quality and water quantity. Also, Commentator 6 requests clarification as to whether the 20 psi requirement would include fire flow conditions.
Response: The 40 psi requirement applies to the design of new or expanding system service. With new construction in place, there should not be significant losses. Any significant losses should be remediated by the water system. The 20 psi requirement includes fire flow.

Commentator 17 requested that the language be expanded to address typical situations for service or maintenance that could result in a temporary distribution system pressure below 20 psi.
Response: Distribution system pressures below 20 psi increase the likelihood of creating health hazards. Allowing exemptions in the regulation, such as those proposed by the commentator, would not be consistent with the express requirements set forth in the Health and Safety Code, particularly Sections 116540 and 116555.

(b)

Commentators 2, 5, 10, and 12 suggested revising proposed subsection (b) to provide additional flexibility by replacing "throughout the distribution system of not less than 40 pounds per square inch at all times excluding fire flow" with "in the expanded system service connections of not less than 40 pounds per square inch excluding fire flow, where feasible; and not cause significant alteration of pressures in the existing service connections."
Response: The Department finds the suggested language too ambiguous. Additionally, the commentators should note that the requirements of (b) clearly states that only new distribution systems and applicable expanded service areas are required to be designed to a minimum operating pressure of 40 psi.

Addendum 2

Response to Comments, Period Ending October 5, 2007

The Department solicited written comments on the proposed regulation package R-14-03; twenty-one sets of comments were received.

Table 2: Commentators Providing Written Comments

Number	*Commentator(s)*	*Representation*
1	Arends, Kurt	Alameda County Flood Control and Water Conservation District – Zone 7
2	Barber, George	Paradise Irrigation District
3	Bigley, Steve	Coachella Valley Water District
4	Bohm, Burkhard	Citizen, California Hydrogeologist
5	Cabral, Bruce	Santa Clara Valley Water District
6	Castle, Robert S.	Marin Municipal Water District
7	Chun, Douglas	Alameda County Water District
8	Clark, Krista	Association of California Water Agencies
9	DeGraca, Andrew	San Francisco Public Utilities Commission
10	Echols, Ralph	Placer County Department of Health and Human Services
11	Gedney, William C.	Golden State Water Company
12	Hawks, John K.	California Water Association
13	Hoang, Mary	San Jose Water Company
14	Holmes, Michael K.	Walnut Valley Water District
15	Hunsinger, Ron	East Bay Municipal Utility District
16	Lynch, Gary	Park Water Company
17	McIntyre, Drew and DeGabriele, Chris	North Marin Water District
18	Nelson, Kent	Contra Costa Water District
19	Robinette, Rob	Plumas County Environmental Health
20	Seymour, Don	Sonoma County Water Agency
21	Wilson, Robert C.	City of San Jose

General

Commentator 6 noted their "regret that the DPH has chosen not to respond to comments submitted by the water industry in February of 2007, particularly those submitted by the Association of California Water Agencies." Similarly, because no responses were provided, Commentators 8, 9, 11, 13, 15, 16, and 21 expressed concern that the Department was not being attentive to their comments and concerns.

Response: Responses to all comments are provided in the Final Statement of Reasons, as has been the regulatory process historically for drinking water regulations. Additionally,

commentators should note that the proposed regulatory action public notice includes the Department representative's contact information.

Commentator 7 submitted comments on the proposed revisions and also reiterated particular comments made by Commentator 7 during the 45-day comment period. The reiterated comments include sections 64570, 64572, 64576, 64580, 64582, and 64583.
Response: For those comments being resubmitted, Commentator 7 should review the Department's responses provided for the 45-day comment period. It should be noted that following discussion with Commentator 7 and other commentators on sections 64576 and 64580, the Department revised those sections to address the water purveyor's concerns. Regarding the comments on the proposed revisions, the Department has responded to those comments on a section-by-section basis below.

Commentator 9 submitted comments on the proposed revisions and also reiterated particular comments made by Commentator 9 during the 45-day comment period. Additionally, Commentator 9 noted typographical corrections to those comments submitted by Commentator 9 during the 45-day comment period.
Response: For those comments being resubmitted, Commentator 9 should review the Department's responses provided for the 45-day comment period. It should be noted that following discussion with Commentator 9 and other commentators on sections 64576 and 64580, the Department revised those sections to address the water purveyor's concerns. Regarding the comments on the proposed revisions, the Department has responded to those comments on a section-by-section basis below.

Commentator 11 provided comments on the sections 64570, 64572, 64573, 64591, 64585(b)(4), 64602, 64454 and 64580. *[Note: Although Commentator 11 referenced 64454, based on the nature of the comment the Department believes Commentator 11 intended to refer to 64554]*
Response: The nature of the comments submitted for sections 64570, 64572, 64573, 64591, 64585(b)(4), and 64602 are beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 11 may wish to review the responses provided to the 45-day comments. Commentator 11's comments on the revisions to sections 64454 and 64580 are addressed individually below.

Commentator 12 endorsed the comments made by the California Water Service Company, Golden State Water Company, San Jose Water Company, and the Association of California Water Agencies.
Response: Please see the responses to the comments provided by the referenced companies/agencies.

Commentator 13 provided comments on the sections 64572, 64573, 64576, 64585(b)(4), 64602, 64454 and 64580. *[Note: Although Commentator 13 referenced 64454, based on the nature of the comment the Department believes Commentator 13 intended to refer to 64554]*
Response: The nature of the comments submitted for sections 64572, 64573, 64576, 64585(b)(4), and 64602 are beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 13 may wish to review the

responses provided to the similar comments made during the 45-day comments. Commentator 13's comments on the revisions to sections 64454 and 64580 are addressed in the individual sections below.

Commentator 14 provided comments on the sections 64572, 64577, 64578, 64582, and 64585 identical to those provided by the same organization (but with a different representative) during the 45-day comment period.
Response: The nature of the comments is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 14 may wish to review the responses provided to their organization's comments made during the 45-day comments.

Commentator 17 submitted comments on the proposed revisions and also re-submitted comments made by Commentator 17 during the 45-day comment period. The re-submitted comments include those made on sections 64554, 64556, 64560, 64572, 64576, 64582, 64586, 64585, 64591, and 64602. In addition, Commentator 17 included additional comments on section 64556, 64558, 64572, 64576, 64582, 64583, and 64585.
Response: For those comments being resubmitted, Commentator 17 should review the Department's responses provided for the 45-day comment period. Each of the additional comments provided is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary.

Commentator 19 submitted two comments; one pertaining to incorporation of AWWA standards and one suggesting additional waivers for inclusion to section 64551.100.
Response: The nature of the re-submitted comment is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 19 may wish to review the responses provided to their comments made during the 45-day comments. In the context of Commentator 19's request to revise 64551.100, Commentator 19 included a desire to allow waivers for 64554(d) – (i), as well as a reference to 64554(k). Regarding 64554(d), Commentator 19 suggests the section be limited to new community water systems, but provides no reason. The Department believes (d) is quite straightforward, noting simply how total capacity is to be determined. Commentator 19 also suggests that 64554(e) – (i) should be limited to new sources only. Again, no reason was provided, making it difficult to address Commentator 19's concern. As reflected in the proposed text, unless a system is requesting a re-assigned capacity, the requirements apply only to new sources. Commentator 19 may want to review Commentator 16's comment and the Department's response to (i), which should help ease Commentator 19's concern. Section 64554(k) is existing text, which is beyond the scope of the regulatory action, so no response is necessary.

