

DEFINITIONS

(25) Adopt Section 64551.10 as follows:

Section 64551.10. Distribution Reservoir.

“Distribution reservoir” means any tank or other structure located within or connected to the distribution system and used to store treated/finished drinking water.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(26) Adopt Section 64551.20 as follows:

Section 64551.20. Distribution System.

“Distribution system” means all physical parts of the water system, including, but not limited to: Pipes, valves, pumping stations, storage tanks or reservoirs, and user service lines, that are located between the water treatment plant, or the source if there is no treatment, and the consumer’s service connection.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(27) Adopt Section 64551.30 as follows:

Section 64551.30. Maximum Day Demand (MDD).

“Maximum day demand (MDD)” means the amount of water utilized by consumers during the highest day of use (midnight to midnight), excluding fire flow, as determined pursuant to Section 64554.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(28) Adopt Section 64551.35 as follows:

Section 64551.35. Peak Hour Demand (PHD).

“Peak hour demand (PHD)” means the amount of water utilized by consumers during the highest hour of use during the maximum day, excluding fire flow, as determined pursuant to Section 64554.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(29) Adopt Section 64551.40 as follows:

Section 64551.40. Source Capacity.

“Source capacity” means the total amount of water supply available, expressed as a flow, from all active sources permitted for use by the water system, including approved surface water, groundwater, and purchased water.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(30) Adopt Section 64551.60 as follows:

Section 64551.60. User Service Line.

“User service line” means the pipe, tubing, and fittings connecting a water main to an individual water meter or service connection.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(31) Adopt Section 64551.70 as follows:

Section 64551.70. Water Main.

“Water main” means any pipeline, except for user service lines, within the distribution system.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

ARTICLE 1.5. WAIVERS AND ALTERNATIVES

(32) Adopt Section 64551.100 as follows:

Section 64551.100. Waivers and Alternatives.

(a) A water system that proposes to use an alternative to a requirement in this chapter shall:

- (1) Demonstrate to the Department that the proposed alternative would provide at least the same level of protection to public health; and
- (2) Obtain written approval from the Department prior to implementation of the alternative.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 2. PERMIT REQUIREMENTS

(33) Adopt Section 64552 as follows:

Section 64552. Initial Permit for Public Water System.

(a) Each public water system applying for an initial domestic public water system permit shall submit an application that includes:

- (1) A map and description of the entire existing and proposed service area, showing:
 - (A) The location of each water source, as well as wells that are abandoned, out-of-service, destroyed, standby, or inactive (not physically connected to the water system), together with:
 1. Any valid water rights owned by the system for surface water sources, including information on any limitations or restrictions of those rights;
 2. For a groundwater aquifer, the groundwater levels and drawdown patterns;

3. Permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin;
4. Existing and planned source pumping capability and distribution storage capacity for the system as a whole and for each pressure zone;
5. The calculated sustained well yields of existing wells if groundwater sources are used;
6. Permits for any waters proposed for use to offset potable water demand; and

(B) Treatment facilities and pumping plants;

(C) Distribution system piping, pressure zones, hydropneumatic tanks, and reservoirs;

(D) Valves, sample taps, and other system appurtenances;

(E) Recycled water and sewage systems;

(F) Conveyance facilities;

(G) Any flood plains in the projected service area; and

(H) The 100 year flood or highest recorded flood level, whichever is higher.

(2) The population, and number and type of residential, commercial, agricultural, and industrial service connections, in the system's projected service area;

(3) Design drawings of proposed facilities drawn to scale, showing location, size, and construction material;

(4) As-built drawings of existing facilities, drawn to scale, showing location, size, construction materials, and year of installation of any water main or other facility that has already been constructed;

(5) The estimated MDD and PHD with the methods, assumptions, and calculations used for the estimations;

(6) A source water assessment and description of each source of water proposed for use to meet the estimated MDD and information demonstrating that the sources are adequate to do so, such as, but not limited to, well pump tests, the capacities of all pumping facilities, and the hydraulic capacity of surface water treatment facilities,

(A) If the system plans to use surface water, the system shall demonstrate that it holds a valid water right to that amount of water including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(B) If groundwater is to be used, the system shall demonstrate that the groundwater aquifer is sufficient, or in the case of adjudicated groundwater basins, that approval has been obtained to allow that amount of sustained withdrawal including any allowable reductions or limitations on its availability, as stated in the water rights contract;

(C) If purchased water is to be used, the system shall provide contracted amount and the hydraulic capacity at each turnout and any allowable reductions or limitations on its availability, as stated in the purchased water contract; and

(7) Information that demonstrates how the system proposes to reliably meet four hours of PHD using, but not limited to, available source capacity and distribution reservoirs.

(b) The information in subsection (a) shall be prepared by a professional civil engineer registered in the State of California with experience in water supply engineering.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116525, 116555 and 131051, Health and Safety Code.

(34) Adopt Section 64554 as follows:

Section 64554. New and Existing Source Capacity.

(a) At all times, a public water system's water source(s) shall have the capacity to meet the system's maximum day demand (MDD). MDD shall be determined pursuant to subsection (b).

(1) For systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency source connections.