Commentator 21 provided comments on the sections 64454, 64558, 64560, 64576, 64580, 64585(b)(4), and 64585(b)(12). With the exception of sections 64554 and 64580, the comments are identical to (or substantially the same as) those provided by the same organization (but with a different representative) during the 45-day comment period. *[Note: Although Commentator 21 referenced 64454, based on the nature of the comment the Department believes Commentator 21 intended to refer to 64554]*

Response: The nature of the comments is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 21 may wish to review the responses provided to their organization's comments made during the 45-day comments. Commentator 21's comments regarding sections 64554 and 64580 are addressed in the specific sections below.

Section 64554

General

Commentator 1 questioned whether the Department is seeking the maximum sustainable capacity or the installed capacity; the latter being the capacity provided with the installed pump. Commentator 1 noted that an installed pump may provide less than the well's maximum potential if it is designed to work over a wide range of conditions.

Response: As noted by the proposed regulation text, the capacity of a well is established by the well pump test, not by the capacity of the permanent pump eventually installed. The capacity credit given to a well is based on the results of the well capacity test. If, for example, the pumping rate during the capacity test is limited by the size of the pump, so then will the credited capacity. It is the responsibility of the water system and/or those performing the testing to use an appropriately sized pump.

Commentator 1 stated that although the proposed regulation requires the collection of transient data, it fails to allow the groundwater professional to use the data in his or her analysis. Commentator 1 noted that the regulation should not be so restrictive on this issue, but instead allow for better science and professional judgment to be used for well capacity determinations. Additionally, Commentator 1 questioned the justification of the 25% and 50% capacity credit for bedrock formation capacity tests. Similarly, Commentator 1 suggested that subsection (h) allow for a groundwater professional to determine a well's capacity with an alternate analysis.

Response: The Department believes adequate flexibility for allowing groundwater professionals to use test data in a manner other than that prescribed is provided in a number of ways. For example, subsection (g)(1) clearly sets forth an alternate means of determining well capacity for bedrock formations. Subsection (i) also provides for revisions of assigned capacities based on pumping data. Additionally, section 64551.100 allows for alternative methods to be utilized.

For wells whose primary production is from a bedrock formation, even though a 10-day test or 72-hour test will provide some indication of available water storage, the total amount of groundwater in storage and the degree of recharge is not known over the period of time used exceeding the test period. In other words, it is unknown how long the yield indicated by the pump test can be maintained and, therefore, a factor of safety must be applied. The Department's proposed criteria, including the capacity credit percentages, have been used by the Department for a number of years and the Department's experience has shown them to be a reasonably accurate means of predicting the long-term capacity of wells. Subsection (g)(1) provides a means of determining a well's capacity in the event the unknowns necessitating the 25% and/or 50% are known to a greater degree. Similarly, subsection (i) provides a means of having a well's capacity re-assigned based on operational data.

Commentator 3 expressed that because their water system has never performed a well capacity test using the criteria in the proposed regulation, they cannot determine if the requirements are achievable. Additionally, Commentator 3 noted that the 15-day comment period does not provide reasonable time to provide meaningful comments to four pages of additional text.
Response: These additional changes were made available for an additional review period, in accordance with Government Code Section 11346.8 (c). Additionally, the Department's proposed criteria have been used by the Department and various counties for a number of years and the Department's experience has shown them to be a reasonably accurate means of predicting the long-term capacity of wells. The additional language was developed with the groundwater experts from the California Groundwater Association (CGA), as well as two other hydrogeologists from outside the Department. As with the other portions of the Waterworks Standards, the well capacity test criteria were developed over many years. Although not included in the text shown for the 45-day comment period because of stalled discussions between the Department and the CGA, as a result of a comment received by CGA during the 45-day comment period requesting inclusion of the criteria, discussions opened again resulting in the text provided during the 15-day comment period. While the criteria remained substantially the same as that in previous years, the language was revised to be of a regulatory nature. Commentator 3 may also want to note that the criteria would have little, if any, affect on Commentator 3's existing wells.

Commentator 9 expressed concern that the newly proposed language did not include rationale in the statement of reasons.
Response: Changes to proposed Section 64554, to add subsections (d) – (l) and repeal of existing section 64563, are in compliance with Government Code Section 11346.8(c) such that the changes were made available for an additional 15 day review period and were"…sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action...". Section 42 of the California Code of Regulations Title 1 defines "sufficiently related" changes to be those which "…a reasonable member of the directly affected public could have determined from the notice that these changes to the regulation could have resulted." The modifications were in response to comment by the California Groundwater Association, a member of the directly related public requesting that the regulation be more specific as to the source capacity. As initially proposed, Section 64554 addresses the requirement that a public water system have sufficient capacity to supply the demands of its users. The additional language addresses with particularity how capacity may be measured for various types of sources in order to determine whether or not the capacity needed to meet demand is available. The title of the proposed Section 64554, "New and Existing Source Capacity", placed the regulated public on reasonable notice that the subject regulation could be expanded to include further requirements for calculation of source capacity. Therefore, in response to comment received in the initial comment period, the Department has determined the additional language is necessary for implementation of the subject section. Additional proposed repeal of existing section 64563 is necessary to prevent inconsistency and lack of clarity with the subject matter treated in the proposed section 64554. Reliable capacity is the amount of water a well can be consistently expected to produce over an extended period of time without adversely affecting the source aquifer. The proposed regulations specify the manner by which this can be done. To ensure that the well capacity test is conducted properly and that the resulting data is

adequate for determining capacity, the regulation requires a water system to submit information related to the test to the Department for review. Existing requirements in Section 64563 specify a "constant rate of water discharge" well capacity test and do not differentiate between a well capacity test appropriate for wells drilled in alluvial soil and those drilled in hard rock. The constant discharge (pumping rate) well capacity test is widely accepted by the water supply industry and hydrogeologists as an appropriate test for the capacity of a well and this requirement is consistent with existing regulations; however, the existing regulations do not provide the appropriate level of detail needed to ensure such tests are appropriately performed. The added subsections provide the basic procedures for the test and data collection to ensure consistency.

Commentator 9 was concerned that the prescriptive well capacity test requirements may not apply to all situations because hydrogeologic conditions may vary significantly. Commentator 9 provided suggested language to be added that would allow alternative means of determining well capacities.
Response: The Department believes adequate flexibility for alternatives other than that prescribed is provided. For example, subsection (g)(1) sets forth an alternate means of determining well capacity for bedrock formations. Subsection (i) also provides for revisions of assigned capacities based on pumping data. Additionally, in a broader sense, section 64551.100 allows for alternative methods to be utilized.

(c)
Commentator 3 provided comments regarding subsection (c) and suggested revised language.
Response: Because subsection (c) was not altered for the 15-day comment period, the nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary.

(e)
Commentators 1, 7, 8, 9, 11, 13, and 21 expressed concern regarding the amount of information that must be submitted prior to conducting a well capacity test and thought submittal of the information should instead be submitted with the results.
Response: Many of the items requested for submittal are necessary to review to ensure a test is performed with consideration having been given to those conditions that may skew the results of the test, leading to an unacceptable test. The Department is a bit bemused that one would want to take a chance on conducting a test that may ultimately be found to be unacceptable, which could have been avoided by submitting information prior to conducting the test. It would seem that this could lead to a significant loss of time and money. Additionally, although some forward planning may be required, the same information will need to be prepared regardless of when it's submitted. That said, the Department agrees that when testing alluvial wells, the submittal of the information after the test would generally be acceptable. However, the Department would like to reserve the right to require submittal of the information prior to the testing and has revised the proposed text accordingly.

While agreeing that conducting well capacity tests "at various times during each well's operational life is good utility practice", Commentator 7 suggested only requiring the reporting

of the testing when a well capacity test is conducted for the first time or when a well is worked on and re-tested. Additionally, Commentator 7 suggested that the Department develop a standard well capacity test form, similar to the well completion form utilized by the Department of Water Resources, to be submitted following a well capacity test.
Response: Commentator 7 should note that (e)(9) sets forth requirements for determining a well's capacity. If one conducts tests as good operational practice (i.e. not seeking to determine revise a well's capacity), the information in (e)(9) need not be submitted. Regarding the development of a well capacity form, the Department appreciates the suggestion and believes it has merit.

Commentator 16 questioned why historical pumping records for a well would not be acceptable after the effective date of the regulation, noting that they believe there is no better way to determine the capacity of an existing well than by historical data (unless there is no meter provided).
Response: The intent of subsection (i) is to allow capacities to be revised based on pumping data. However, upon further review the Department agrees that the text, in conjunction with (e), would only allow such revisions for wells that have already performed a well capacity test. As a result, the Department has revised the text in (i) to provide the intent of the Department and assuage Commentator 16's concern.

(e)(9)
Commentator 7 noted that daily water demand determines which and how many other wells will be operated and, therefore, the information provided may not necessarily be accurate. In addition, Commentator 7 noted that some systems' wells may be drawing from different aquifers or sub-basins and, therefore, some of the required information may not be germane.
Response: The Department agrees with Commentator 7 and has revised the text to clarify that the description need only include estimates. Additionally, the proposed text has been revised to reflect that only those wells having an influence on the aquifer from which the tested well will draw water need to be considered.

(e)(12)
Commentator 7 questioned why the information is significant and needs to be reported.
Response: The water in the casing (or bore hole) can sometimes be of significant quantity. To avoid skewing the test results, the testing should take into consideration that the initial pumping of such water would not have an impact on the aquifer as that of the remaining pumping.

(e)(13)
Commentator 20 suggested revising the proposed text to include "if available", citing that a hydrogeologic study to evaluate groundwater basin recharge would be complex and not economically feasible.

Response: The Department does not expect a hydrogeological study or evaluation, which is why those terms are not used. Rather, the Department expects a "description" of the aquifer's annual recharge to ensure the water system has taken the concept into consideration.

(f)(4)

Commentator 1 stated that, in their opinion, the steady-state condition described in (f)(4) does not demonstrate their understanding of steady-state conditions; suggesting that,
"It is our opinion that "steady-state" condition is described incorrectly in Subsection (f)(4); the straight-line portion of this plot does not demonstrate "steady-state" conditions if the straight-line has a slope greater than zero. On the contrary, a sloped line indicates that drawdown has not stabilized and therefore represents 'transient conditions' where all the water is originating from storage rather than "steady-state" flow. If the Department's intention is to observe a stabilized drawdown, then the plot would be a straight line along, or asymptotic to a constant drawdown value. This is often not achievable within a practical test period, nor is it necessary to complete the analysis of the well's capacity." Similarly, Commentator 4 expressed the opinion that the term "steady-state" is wrongly applied, but provided no alternative language.
Response: For the purposes of the regulation, the term "steady state" is defined to mean a straight line plot of drawdown versus log time. This is not necessarily a constant drawdown, but instead a constant rate of drawdown versus 'log time' (i.e. the time plotted on the logarithmic axis of the graph). The Department's intention in requiring a "steady state" or straight line semi-log drawdown is to confirm that the well is pumping within an aquifer that appears to meet the assumptions of the Theis equation (e.g. infinite, isotropic, homogeneous, uniform thickness) within the duration of the test. The straight line will have a slope unless the drawdown of the well intercepts a constant head recharge boundary, which is a fairly rare condition. The requested straight line "steady-state" semi-log drawdown is achievable within the eight-hour duration of the test. If the semi-log drawdown is not a straight line for at least the last four hours of an eight hour test, it indicates that the well drawdown has encountered an aquifer boundary condition, discontinuity, or that there has been some discontinuity in the pumping rate. In either case, the test must be continued until the semi-log drawdown is a straight line for at least four hours. The proposed language was prepared in concert with and reviewed by the California Groundwater Association (CGA), as well as independent hydrogeologists.

(g)

Commentator 4 made the following general comment regarding the well capacity testing language:
"Lest but not least I would like to point out that the draft proposes methodology and use of terms that hydrogeologists certified by the State would get into trouble with the Department of Consumer affairs (and rightly so). More so, the drafted regulations accept bedrock well test data and their interpretation not only from certified hydrogeologists, but los from engineers. And it apparently permits pump contractors to do the same for alluvial aquifers. The State is enforcing the proper conducting of the profession of hydrogeology, evidently to warrant prudent ground water resource management. However, this draft allows at least in part other professions to develop data that can be used in ground water resources estimates. Isn't this contradictory?"
Response: The Department has struggled to fully understand the comment (e.g. "The State is enforcing the proper conducting of the profession of hydrogeology"), but offers the following

nevertheless: Although the report may be prepared by a licensed engineer, Commentator 4 should note that the engineer must have at least five years of experience with groundwater hydrology. The Department believes the experience, coupled with the extensive educational and testing requirements needed to obtain a professional engineer's license, are adequate to develop such a report. Additionally, the criteria were developed with the groundwater experts from the California Groundwater Association (CGA), as well as two other hydrogeologists from outside the Department.

Commentator 4 made the following comments:

1. Bedrock aquifer recharge should be discussed in more specifics.
2. Well field yield' is the crucial issue that needs to be addressed once an individual well's yield is ascertained.
3. Looking only at straight-line segment in Cooper-Jacob plot is not enough. This is particularly frustrating considering the level of sophistication that has been reached in test data analysis, including software.
4. 'Fractures' is good term, but 'cracks'? No, please use 'joints' instead.

Response: 1) With aquifer recharge issues being aquifer specific and, therefore, needing to be addressed on a case-by-case basis, the Department does not believe specific requirements lend themselves to specific regulatory language at this time. Commentator 4 may wish to note that subsection (j) addresses potential recharge issues. 2) Proposed subsection (e)(9) is intended to address the well field yield issue. That said, the Department agrees that, as proposed, the effects of nearby wells not operated by the subject water system is not appropriately addressed and has revised the language accordingly. 3) The Department is aware that the technology is dynamic and has included other means of determining a well's capacity, such as that allowed through (g)(1) or section 64551.100. 4) This appears to be an issue of semantics. Apparently Commentator 4 made the connection, despite not meeting Commentator 4's personal preference. Additionally, use of the term "joints" in a Waterworks regulation (i.e. pipe joints) could be more easily misconstrued than either "fractures" or "cracks".

Commentator 16 noted their support of the requirements for determining the capacity for hard-rock wells.
Response: Thank you.