(2) For systems with less than 1,000 service connections, the system shall have storage capacity equal to or greater than MDD, unless the system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement.

(3) Both the MDD and PHD requirements shall be met in the system as a whole and in each individual pressure zone.

(b) A system shall estimate MDD and PHD for the water system as a whole (total source capacity and number of service connections) and for each pressure zone within the system (total water supply available from the water sources and interzonal transfers directly supplying the zone and number of service connections within the zone), as follows:

(1) If daily water usage data are available, identify the day with the highest usage during the past ten years to obtain MDD; determine the average hourly flow during MDD and multiply by a peaking factor of at least 1.5 to obtain the PHD.

(2) If no daily water usage data are available and monthly water usage data are available:

(A) Identify the month with the highest water usage (maximum month) during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation;

(B) To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor that is a minimum of 1.5; and

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(3) If only annual water usage data are available:

(A) Identify the year with the highest water usage during at least the most recent ten years of operation or, if the system has been operating for less than ten years, during its years of operation;

(B) To calculate the average daily use, divide the total annual water usage for the year with the highest use by 365 days; and

(C) To calculate the MDD, multiply the average daily usage by a peaking factor of 2.25.

(D) To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5.

(4) If no water usage data are available, utilize records from a system that is similar in size, elevation, climate, demography, residential property size, and metering to determine the average water usage per service connection. From the average water usage per service connection, calculate the average daily demand and follow the steps in paragraph (3) to calculate the MDD and PHD.

(c) Community water systems using only groundwater shall have a minimum of two approved sources before being granted an initial permit. The system shall be capable of meeting MDD with the highest-capacity source off line.

(d) A public water system shall determine the total capacity of its groundwater sources by summing the capacity of its individual active sources. If a source is influenced by concurrent operation of another source, the total capacity shall be reduced to account for such influence. Where the capacity of a source varies seasonally, it shall be determined at the time of MDD.

(e) The capacity of a well shall be determined from pumping data existing prior to March 9, 2008 or in accordance with subsection (f) or (g). Prior to conducting a well capacity test pursuant to subsection (g), a system shall submit the information listed below to the Department for review and approval. For well capacity tests conducted pursuant to subsection (f), the information shall be submitted to the Department if requested by the Department.

(1) The name and qualifications of the person who will be conducting the test;

(2) The proposed test's pump discharge rate, based on the design rate determined during well development and/or a step-drawdown test.

(3) A copy of a United States Geological Survey 7 ½-minute topographic map of the site at a scale of 1:24,000 or larger (1 inch equals 2,000 feet or 1 inch equals less than 2,000 feet) or, if necessary, a site sketch at a scale providing more detail, that clearly indicates;

(A) The well discharge location(s) during the test, and

(B) The location of surface waters, water staff gauges, and other production wells within a radius of 1000 feet;

(4) A well construction drawing, geologic log, and electric log, if available;

(5) Dates of well completion and well development, if known;

(6) Specifications for the pump that will be used for the test and the depth at which it will draw water from the well;

(7) A description of the methods and equipment that will be used to measure and maintain a constant pumping rate;

(8) A description of the water level measurement method and measurement schedule;

(9) For wells located in or having an influence on the aquifer from which the new well will draw water, a description of the wells' operating schedules and the estimated amount of groundwater to be extracted, while the new well is tested and during normal operations prior to and after the new well is in operation;

(10) A description of the surface waters, water staff gauges, and production wells-shown in (3)(B);

(11) A description of how the well discharge will be managed to ensure the discharge doesn't interfere with the test;

(12) A description of how the initial volume of water in the well's casing, or bore hole if there is no casing at the time, will be addressed to ensure it has no impact on the test results; and

(13) A written description of the aquifer's annual recharge.

(f) To determine the capacity of a well drilled in alluvial soils when there is no existing data to determine the capacity, a water system shall complete a constant discharge (pumping rate) well capacity test and determine the capacity as follows:

(1) Take an initial water level measurement (static water level) and then pump the well continuously for a minimum of eight hours, maintaining the pump discharge rate proposed in subsection (e)(2);

(2) While pumping the well, take measurements of the water level drawdown and pump discharge rates for a minimum of eight hours at a frequency no less than every hour;

(3) Plot the drawdown data versus the time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithm axis and the drawdown data on the vertical axis;

(4) Steady-state is indicated if the last four hours of drawdown measurements and the elapsed time yield a straight line in the plot developed pursuant to subsection (3). If steady-state is not achieved, the pump discharge rate shall be continued for a longer period of time or adjusted, with paragraphs (2) and (3) above repeated, until steady-state is achieved.

(5) Discontinue pumping and take measurements of the water level drawdown no less frequently than every 15 minutes for the first two hours and every hour thereafter for at least six hours or until the test is complete; and

(6) To complete the test, the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent.

(7) The capacity of the well shall be the pump discharge rate determined by a completed test.

(g) The capacity of a well whose primary production is from a bedrock formation, such that the water produced is yielded by secondary permeability features (e.g. fractures or cracks), shall be determined pursuant to either paragraph (1) or (2) below.