(h)
Commentator 9 expressed concern that specifying a particular type of software may not be appropriate and recommends that the proposed regulation refrain from referencing proprietary equipment or software.
Response: The Department agrees and has revised the proposed text accordingly.

Section 64556
(a)(1)
Commentator 6 provided comments on subsection 64556(a)(1), suggesting an increase in reservoir size from 100,000 gallons to 1,000,000 gallons.
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 6 may wish to review

the responses provided to the 45-day comments; in particular the response to Commentator 17's comment.

Commentator 10 noted that for small systems (e.g., less than 200 service connections), any size reservoir may be significant and that a permit amendment provides a better tool for assuring such small systems submit plans, have them reviewed, and have them approved. Therefore, Commentator 10 proposed alternative language that would require a permit amendment for the addition of any reservoir for systems serving less than 200 service connections.
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 10 may wish to review the responses provided to Commentator 10's identical comment submitted during the 45-day comments period.

(a)(14)
Commentator 9 questions reason for deletion of (a)(14) and requests it be reinstated.
Response: Based in part on a comment received during the 45-day comment period, the Department found that the proposed requirement was unnecessary because it is substantially duplicative with the Health and Safety Code and, therefore, unnecessary.

Section 64570
Commentator 6 and Commentator 8 provided comments on subsection 64570, suggesting a reference to the "recently passed legislation" limiting lead in materials.
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period and, therefore, no response is necessary. Commentator 6 may wish to review the responses provided to the 45-day comments; in particular the response to Commentators 4, 5, 10, and 12's comments.

Section 64572
Commentator 2 expressed concern that the section would restrict replacement of water mains because "a corridor 50 feet in width without septic tanks or sewage leach fields would not exist" and roadway right-of-ways rarely exceed 40 feet in rural areas. Therefore, Commentator 2 suggests that subsection (f) not be excluded from subsection (h), allowing Department approval for exemptions under such situations. Furthermore, Commentator 2 stated that the "Departments familiar with their local areas should have the authority to grant waivers to all aspects of the proposed Section 64752."
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 2 may wish to review the Department's response to the identical comments made by Commentator 2 during the 45-day comment period.

Commentator 3 provided comments on subsections (d) and (h) identical to those provided by the commentator during the 45-day comment period.
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 3 may wish to review the

Department's response to the identical comments made by Commentator 3 during the 45-day comment period.

Commentator 5 noted a minor discrepancy between the distance requirements in subsections (a) and (e). Additionally, Commentator 5 questioned the why there is a 1320-foot limitation in (h).
Response: The Department agrees that a minor discrepancy exists between subsection (a) and (e) and has revised the proposed text accordingly. Thank you. Please review the Statement of Reasons regarding the 1320-foot limitation proposed in subsection (h).

Commentator 6 expressed the opinion that the requirement is too restrictive, noting that the Department should incorporate the Association of California Water Agency's (ACWA's) comments.
Response: See the response provided to ACWA's comment submitted during the 45-day comment period.

Section 64573
Commentator 3 provided comments on section 64573 identical to those provided by the commentator during the 45-day comment period.
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 3 may wish to review the Department's response to the identical comments made by Commentator 3 during the 45-day comment period.

Section 64576
Commentator 3 provided comments on section 64576 identical to those provided by the commentator during the 45-day comment period (see 45-day comment summary section). Similarly, Commentator 5 expressed concern regarding the potential need to retrofit air valves currently located in pits and suggested alternative language. Commentator 18 proposed language to reflect that the vent opening, as opposed to the entire valve unit, be above grade, the calculated 100-year flood level, or highest recorded water level.
Response: The Department did not revise the regulatory text following the 45-day comment period for the reasons cited in the 45-day response, so responses to commentators are not necessary. However, following subsequent discussions with a number on commentators concerning this matter, the Department revised the proposed text in a manner equitable to both the Department and the commentators.

Section 64580
Commentator 3, 6, 8, 11, 13, 15, 16, 18, and 21 all strongly objected to the addition of the last sentence in proposed section 64580, which was added in response to a commentator questioning when repaired mains would be allowed to be placed into service, since the section provides such a directive for new mains. Believing the language would not allow mains repaired under a pressure of less than 20 psi to be placed into service without first receiving bacteriological results, the commentators noted that such a requirement would lead to common water outages, which would possibly increase the risk to the public to a degree greater than that achieved by

waiting for bacteriological results. The commentators requested deletion of the sentence. Commentator 18 requested the section reflect how the Department has historically approached repair of mains. In addition, Commentator 6 stated that, "In order to promulgate a regulation, the DPH is required to perform a cost-benefit analysis to evaluate the occurrence, feasibility, and cost to the public of the proposed new regulatory requirement." Commentator 20 suggested that mains may be placed into service if positive pressure was maintained in the main during the repair.

Response: The Department agrees with the commentators and has deleted the proposed text. Although it wasn't the intent of the addition to not allow mains repaired under a pressure of less than 20 psi to be placed into service without first receiving bacteriological results, the Department agrees that the proposed text implied that to be the case. Moreover, the Department believes that referenced AWWA standard adequately addresses the issue. In response to the comment regarding the fiscal analysis, Commentator 6 should note that a fiscal analysis was performed and reviewed by the Department of Finance as part of the regulatory process for the proposed Waterworks Standards. With respect to Commentator 20's comment, the referenced AWWA standard sets forth procedures for disinfection of repaired mains that allows the main to be placed back into service even if the main isn't repaired under positive pressure. The Department supports the AWWA standard, but is hopeful that water systems will make every effort to repair the mains under a positive pressure when possible.

Section 64583

Commentator 3 suggested a revision to section 64583.

With no changes being made to the section following the 45-day comment period, the nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary.

Section 64585

(b)

Commentator 3 provided comments on subsection 64585(b), regarding the submittal of design drawings and specifications, identical to those provided by the commentator during the 45-day comment period (see 45-day comment summary section). Similarly, Commentator 6 and Commentator 20 noted their belief that the submittal of design drawings and specifications *prior* to construction is too onerous. Additionally, Commentator 6 made the same comment regarding fiscal analysis as that provided by Commentator 6 in section 64580 above.

Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 3, Commentator 6, and Commentator 20 may wish to review the Department's response to the identical (or substantially the same) comments made by Commentator 3 during the 45-day comment period. See responses to section 64580 regarding Commentator 6's identical fiscal analysis comments.

Commentator 3 noted that the text implies that the use of the term "impervious" implies that the roof must be of a material that cannot be penetrated. Commentator 3 also noted that the conditions do not apply to construction materials currently used for water systems or those materials listed in proposed section 64570.

Response: The Department believes it is implicit that the term "impervious" applies to "the movement of water or other liquids into or out of the reservoir" and doesn't believe a revision is necessary. Section 64570 pertains to materials for water mains, not reservoir roofs.

(b)(4)
While referencing the unrevised language from the 45-day comment period (as opposed to the 15-day comment period), Commentator 1 suggested that the language be revised to "achieve adequate mixing" by engineering provisions to allow flexibility for innovative designs. Similarly, Commentator 8 expressed concern that the reservoir inlet/outlet requirement is overly prescriptive.
Response: Following discussions with a number of commentators on this issue, the Department revised the language to include "(internal or external)" to ensure clarity that internal separate inlet/outlet configurations would be acceptable as well. Commentators may wish to review the Department's response to similar comments received during the 45-day comment period; in particular that innovative designs to achieve the intent of the regulations would be allowed via section 64551.100. Because such designs would be "innovative", the Department believes such designs should be evaluated on a case-by-case basis.