(1) The public water system shall submit a report, for Department review and approval, proposing a well capacity based on well tests and the evaluation and

management of the aquifer from which the well draws water. The report shall be prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist. Acceptance of the proposed well capacity by the Department shall, at a minimum, be based on the Department's review and approval of the following information presented in the report in support of the proposed well capacity:

- (A) The rationale for the selected well test method and the results;
- (B) The geological environment of the well;
- (C) The historical use of the aquifer;
- (D) Data from monitoring of other local wells;
- (E) A description of the health risks of contaminants identified in a Source

Water Assessment, as defined in section 63000.84 of Title 22, and the likelihood of such contaminants being present in the well's discharge;

- (F) Impacts on the quantity and quality of the groundwater;
- (G) How adjustments were made to the estimated capacity based on

drawdown, length of the well test, results of the wells test, discharge options, and seasonal variations and expected use of the well; and

- (H) The well test(s) results and capacity analysis.

(2) During the months of August, September, or October, conduct either a 72-hour well capacity test or a 10-day well capacity test, and determine the well capacity using the following procedures:

- (A) Procedures for a 72 hour well capacity test:

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 72 hours starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pump discharge rate:

- a. Every thirty minutes during the first four hours of pumping,
- b. Every hour for the next four hours, and
- c. Every four hours thereafter until the water drawdown level is

constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

- (B) Procedures for a 10 day well capacity test:

1. For the purpose of obtaining an accurate static water level value, at least twelve hours before initiating step 2., pump the well at the pump discharge rate proposed in subsection (e)(2) for no more than two hours, then discontinue pumping;

2. Measure and record the static water level and then pump the well continuously for a minimum of 10 days starting at the pump discharge rate proposed in (e)(2);

3. Measure and record water drawdown levels and pumping rate:

- a. Every thirty minutes during the first four hours of pumping,
- b. Every hour for the next four hours,
- c. Every eight hours for the remainder of the first four days,
- d. Every 24 hours for the next five days, and
- e. Every four hours thereafter until the water drawdown level is constant for at least the last four remaining measurements, and;

4. Plot the drawdown and pump discharge rate data versus time data on semi-logarithmic graph paper, with the time intervals on the horizontal logarithmic axis and the drawdown and pump discharge rate data on the vertical axis.

(C) To complete either the 72-hour or 10-day well capacity test the well shall demonstrate that, within a length of time not exceeding the duration of the pumping time of the well capacity test, the water level has recovered to within two feet of the static water level measured at the beginning of the well capacity test or to a minimum of ninety-five percent of the total drawdown measured during the test, whichever is more stringent. If the well recovery does not meet these criteria, the well capacity cannot be determined pursuant to subsection (g)(2) using the proposed pump rate. To demonstrate meeting the recovery criteria, the following water level data in the well shall be measured, recorded, and compared with the criteria:

1. Every 30 minutes during the first four hours after pumping stops,
2. Hourly for the next eight hours, and
3. Every 12 hours until either the water level in the well recovers to within two feet of the static water level measured at the beginning of the well capacity test or to a at least ninety-five percent of the total drawdown measured during the test, which ever occurs first.

(D) Following completion of a 72-hour or 10-day well capacity test, the well shall be assigned a capacity no more than:

1. For a 72-hour test, 25 percent of the pumping rate at the end of a completed test's pumping.
2. For a 10-day test, 50 percent of the pumping rate at the end a completed test's pumping.

(h) The public water system shall submit a report to the Department that includes all data and observations associated with a well capacity test conducted pursuant to subsection (f) or (g), as well as the estimated capacity determination methods and calculations. The data collected during pumping and recovery phases of the well capacity tests shall be submitted in an electronic spreadsheet format in both tabular and graphic files.

(i) An assigned well capacity may be revised by the Department if pumping data collected during normal operations indicates that the assigned well capacity was not representative of the actual well capacity.

(j) If directed by the Department to do so, based on adverse conditions that may lead or may have led to a regional aquifer's inability to meet a water system's demand on such an aquifer, the water system shall submit a report to the Department that includes regional aquifer recharge estimates and a water balance analysis. The report shall be

prepared and signed by a California registered geologist with at least three years of experience with groundwater hydrology, a California licensed engineer with at least five years of experience with groundwater hydrology, or a California certified hydrogeologist.

(k) The source capacity of a surface water supply or a spring shall be the lowest anticipated daily yield based on adequately supported and documented data.

(l) The source capacity of a purchased water connection between two public water systems shall be included in the total source capacity of the purchaser if the purchaser has sufficient storage or standby source capacity to meet user requirements during reasonable foreseeable shutdowns by the supplier.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116540, 116555 and 131051, Health and Safety Code.

(35) Adopt Section 64556 as follows:

Section 64556. Permit Amendments.