Commentator 3 provided comments on subsection 64585(b)(4), regarding the submittal of design drawings and specification, identical to those provided by the commentator during the 45-day comment period (see 45-day comment summary section).
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 3 may wish to review the Department's response to the identical comments made by Commentator 3 during the 45-day comment period.

(b)(12)(E)
Commentator 3 provided comments on subsection 64585(b)(12(E) identical to those provided by the commentator during the 45-day comment period (see 45-day comment summary section).
Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 3 may wish to review the Department's response to the identical comments made by Commentator 3 during the 45-day comment period

Section 64591
Commentator 6 expressed concern that the requirement is too broad and may not be practical. For example, Commentator 6 noted that certification on every small item is too onerous and that some NSF/ANSI certified products may be of inferior quality. Commentator 6 also noted that applying for exemptions for every product that is not yet certified is not practical. Additionally, Commentator 6 made the same comment regarding fiscal analysis as that provided by Commentator 6 in section 64580 above. Commentator 8 expressed similar concerns, also specifically noting that there are a number of areas, such as cathodic protection, where there are no approved products.

Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentators may wish to review the Department's response to the similar comments made by other commentators during the 45-day comment period. See responses to section 64580 regarding Commentator 6's fiscal analysis comments. Additionally, based on Commentator 6's comments on section 64591 and 64593, the Department questions whether Commentator 6 reviewed the addition of subsection 64593(c), which includes a number of exemptions that do not require one to apply for an exemption. Also, please note that there are products certified under NSF/ANSI Standard 61 for cathodic protection. Attached is a link to the NSF 61 listings for the products (see "Sacrificial Anodes" under "Product Type" in the 61 Listings):
http://www.nsf.org/Certified/PwsComponents/Listings.asp?TradeName=&StandardExt=&MaterialType=&ProductType=Sacrificial+Anodes&PlantState=&PlantCountry=
Many of the coatings products (such as epoxy coatings) that are certified under NSF 61 are also used for cathodic protection. Other NSF/ANSI certified listings for cathodic protection may exist with other NSF/ANSI 61 certifying organizations.

Commentator 9 expressed concern that the exemptions in proposed section 64593 may not include existing chemical storage tanks that may not meet NSF/ANSI 61.
Response: Per 64593(c)(1), an existing chemical storage tank for a permitted water system facility would be a "product previously approved by the Department for use" and would be exempt.

Section 64593
Commentator 6 noted that all comments made by Commentator 6 pertaining to section 64591 are applicable for this section. Commentator 6 also questioned how the Department (referred by Commentator 6 as the formerly named "CDHS") expects to keep up exemptions and enforce the regulation. Commentator 6 questioned how construct-in-place products, such as large concrete tanks, will be certified and made the same comment regarding fiscal analysis as that provided by Commentator 6 in section 64580 above.
Response: Based on Commentator 6's comments on section 64591, the Department questions whether Commentator 6 reviewed the addition of subsection 64593(c). For example, Commentator 6 (in their section 64591 comments), refers to having to apply for exemptions and questions having to have NSF/ANSI certification for small parts. Yet, 64593(c) includes a number of exemptions, including those for small parts, and does not require one to apply for an exemption. Subsection (c) also includes an exemption for products constructed of certified components, which addresses construct-in-place products. See responses to section 64580 regarding Commentator 6's fiscal analysis comments. Regarding determination of certified products, certifying agencies, such as NSF have websites allowing one to search for certified components and certified components are also typically conspicuously denoted as being certified.

Section 64600
Commentator 6 provided comments to paragraph "(13)(c)".
Although there is no subsection 64600(13)(c), a review of the comment indicates that Commentator 6 was likely referring to subsection 64600(c). Since 64600(c) was not revised for

the 15-day comment period, the nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary.

Section 64602

Commentator 3 provided comments on subsection 64602(b) substantially identical to those provided by the commentator during the 45-day comment period (see 45-day comment summary section).

Response: Commentator 3 may wish to review the Department's response to the identical comments made by Commentator 3 during the 45-day comment period. That said, although the Department believes it is quite implicit that the requirement would pertain to "each new distribution system", following discussions with a number of commentators on this issue, the Department has revised the language for further clarity.

Addendum 3

Response to Comments, Period Ending November 26, 2007

The Department solicited written comments on the proposed regulation package R-14-03; eight sets of comments were received.

Table 3: Commentators Providing Written Comments

Number	*Commentator(s)*	*Representation*
1	Barber, George	Paradise Irrigation District
2	Bigley, Steve	Coachella Valley Water District
3	Chun, Douglas	Alameda County Water District
4	Clark, Krista	Association of California Water Agencies
5	Holmes, Michael K.	Walnut Valley Water District
6	Hunsinger, Ron	East Bay Municipal Utility District
7	Lynch, Gary	Park Water Company
8	Mortensson, Michael J.	California Groundwater Association

General

Commentator 4 noted their appreciation of the Department's attentive response to their comments and their support of the Department's efforts to revise the Waterworks Standards.
Response: Thank you. The Department looks forward to working closely with ACWA on future regulatory actions.

Commentator 7 noted that they were pleased with the Department's response to the water industry's comments on the proposed Waterworks Standards. In addition, Commentator 7 noted that it is a "fine example of how the industry can work with their regulators to develop improvements to regulations and enhance public health for the citizens of California."
Response: Thank you. The Department looks forward to working closely with the regulated community on future regulatory actions.

Commentator 2 submitted comments on sections 64554(c), 64583, 64585(b) – pertaining to drawing submittals, and 64585(b)(12)(e) – pertaining to subsurface reservoirs.
Response: With no revisions having been made to the sections for the second 15-day comment period, the nature of the comments is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 2 may wish to review the Department's responses to similar comments made during the 45-day comment period.

Commentator 3 submitted comments on sections 64582 and 64583, as well as other sections discussed below.
Response: With no revisions having been made to the sections for the second 15-day comment period, the nature of the comments is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 3 may wish to review the Department's responses to similar comments made during the 45-day comment period.

Commentator 5 submitted comments on sections 64572(d), 64577, 64578, 64582, 64585(b) – pertaining to drawing submittals, and 64585(b)(4).
Response: With no revisions having been made to the sections noted for the second 15-day comment period, except for subsection 64585(b)(4), the nature of the comments is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 5 may wish to review the Department's responses to similar comments made during the 45-day comment period. Commentator 5's comment on subsection 64585(b)(4) is addressed below.

Commentator 6 submitted comments on sections 64572(h), 64576, 64578, 64585 – pertaining to drawing submittals, and 64591.
Response: With no revisions having been made to the sections noted for the second 15-day comment period, except for subsections 64576 and 64591, the nature of the comments is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. In addition, Commentator 6's comment on section 64591 did not pertain to the revision made to the section, which was a non-substantive change to correctly refer to the standards as NSF/ANSI, as opposed to ANSI/NSF. Therefore, no response is necessary. Commentator 6 may wish to review the Department's responses to similar comments made during the 45-day comment period. Commentator 6's comment on subsection 64576 is addressed below.