(a) An application for an amended domestic water supply permit shall be submitted to the Department prior to any of the following:

- (1) Addition of a new distribution reservoir (100,000 gallon capacity or greater) to the distribution system;
- (2) Modification or extension of an existing distribution system using an alternative to the requirements in this chapter;
- (3) Modification of the water supply by:
 - A. Adding a new source;
 - B. Changing the status of an existing source (e.g., active to standby); or
 - C. Changing or altering a source, such that the quantity or quality of supply could be affected;
- (4) Any addition or change in treatment, including:
 - A. Design capacity; or
 - B. Process;
- (5) Expansion of the existing service area (by 20% or more of the number of service connections specified in the most recent permit or permit amendment);
- (6) Consolidation with one or more other water systems;
- (7) Change in regulatory jurisdiction;
- (8) Change in type of public water system;
- (9) Obtaining a water quality standard exemption from the Department;
- (10) Obtaining a secondary standard waiver from the Department;
- (11) Proposal for modifications of existing recreational uses on a water supply reservoir;
- (12) Request for a hand washing exclusion by a transient noncommunity water system, pursuant to section 116282 of the Health and Safety Code; or
- (13) Proposal for offsetting domestic water needs with an unapproved water supply.

(b) A water system shall submit an application to the Department if it has been notified by the Department that changes to the water system require an amended permit based on the Department's review of system operations, source type and capacity, geographical location, system size, and distribution system complexity.

(c) Except as set forth in subsections(a) and (b) any modifications or extensions to an existing distribution system may be made without applying for and receiving an amended domestic water supply permit provided the modifications comply with all of the requirements of this chapter.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535, 116550 and 131051, Health and Safety Code.

(36) Adopt Section 64558 as follows:

Section 64558. Source Capacity Planning Study.

(a) If directed by the Department to do so based on its determination that there is an existing or potential problem with the system's source capacity or a proposed expansion pursuant to section 64556(a)(5), a water system shall submit a Source Capacity Planning Study (Study) containing the following information:

(1) The anticipated growth of the water system over a projected period of at least ten years in terms of the population and number and type of residential, commercial, and industrial service connections to be served by the water system.

(2) Estimates of the amount of water needed to meet the total annual demand and the MDD over the projected ten-year growth period (projected system demand). Methods, assumptions, and calculations used to estimate the projected system demand shall be included.

(3) A map and description of the entire existing and proposed service area, showing:

(A) The location of each water source, including wells that are abandoned, out-of-service, destroyed, standby, or inactive;

1. Any valid water rights owned by the system for surface water sources, including information on any limitations or restrictions of those rights;

2. For a groundwater aquifer, the groundwater levels and drawdown patterns;

3. Permits or approvals for groundwater extraction if pumping from an adjudicated groundwater basin;

4. Existing and planned source pumping capability and distribution storage capacity for the system as a whole and for each pressure zone;

5. The calculated sustained well yields of existing wells if groundwater sources are used;

6. Permits, if required, for any waters proposed for use to offset potable water demand; and

7. A Source Water Assessment for each potable water source.

(B) Distribution system piping, pressure zones, hydropneumatic tanks, and reservoirs;

- (C) Valves, sample taps, flow meters, unmetered service connections, and other system appurtenances;
- (D) Conveyance facilities;
- (E) Any flood plains in the projected service area; and
- (F) The 100 year flood or highest recorded flood level, whichever is higher.

(b) If directed by the Department to do so based on its determination that a study is out of date, a water system shall update and submit the Study to the Department.

(c) Water systems that have submitted an Urban Water Management Plan to the Department of Water Resources pursuant to Water Code Part 2.6 commencing with section 10610, may submit a copy of that report in lieu of some or all of the requirements of subsection (a) to the extent such information is included in the plan.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116555 and 131051, Health and Safety Code.

ARTICLE 3. WATER SOURCES

(37) Adopt Section 64560 as follows:

Section 64560. New Well Siting, Construction, and Permit Application.

(a) To receive a new or amended domestic water supply permit for a proposed well, the water system shall provide the following information to the Department in the technical report as part of its permit application:

- (1) A source water assessment as defined in Section 63000.84 for the proposed site;
- (2) Documentation demonstrating that a well site control zone with a 50-foot radius around the site can be established for protecting the source from vandalism, tampering, or other threats at the site by water system ownership, easement, zoning, lease, or an alternative approach approved by the Department based on its potential effectiveness in providing protection of the source from contamination;
- (3) Design plans and specifications for the well; and
- (4) Documentation required for compliance with the California Environmental Quality Act (CEQA).

(b) After the Department has provided written or oral approval of the initial permit amendment application and the water system has constructed the well, the water system shall submit the following additional materials for its permit application:

- (1) A copy of the well construction permit if required by the county or local agency;
- (2) Department of Water Resources well completion report;
- (3) A copy of any pump tests required by the Department;
- (4) Results of all required water quality analyses; and
- (5) As-built plans.

(c) Each new public water supply well shall:

(1) As a minimum, be constructed in accordance with the community water system well requirements in California Department of Water Resources Bulletins 74-81 and 74-90, which are hereby incorporated by reference;

(2) Be constructed in accordance with American Water Works Association (AWWA) Standard A100-06 (Water Wells), which is hereby incorporated by reference;

(3) Be installed such that:

(A) All equipment is accessible for operation, maintenance, and removal;

(B) Protection is provided against flooding;

(C) The wellhead terminates a minimum of 18 inches above the finished grade;

(D) Wellhead and electrical controls are not installed in vaults;

(E) The well is equipped with:

1. Fittings and electrical connections to enable chlorination facilities to be readily installed;

2. A non-threaded down-turned sampling tap located on the discharge line between the wellhead and the check valve. Sampling taps used for obtaining samples for bacteriological analysis shall not have a screen, aerator, or other such appurtenance;

(F) Provisions are made to allow the well to be pumped to waste with a waste discharge line that is protected against backflow.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116530, 116535 and 131051, Health and Safety Code.