Section 64554
Commentator 8 noted that the revisions to the section were acceptable. Commentator 8 also included a letter previously submitted to the Department that requests that the Department prepare some form of internal policy or guidance to help ensure that qualified staff will be reviewing the well capacity test submittals.
Response: Thank you. The Department intends to provide internal training for its staff.

(e) – (i)
Commentator 2 expressed concern that the data plotting requirements specified in (f) and (g) may have a typographical error. Commentator 2 noted that he believes that the Department's intent was to have the drawdown plotted on a logarithm axis, as opposed to the time. Commentator 2 also requested the Department to define "straight line."
Response: Although Commentator 2 indicated that his comment pertained to subsections (e) through (i), the comments were only relevant to (f) and (g), for which no revisions were made. Therefore, the nature of the comments is beyond the scope of the revisions made for the 15-day comment period and no response is necessary. Commentator 2 may wish to review constant-rate pumping tests in various groundwater well texts to confirm the accuracy of the regulatory text.

Section 64572

Commentator 1 reiterated his concern that the section would restrict replacement of water mains because "a corridor 50 feet in width without septic tanks or sewage leach fields would not exist" and roadway right-of-ways rarely exceed 40 feet in rural areas. Therefore, Commentator 1 suggests that subsection (f) not be excluded from subsection (h), allowing Department approval for exemptions under such situations. Furthermore, Commentator 1 stated that the "Departments familiar with their local areas should have the authority to grant waivers to all aspects of the proposed Section 64752."

Response: The nature of the comment is beyond the scope of the revisions made for the 15-day comment period. Therefore, no response is necessary. Commentator 1 may wish to review the Department's response to the identical comments made by Commentator 1 during the 45-day comment period.

(e)

Commentator 3 suggested that the text be revised to note that the vertical separations in (b) and (c) are only required when the horizontal distance is less than four feet.

Response: The proposed text is as intended; the vertical separation requirements in (b) and (c) need not apply when the horizontal distance is ten feet or more. A four foot horizontal separation is not sufficient to forgo the required vertical separation.

Section 64576

Commentator 2 suggested that the proposed text be revised such that the installation level be "above the 100-year flood level or, if data is available, above the highest recorded water level." *(emphasis added by the Department)* Commentator 2 indicated that the 100-year flood level may not be representative of local conditions.

Response: The revision made for the second 15-day comment period pertained to subsection (a) being applicable to an assembly's vent opening, not the water levels. Therefore, no response is necessary. Nevertheless, Commentator 2 should consider the converse, i.e., that local recorded data conditions may not always be representative of the 100-year flood level, due to the fact that a 100-year storm may not have occurred during the time such data was recorded. Additionally, due to specific local conditions, the historically high water levels may actually exceed the 100-year flood level. Therefore, the Department does not support the suggested change.

Commentator 3 suggested that language be included to allow limited exemptions from the requirement for existing valve installations if the utility can show that the specific risk of contamination is low or the risk can be effectively mitigated in other manners that may be more cost effective. Commentator 3 made a similar comment while referring to subsection (a).

Response: Section 64551.100 allows for such alternatives. Commentator 3 should also note that the requirements of the section apply only to a new or existing valve needing replacement.

While agreeing with the revision, Commentator 6 questioned whether further modification are needed to ensure there are no unintended negative consequences in the areas of public safety, security (access to the distribution system for the purpose of intentional contamination), and vulnerability to physical destruction. Further, while referencing section 64567 *(the Department assumes Commentator 6 meant 64576)* Commentator 6 questioned the applicability of section

64551.100 to this section since no specific level of public health protection is provided in section 64576 and also expressed concern that acceptable alternatives may vary from one Departmental District to another. Commentator 6 also questioned whether the Department has any reasons (via documentation) to believe that the intent of the requirement is a real issue in California.
Response: With the exception of Commentator 6 agreeing to the revision, the nature of the comments is beyond the scope of the revisions made for the 15-day comment period, which pertained only to (a) and the subject of the vent having to be above the referenced water levels (as opposed to the entire valve assembly) . Therefore, no response is necessary. That said, the Department would like to note that (c) includes the requirement that the valve assembly be constructed and designed to prevent vandalism. The Department believes it is prudent for all water systems to have any of their appurtenances placed in a manner that best suites public safety, which also includes the risk of contamination from backflow incidents. The Department does not believe it's in the best interest of the public to wait until such incidents occur before taking action.

Section 64580

Commentator 3 suggested establishing a maximum time period (48 hours was suggested) for a main repair before disinfection and bacteriological monitoring pursuant to AWWA Standard C651-05 would be required. Commentator 3 noted that, "when best practices for main repair are followed to ensure there is no or little risk for contamination, only verification sampling is warranted."
Response: The manner in which Commentator 3 used the term "maximum" is a bit confusing. Based on the comment as a whole, Commentator 3 is apparently suggesting that only those repairs made in excess of 48 hours need to follow the AWWA standard for disinfection and bacteriological sampling and that those repairs made in a shorter duration would only need verification sampling (i.e. no disinfection). The Department believes the AWWA standard sets forth procedures for "best practices". The disinfection procedures mitigate the potential for positive bacteriological results.

Section 64585

(b)(4)

Commentator 5 noted that alternatives to separate inlet/outlet piping, such as a Tideflex manifold system, should be allowed "depending on site constraints and other considerations to be determined by each water system during the design process."
Response: The Department agrees that alternatives may exist that are appropriate, but as Commentator 5 alluded, those alternatives may be site/system specific. Such alternatives may be approved via proposed section 64551.100.

Addendum 4

Corrections, Revisions, or Additions to the Rulemaking File

1. The following nonsubstantive correction was made to the final text:

(a) Pursuant to California Public Health Act of 2006 (Act; S. B. 162, Section 1, Chap. 241, Stats. 2006), effective July 1, 2007, the California Department of Public Health has authority to adopt the subject regulations. However, at the time the regulation package entered the 45-day public comment period, the Department's authority resided with the "California Department of Health Services". Therefore, multiple references to Health and Safety Code sections 131200 and 131051 were added to include the needed nexus between the previous authority given to the Department, while known as California Department of Health Services, and that which it is now known as (i.e. California Department of Public Health).

(b) In Section 64554(f)(6) and (g)(2)(C) the term "pump test" has been replaced with "well capacity test". Although the well capacity test described is indeed commonly referred to as a pump test, throughout the remainder of Section 64554 the term "well capacity test" was used. Therefore, the substitution of terms was made for consistency.

(c) In Section 64591(a) and (b) there were two references to NSF/ANSI Standard 61-2005/Addendum 1.0-2006. This has been revised to read as, NSF/ANSI Standard 61-2005/Addendum 1.0-2005. Although the addendum was adopted in April 2006, in the upper right-hand corner of the document it's referred to as "Addendum 1.0-2005". The Department believes it would be less confusing to refer to the addendum as Addendum 1.0-2005; particularly since no document currently exists with the term "Addendum 1.0-2006" printed on the document. Therefore, the text has been revised accordingly.

(d) In the note providing the authority/reference at the bottom of proposed Section 64591, the note had been shown as if it were being amended. However, since the section is to be newly adopted, it should have been as such. Therefore, the regulation text was corrected accordingly.

(e) In the note providing the authority/reference at the bottom of repealed section 64417, the authority was corrected to cite section 4026 versus 4010.1(h) and the reference was corrected to cite only section 4024.

(f) In the note providing the authority/reference at the bottom of repealed sections 64555, 64560, 64562, 64563, 64564, 64566, 64568, 64570, 64600, 64602, 64604, 64612, 64622, 64624, 64626, 64628, 64630, 64632, 64634, 64636, 64638, 64640, 64642 and 64644, the reference was corrected to cite 4010.1(h) versus 4010.1(o).

(g) In the repealed section 64632, the repealed text was corrected to include the following portion that was inadvertently omitted "(300m) and smaller diameter should be located such that water main lengths of not more than 1,000 feet".

2. Modifications to the Final Statement of Reasons (FSOR):

(a) Pursuant to California Public Health Act of 2006 (Act; S. B. 162, Section 1, Chap. 241, Stats. 2006), effective July 1, 2007, the California Department of Public Health has authority to adopt the subject regulations. Therefore, multiple references to "California Department of Health Services" have been deleted and replaced with "California Department of Public Health" and statutory authority and references for each proposed new, amended, or repealed regulation have been appropriately modified.

(b) The changes to the proposed amendments noticed in the 15-day post-hearings change availability did not affect the fiscal analysis or the Form 399 approved by the Department of Finance.

(c) On page 1, third bullet, 4th paragraph, there is a reference to NSF/ANSI Standard 61-2005/Addendum 1.0-2006. This has been revised to read as, NSF/ANSI Standard 61-2005/Addendum 1.0-2005. Although the addendum was adopted in April 2006, in the upper right-hand corner of the document it's referred to as "Addendum 1.0-2005". The Department believes it would be less confusing to refer to the addendum as Addendum 1.0-2005; particularly since no document currently exists with the term "Addendum 1.0-2006" printed on the document. Therefore, the text has been revised accordingly.

(d) On page 1, the list of documents that are incorporated by reference was corrected to read AWWA C151/A21.51-02 versus C150/A21.51-02 and the list now includes C905-97 which was inadvertently left off the list. (AWWA C905-97 was initially noticed to be incorporated by reference under section 64570.)

(e) Page 3, the text pertaining to existing section 64602 included a typographical error in its reference to 64585(b)(13), which doesn't exist. This was corrected to refer to 64585(b)(12).

(f) Page 7, paragraph (b) statement, the term "dergree" was corrected to be "degree".

(g) Page 9 and 10, the text pertaining to proposed section 64556 included a typographical error, sometimes referring to a paragraph "(15)", which doesn't exist. This should have been "(14)", but has been corrected to be "(13)" since paragraph (14) was deleted following the first comment period. Additionally, a grammatical correction was made to the following sentence at the top of page 10: "The Department proposes to use a criteria of 20% for identifying a "significant" expansion. A specific criteria is needed,…". The term "criteria" is plural and "criterion" is singular. The sentence was corrected to refer to the singular.

Statements of Determinations and Business Impact

Section 116375(c) of the Health and Safety Code (H&S Code) requires the Department to adopt regulations relating to the design, operation, and maintenance of public water systems to assure that these systems can obtain and distribute a reliable and adequate supply of pure and potable drinking water. The current waterworks standards were adopted in the 1970's and are reflected in sections 64551 through 64644 (Title 22, division 4, chapter 16) of the California Code of Regulations (CCR).

Since the original waterworks standards were adopted, the Administrative Procedures Act was amended to include statutory requirements for regulations to conform to certain criteria for necessity, clarity, and authority. The existing waterworks standards do not meet the required criteria. Further, many of the standards are obsolete or contain outdated references and do not address all of the current health issues relating to public water systems. However, perhaps the most significant problem is that the standards contain numerous ambiguous phrases that not only do not meet the requirements for clarity, but make the standards extremely confusing to public water systems. This confusion and lack of clarity has also made enforcement of the current standards difficult.

To resolve these problems, the Department is proposing to repeal the current waterworks standards in their entirety. Some existing sections would be repealed because they are no longer necessary. Others have been rewritten for clarity and proposed as new sections, and some new requirements are being proposed to assure protection of public health and compliance with the statutes. The Department believes that these proposed changes would benefit the water industry by eliminating unnecessary requirements and improving clarity. The revisions also would improve the level of public health protection and increase the assurance that public water systems would be able to reliably provide an adequate supply of healthful drinking water at all times as required by law.

Summary

In summary, the proposed regulation package would:

- For ease in revision, repeal the existing Waterworks Standards as contained in sections 64417, and 64555 through 64644 of Title 22;
- To update and clarify the regulatory requirements related to the distribution system, adopt new Waterworks Standards as detailed in proposed sections 64551 through 64604;
- For purposes of integrating related requirements, move the amended sections 64700 (Direct Additives) renumbered 64590, and 64710 (Exception) renumbered 64593 and re-titled "Use of Uncertified Chemicals, Materials or Products" from Chapter 18 to the Waterworks Standards in Chapter 15;
- For the purpose of ensuring sufficient supply to meet demand, adopt a requirement for a source capacity planning study for any anticipated water system expansion; and
- To address the potential for inadvertent contamination of drinking water, adopt a new section 64591 (Indirect Additives).

The Department has determined that the proposed regulations would not have a significant adverse impact on businesses, including the ability of California businesses to compete with businesses in other states. The fiscal impact of this regulation for individual systems is insignificant as noted in the fiscal impact analysis. Note that there is a potential cost savings to noncommunity systems since this regulation would exempt them from several of the existing waterworks standards.

The Department has determined that the regulations will not significantly affect the following:

1. The creation or elimination of jobs within the State of California. The requirements summarized above should not have any affect in this area in that there would not be any change in water system or regulatory personnel needed for compliance with the proposed requirements.

2. The creation of new businesses or the elimination of existing businesses within the State of California. The nature of the water industry is such that the proposed standards will not result in the creation or elimination of water systems. The impact of these regulations will be insignificant.

3. The expansion of businesses currently doing business within the State of California. Since water system size is basically a function of the number of service connections (consumers) served, the new regulations should not have any affect on expansion.

Alternative Considered

The Department has determined that no alternative considered by the Department would be more effective in carrying out the purpose for which the amendments to the regulations have been adopted or would be as effective and less burdensome to affected private persons than the amendments.

Local Mandate Determination

The Department has determined that the proposed regulation would not impose a mandate on local agencies or school districts, nor are there any costs for which reimbursement is required by Part 7 (commencing with Section 17500) of Division 4 of the Government Code. Local agencies should not incur costs as a result of this regulation. However, if they were to incur costs, those costs would be of the following nature:

First, some local agencies would incur costs in their operation of public water systems. These costs would not be the result of a "new program or higher level of service" within the meaning of Article XIIIB, Section 6 of the California Constitution because they apply generally to all individuals and entities that operate public water systems in California and do not impose unique

requirements on local governments. Therefore, no state reimbursement of these costs would be required.

Second, some local agencies could incur additional costs in discharging their responsibility to enforce the new regulations for the small public water systems (under 200 service connections) that they regulate. However, the Department has determined that any increase in the local agency costs resulting from enforcing this regulation would be insignificant. Furthermore, local agencies are authorized to assess fees to pay reasonable expenses incurred in enforcing statutes and regulations related to small public water systems. (Health and Safety Code Section 101325) Therefore, no reimbursement of any incidental costs to local agencies in enforcing this regulation would be required. (Government Code Section 17556(d)).