(38) Adopt Section 64560.5 as follows:

Section 64560.5. Well Destruction.

Destruction of a public drinking water supply well shall be in accordance with the California Department of Water Resources Bulletins 74-81 and 74-90.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(39) Adopt Section 64561 as follows:**Section 64561. Source Flow Meters.**

Each water system shall:

(a) Except for inactive sources, install a flow meter at a location between each water source and the entry point to the distribution system;

(b) Meter the quantity of water flow from each source, and record the total monthly production each month.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116555 and 131051, Health and Safety Code.

ARTICLE 4. MATERIALS AND INSTALLATION OF WATER MAINS AND APPURTENANCES

(41) Adopt Section 64570 as follows:**Section 64570. Materials and Installation.**

(a) All newly installed water mains shall comply with the materials and installation standards of the American Water Works Association pursuant to tables 64570-A and 64570-B. The standards are hereby incorporated by reference.

**Table 64570-A
Materials Standards for Water Mains**

<i>Type of Material</i>	<i>Diameter of Main</i>	<i>Applicable Standard</i>
PVC	4 in. through 12 in.	C900-97
PVC	14 in. through 48 in.	C905-97
Polyethylene (HDPE)	4 in. through 63 in.	C906-99
Fiberglass	All sizes	C950-01
Ductile Iron	All sizes	C150/A21.50-02
Ductile Iron, Centrifugally cast	All sizes	C151/A21.51-02
Steel	6 inches and larger	C200-97
Copper	All sizes	C800-05
Concrete		
Reinforced steel-cylinder	All sizes	C300-04

Prestressed steel-cylinder	All sizes	C301-99, C304-99
Reinforced noncylinder	All sizes	C302-04
Bar wrapped/steel cylinder	All sizes	C303-02
PVC, Molecularly oriented polyvinyl chloride –	All sizes	C909-02

**Table 64570-B
Installation Standards for Water Mains**

<i>Type of Installation</i>	<i>Applicable Standard</i>
Steel Pipe-Design and Installation	M-11 (2004)
Ductile-Iron Water Mains and Their Appurtenances	C600-05
Underground Installation of PVC Pressure Pipe and Fittings	C605-05
Concrete Pressure Pipe	M9(1995)

(b) Water mains shall:

- (1) Be installed below the frost line or be otherwise protected to prevent freezing; and
- (2) Be protected against crushing under loads that could pass above the installation.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(42) Adopt Section 64572 as follows:

Section 64572. Water Main Separation.

(a) New water mains and new supply lines shall not be installed in the same trench as, and shall be at least 10 feet horizontally from and one foot vertically above, any parallel pipeline conveying:

- (1) Untreated sewage,
- (2) Primary or secondary treated sewage,
- (3) Disinfected secondary-2.2 recycled water (defined in section 60301.220),
- (4) Disinfected secondary-23 recycled water (defined in section 60301.225), and
- (5) Hazardous fluids such as fuels, industrial wastes, and wastewater sludge.

(b) New water mains and new supply lines shall be installed at least 4 feet horizontally from, and one foot vertically above, any parallel pipeline conveying:

- (1) Disinfected tertiary recycled water (defined in section 60301.230), and
- (2) Storm drainage.

(c) New supply lines conveying raw water to be treated for drinking purposes shall be installed at least 4 feet horizontally from, and one foot vertically below, any water main.

(d) If crossing a pipeline conveying a fluid listed in subsection (a) or (b), a new water main shall be constructed no less than 45-degrees to and at least one foot above that pipeline. No connection joints shall be made in the water main within eight horizontal feet of the fluid pipeline.

(e) The vertical separation specified in subsections (a), (b), and (c) is required only when the horizontal distance between a water main and pipeline is less than ten feet.

(f) New water mains shall not be installed within 100 horizontal feet of the nearest edge of any sanitary landfill, wastewater disposal pond, or hazardous waste disposal site, or within 25 horizontal feet of the nearest edge of any cesspool, septic tank, sewage leach field, seepage pit, underground hazardous material storage tank, or groundwater recharge project site.

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

(h) With Department approval, newly installed water mains may be exempt from the separation distances in this section, except subsection (f), if the newly installed main is:

- (1) less than 1320 linear feet,
- (2) replacing an existing main, installed in the same location, and has a diameter no greater than six inches more than the diameter of the main it is replacing, and
- (3) installed in a manner that minimizes the potential for contamination, including, but not limited to:
 - (A) sleeving the newly installed main, or
 - (B) utilizing upgraded piping material

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(43) Adopt Section 64573 as follows:

Section 64573. Minimum Water Main Size for Community Water Systems.

Newly installed water mains in a community water system shall have a nominal diameter of at least four inches.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375 and 131051, Health and Safety Code.