Reporting Requirement

The Department has made the determination that these proposed regulations require reports from businesses, and it is necessary for the health, safety, or welfare of the people of California that the proposed regulations apply to businesses.

California Conference of Local Health Officers Review

Pursuant to Health and Safety Code section 131205, the Department provided a copy of the public notice document, including the text of the proposed regulation text and the Initial Statement of Reasons, to the California Conference of Local Health Officers for review and comment.

Public Hearing

At the time of the public notice, a public hearing was not scheduled and a public hearing was not subsequently requested.

Statement of Mailing Notice

45-Day Public Notice Mailing
The Department has complied with the provisions of Government Code Section 11346.4(a)(1) through (4) regarding the mailing of notice of proposed action at least 45 days prior to public hearing or close of the public comment period and the date upon which the notice was mailed was December 21, 2006.

First 15-Day Notice of Public Availability of Changes

The Department has complied with the requirements of Section 44 of Title 1 of the California Code of Regulations and the date upon which the notice and text were mailed was September 20, 2007. The public availability period began September 20, 2007 and ended October 5, 2007.

Second 15-Day Notice of Public Availability of Changes

The Department has complied with the requirements of Section 44 of Title 1 of the California Code of Regulations and the date upon which the notice and text were mailed was November 8, 2007. The public availability period began November 9, 2007 and ended November 26, 2007.

Final Statement of Reasons
Waterworks Standards
Title 22, California Code of Regulations

Addendum 5

Nonsubstantive modifications to the information contained in the rulemaking file were made in response to comments received from the Office of Administrative Law during the course of their rulemaking file review.

The following comments were made by OAL staff on February 6, 2008, and addressed by the California Department of Public Health staff (Department) as indicated:

1. Provide a statement addressing whether the requirements in Government Code 11359(a) apply to these regulations.

Response:
These regulations are not intended to promote fire and panic safety or provide fire protection and prevention. Therefore, these regulations do not need written approval from the State Fire Marshal pursuant to Government Code 11359(a).

2. Clarify why the following terms are not defined in the proposed Waterworks standards.

Hydropneumatic Tanks	Turnout
Pressure Zones	Interzonal Transfers
Geologic Log	Flushing Velocity
Electric Log	Air-Release
Annual Recharge	Air Vacuum
Aquifier Recharge Estimates	Combination Valve
Water Balance Analysis	Isolation Valve
Surface Water Supply	Long Key
Purchased Water Connection	Distribution Reservoir
Flow Meters	Sample Taps
Unmetered Service Connections	Short Circuiting
Inactive Sources	Stagnation of Water Flow
Primary Treated Sewage	Blind-Flanged
Secondary Treated Sewage	Underdrain Facility
Upgraded Piping Material	PVC Water Stop
Nominal Diameter	Damp Proofing Material
Flushing Valve	Unit Process
Blowoff	Sanitary Sewer

Response:
The terms listed above are used in the proposed Waterworks Standards without further definition because these are "terms of art" with settled meaning for the Drinking Water Industry and for the regulated community directly affected by these proposed Waterworks Standards.

3. Correct Typographical Errors in the text of the proposed Waterworks Standards.

Response:
Typographical errors were corrected in the revised text of the proposed Waterworks Standards including corrections to punctuation and strikeout and underline of text.

4. Amend the Authority and Reference notes as follows:

- **For all proposed regulation sections add Health and Safety Code Section 116350 as an authority citation.**
- **For all proposed regulation sections add Health and Safety Code Section 116375 as a reference citation.**
- **For section 64552 add Health and Safety Code Section 116525 as a reference.**
- **For section 64556 add Health and Safety Code Section 116550 as a reference.**

Response:
The Department agrees with and has made these additions to the Authority and References notes.

5. Edit language in section 64551.100 to delete subsection (a) and redesignate subsection (b) to subsection (a) to eliminate any potential clarity and redundancy issues.

Response: The Department has made the decision not to proceed with the language in subsection (a) to eliminate any potential clarity and redundancy issues since the language in subsection (b) covers all situations also listed in subsection (a). Therefore, subsection (b) is now redesignated to subsection (a).

6. Address the requirements of Title 1, California Code of Regulations, Section 20 (c)(1).

Response:
As discussed in the Updated Informative Digest, these proposed Waterworks Standards incorporate by reference the following standards:

- California Department of Water Resources (Bulletins 74-81 and 74-90);
- American Water Works Association (AWWA): A100-06, C150/A21.50-02, C151/A21.51-02, C200-97, C300-04, C301-99, C302-04, C303-02, C304-99, C512-04, C600-05, C605-05, C651-05, C652-02, C654-03, C800-05, C900-97, C905-97, C906-99, C909-02, C950-01, D100-05, D102-03, D103-97, D110-04, D120-02, D130-02, and

Manuals M9 (1995), M11 (2004), M25 (2000), M51 (2001), and AWWA California-Nevada Section's "Reservoir Floating Cover Guidelines" (April 1999).
- American National Standard Institute/NSF International (ANSI/NSF): 60-2005 and ANSI/NSF 61-2005/Addendum 1.0-2005.

These standards documents are voluminous and in total are hundreds of pages. Therefore, these documents are being incorporated by reference as it would be too cumbersome, unduly expensive, or otherwise impractical to publish these documents in the California Code of Regulations. Additionally, these are professional documents readily available and used by the Drinking Water Industry and regulated community.

Availability:

The California Dept of Water Resources' well standards are available at:
http://www.groundwater.water.ca.gov/technical_assistance/gw_wells/gww_standards/index.cfm

The AWWA documents (standards and manuals) are available via the AWWA bookstore
http://www.awwa.org/bookstore

The NSF/ANSI Standards can be obtained via NSF's on-line bookstore at:
http://www.techstreet.com/cgi-bin/browsePublisher?publisher_id=133&subgroup_id=210

7. Edit the language in sections 64590 and 64591(a) and (b) to eliminate prospective incorporation by reference, in order to comply with the requirements of Title 1, California Code of Regulations, Section 20 (c)(4).

Response:
In order to eliminate the issue of prospective incorporation by reference of NSF/ANSI standards, the Department has edited the following:
- Section 64590 to remove the following language "or more recent version of NSF/ANSI 60."
- Section 64591(a) and (b) to remove the following language "or a more recent version of NSF/ANSI 61."

8. Edit the language in sections 64560, 64570, 64576, 64580, 54582, 64583, 64585, 64590 and 64591, to specify that the California Department of Water Resources, American Water Works Association and American National Standard Institute/NSF International (ANSI/NSF) standards referenced in these sections are "incorporated by reference", in order to comply with the requirements of Title 1, California Code of Regulations, Section 20 (c)(4).

Response:
The Department has revised the text of the proposed Waterworks Standards to meet the requirements of Title 1, California Code of Regulations, Section 20 (c)(4).

9. Edit language in sections 64556(a) and 64585(b)(9) to resolve any potential clarity issues

Response:
The Department edited the following to avoid any potential clarity issues:

- Section 64556(a) added the following language “domestic water supply” for additional clarification.
- Section 64585(b)(9) removed the abbreviation “CT” and replaced with “the disinfection contact time” for additional clarification.