(44) Adopt Section 64575 as follows:

Section 64575. Flushing.

(a) A flushing valve or blowoff shall be provided at the end of each +ly installed dead-end water main. Fire hydrants meeting the criteria of this section may be considered flushing valves.

(b) Flushing valves and blowoffs shall not discharge to a sanitary sewer without an air gap separation between the sewer and the valve or blowoff.

(c) The flushing velocity in the main shall not be less than 2.5 ft/s unless it is determined that conditions do not permit the required flow to be discharged to waste.

(d) Newly installed flushing valves and blowoffs shall be designed to maintain the minimum continuous flushing flows as indicated below to produce a minimum velocity of 2.5ft/s in commonly used sizes of pipe.

Table 64575-A. Minimum Flushing Flows for Different Size Water Mains.

Nominal Main Size Diameter (inches)	Minimum Flushing Flow (gallons per minute)
2	25
3	50
4	100
6	225
8	400
10	600
12	900
14	1200
16	1600

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(45) Adopt Section 64576 as follows:**Section 64576. Air-Release, Air Vacuum, and Combination Valves.**

Each new air-release, air vacuum, or combination valve, and any such valve installed to replace an existing valve shall be:

- (a) Installed such that its vent opening is above grade, above the calculated 100-year flood water level, and, if recorded data are available, above the highest recorded water level;
- (b) Readily accessible for inspection, maintenance and replacement;
- (c) Constructed and designed to prevent exposure to rainwater or runoff, vandalism, and birds, insects, rodents, or other animals;
- (d) Fitted with a downward-facing screened vent or a domed and screened cap; and
- (e) Installed pursuant to American Water Works Association Standard C512-04 and Manual M51 (2001), which are hereby incorporated by reference.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(46) Adopt Section 64577 as follows:**Section 64577. Isolation Valves.**

As a minimum, isolation valves shall be installed on all new water mains within the distribution system as follows:

- (a) No farther than 1,320 linear feet apart on all mains having a diameter of 12 inches or less.
- (b) At each tee or crossing connection between mains that have a diameter of 12 inches or less, within 100 feet of the tee or crossing connection with the primary main.
- (c) Between the water main and each fire hydrant served by the main.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(47) Adopt Section 64578 as follows:**Section 64578. Water Main Valve Construction.**

Newly installed valves constructed on water mains shall comply with the following:

- (a) A valve box shall be installed over each buried valve stem to aid in locating and operating the valve.
- (b) For valves buried in trenches greater than five feet below the finished grade, either a valve stem riser to permit the use of a normal key or a notation on valve records indicating that a long key will be required shall be provided.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 5. DISINFECTION REQUIREMENTS

(48) Adopt Section 64580 as follows:

Section 64580. Disinfection of New or Repaired Mains.

Prior to use, newly installed water mains, or water mains that have been taken out of service for maintenance or repair, shall be disinfected and sampled for bacteriological quality in accordance with American Water Works Association Standard C651-05, which is hereby incorporated by reference. Samples from new mains shall be negative for coliform bacteria prior to the new main(s) being placed into service.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(49) Adopt Section 64582 as follows:

Section 64582. Disinfection of Reservoirs.

A newly-installed distribution reservoir or distribution reservoir that has been taken out of service for repair or inspection shall be disinfected and sampled for bacteriological quality in accordance with the American Water Works Association Standard C652-02, which is hereby incorporated by reference. If the results of the bacteriological sampling are positive for coliform bacteria, the reservoir shall be resampled for bacteriological quality and the test results shall be submitted to the Department for review and approval before the reservoir is placed into service.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(50) Adopt Section 64583 as follows:

Section 64583. Disinfection of Wells.

A new or repaired well, or a well that has not been in operation for more than three months shall be sampled for bacteriological quality prior to use. If the results of the bacteriological sampling are positive for coliform bacteria, the well shall be disinfected in accordance with the American Water Works Association C654-03, which is hereby incorporated by reference, and resampled for bacteriological quality and the test results shall be submitted to the Department for review and approval before the well is placed into service.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 6. DISTRIBUTION RESERVOIRS

(51) Adopt Section 64585 as follows:**Section 64585. Design and Construction.**

(a) Each distribution reservoir shall meet the following:

- (1) Any reservoir coatings or linings shall be installed in accordance with manufacturer's instructions;
- (2) Vents and other openings shall be constructed and designed to prevent the entry of rainwater or runoff, and birds, insects, rodents, or other animals;
- (3) At least one sampling tap shall be available to enable representative sampling of the water in the reservoir that will be entering the distribution system; the tap shall be protected against freezing, if necessary; and
- (4) A reservoir shall not be designed, constructed, or used for any activity that creates a contamination hazard.

(b) The water supplier shall submit to the Department for review the design drawings and specifications for each proposed distribution reservoir prior to its construction. Each new distribution reservoir shall be:

(1) If it is a tank, constructed in accordance with American Water Works Association (AWWA) standards, which are hereby incorporated by reference, as follows: AWWA D100-05 (Welded Carbon Steel Tanks for Water Storage), D102-03 (Coating Steel Water-Storage Tanks), D103-97 (Factory-Coated Bolted Steel Tanks for Water Storage), D110-04 (Wire-and Strand-Wound, Circular, Prestressed Concrete Water Tanks), and D120-02 (Thermosetting Fiberglass-Reinforced Plastic Tanks);

(2) Constructed of an impervious material that prevents the movement of water into or out of the reservoir;

(3) Covered with

(A) A rigid structural roof made of impervious material that prevents the movement of water or other liquids into or out of the reservoir; or

(B) A floating cover designed, constructed, and maintained in conformance with the AWWA California-Nevada Section's "Reservoir Floating Cover Guidelines" (April 1999), AWWA Manual M25 (2000), and AWWA D130-02 (Flexible-Membrane Materials for Potable Water Applications), which are hereby incorporated by reference.

(4) Equipped with at least one separate inlet and outlet (internal or external), and designed to minimize short-circuiting and stagnation of the water flow through the reservoir;

(5) Equipped with drainage facilities that allow the tank to be drained and all residual sediment removed, and an overflow device. The reservoir drainage facilities and overflow device shall not be connected directly to a sewer or storm drain and shall be free of cross-connections;

(6) Equipped with controls to maintain and monitor reservoir water levels;

(7) Equipped to prevent access by unauthorized persons;

(8) Designed to allow authorized access and adequate lighting of reservoir interior for inspections, cleaning or repair;

(9) Equipped with isolation valves, and designed and operated to allow continued distribution of water when the reservoir is removed from service. The isolation valves shall be located within 100 feet of the reservoir. For a reservoir used to

meet the disinfectant contact time requirements of chapter 17 (Surface Water Treatment), bypass lines shall be blind-flanged closed during normal operations;

(10) Designed and constructed to prevent the entry of surface runoff, subsurface flow, or drainage into the reservoir;

(11) Designed to prevent corrosion of the interior walls of the reservoir;

(12) For a subsurface reservoir,

(A) Protected against flooding (both reservoir and vents);

(B) Equipped with underdrain facilities to divert any water in proximity to the reservoir away from the reservoir;

(C) Sited a minimum of 50 feet horizontally from a sanitary sewer and 100 feet horizontally from any other waste facilities and any force main;

(D) Constructed so as to have the reservoir bottom located above the highest anticipated groundwater level, based on a site investigation that includes actual measurements of the groundwater level during peak rainfall periods; extraction wells shall not be used to influence the highest anticipated groundwater level;

(E) Provided with a minimum of two groundwater level monitoring wells drilled to a depth at least 20 feet below the reservoir bottom and sited within 100 feet and on opposite sides (upgradient and downgradient) of the reservoir; and

(F) If the roof is to be buried and have a function (e.g., recreation, landscape, parking) in addition to covering the reservoir:

1. Designed and constructed pursuant to AWWA D110-04 (Wire-Strand-Wound, Circular, Prestressed Concrete Water Tanks), which is hereby incorporated by reference;

2. Equipped with an impervious connection, such as a pvc waterstop, between the wall and buried roof; and

3. Watertight, sloped for drainage and coated with a damp proofing material.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.

Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

ARTICLE 7. ADDITIVES

(52) Redesignate Section 64700 as Section 64590 and amend as follows:

Section 64590 Direct Additives.

~~(a)~~ No chemical or product shall be added to drinking water by a water supplier unless the chemical or product is certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 60-2005 (Drinking Water Treatment Chemicals Health Effects), which is hereby incorporated by reference. Certification shall be from an ANSI accredited product certification organization whose certification system includes, as a minimum, the following criteria for ensuring the chemical or product meets NSF/ANSI Standard 60.

- (a) Annual product testing.
- (b) Annual facility inspections.
- (c) Annual quality assurance and quality control review.
- (d) Annual manufacturing practice reviews, and
- (e) Annual chemical stock inspections.

NOTE: Authority cited: Section 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116550 and 131051, Health and Safety Code.

(53) Adopt Section 64591 as follows:

Section 64591. Indirect Additives.

(a) Except as provided in Section 64593 or where a more stringent statutory requirement exists, after March 9, 2008, a water system shall not use any chemical, material, lubricant, or product in the production, treatment or distribution of drinking water that will result in its contact with the drinking water including process media (carbon, sand), protective materials (coatings, linings, liners), joining and sealing materials (solvent cements, welding materials, gaskets, lubricating oils), pipes and related products (pipes, tanks, fittings), and mechanical devices used in treatment/transmission/distribution systems (valves, chlorinators, separation membranes) that has not been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) 61-2005 / Addendum 1.0-2005 (Drinking Water System Components—Health Effects), which is hereby incorporated by reference. This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute.

(b) If a treatment chemical is generated on site,

(1) No equipment used in the generation process shall be in contact with a drinking water, or a chemical to be applied to drinking water, after March 9, 2008, unless the equipment has been tested and certified as meeting the specifications of NSF International/American National Standard Institute (NSF/ANSI) Standard 61-2005/Addendum 1.0-2005 (Drinking Water System Components—Health Effects). This requirement shall be met under testing conducted by a product certification organization accredited for this purpose by the American National Standards Institute; and

(2) No input chemical used in the generation process shall be in contact with a drinking water after March 9, 2008 unless the chemical meets the requirements of section 64590.

(c) Any chemical used to clean on-line or off-line drinking water treatment facilities that may subsequently come into contact with drinking water to be distributed to the public shall meet the requirements of section 64590.

(d) Any contract for the purchase of chemicals, materials, or products that was signed by a public water system and effective prior to March 9, 2008 shall be exempt from the provisions of subsections (a) and (b) until March 9, 2009.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(54) Redesignate Section 64710 as Section 64593 and amend as follows:

Section 64593. Use of Uncertified Chemicals, Materials or Products.

(a) A water supplier may use a chemical, material or product that has not been certified pursuant to Sections 64590 or 64591 if the chemical, material or product is in the process of being tested and certified and there are no certified alternatives.

(b) Prior to use of an uncertified chemical, material or product, the water supplier shall provide the Department with an explanation of the need for the chemical, material or product; the date that the chemical, material or product was submitted for testing; the name of the accredited product certification organization conducting the testing; and a statement that certified alternatives are not available.

(c) Unless directed otherwise by the Department to ensure a pure and wholesome drinking water supply, a water supplier may use the following chemicals, materials, or products that have not been and are not in the process of being certified pursuant to section 64590 or 64591:

- (1) a material or product previously approved by the Department for use or installation on or before March 9, 2008;
- (2) a material or product constructed of components meeting the requirements of sections 64590 and 64591;
- (3) chemical by-products necessary for meeting drinking water standards, such as sodium hypochlorite for disinfection, generated by chemicals certified pursuant to section 64590 or 64591; and
- (4) atmospheric air and small parts, such as probes, sensors, wires, nuts, bolts, and tubing for which there are no certified alternatives.

NOTE: Authority cited: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535 and 131051~~14021~~, Health and Safety Code.

ARTICLE 8. DISTRIBUTION SYSTEM OPERATION

(55) Adopt Section 64600 as follows:**Section 64600. Water System Operations and Maintenance Plan.**

(a) If directed by the Department to do so based on an identified deficiency in the system's operations, a water system shall develop and submit a Water System Operations and Maintenance Plan (Plan); the water system shall include those elements in the following list that are deemed by the Department to be relevant to the deficiency:

- (1) The operations and maintenance schedule for each unit process for each treatment plant that treats an approved surface water;
- (2) The operations and maintenance schedule for each groundwater source and unit process;
- (3) The schedule and procedure for flushing dead end mains, and the procedures for disposal of the flushed water including dechlorination;
- (4) The schedule for routine inspection of reservoirs, and the procedures for cleaning reservoirs;
- (5) The schedule and procedures for inspecting, repairing, and replacing water mains;
- (6) The plan and procedures for responding to water supply emergencies;
- (7) The plan and procedures for responding to consumer complaints;
- (8) The schedule and procedures for testing backflow prevention assemblies;
- (9) The schedule and procedures for routine exercising of water main valves;
- (10) The schedule and program for maintenance and calibration of source flow meters and other online instruments used to determine the quality or quantity of water;
- (11) The qualifications and training of operating personnel;
- (12) The program for control of biological organisms on the interior walls of water mains; and
- (13) For an underground reservoir with a buried roof designed for a function in addition to covering the reservoir, a comprehensive routine inspection and monitoring plan to ensure that there is no contamination of the reservoir as a result of that additional function.

(b) Each water system that has prepared a Plan pursuant to subsection (a) shall operate in accordance with its Department-approved Plan.

(c) Each water system that has prepared a Plan pursuant to subsection (a) shall update the Plan at least once every five years and, in addition, following any change in the method of treatment or any other modification to the system requiring a change in the systems operations and maintenance.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535 and 131051, Health and Safety Code.

(56) Adopt Section 64602 as follows:**Section 64602. Minimum Pressure.**

(a) Each distribution system shall be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution system is not less than 20 pounds per square inch at all times.

(b) Each new distribution system that expands the existing system service connections by more than 20 percent or that may otherwise adversely affect the distribution system pressure shall be designed to provide a minimum operating pressure throughout the new distribution system of not less than 40 pounds per square inch at all times excluding fire flow.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116535, 116555 and 131051, Health and Safety Code.

(57) Adopt Section 64604 as follows:

Section 64604. Preparation and Maintenance of Records.

(a) Each public water system subject to this chapter shall prepare:

(1) "As built" plans, maps, and drawings of all new water system facilities including updated information for all existing facilities in the same location or connected to the new facilities. The plans, maps, and drawings shall be clear and legible and shall include the location, size, construction material, and year of installation of each new water main or other facility.

(2) A schematic drawing or map showing the location of each water source, treatment facility, pumping plant, reservoir, water main and isolation valve.

(b) The plans, drawings, and maps prepared pursuant to subsection (a) shall be updated as changes occur, and maintained until replaced or superseded by updated plans or drawings. The most current plans, drawings, and maps shall be available for Department review.

(c) Results of laboratory analyses of samples taken pursuant to sections 64580, 64582, and 64583, records of flushing of mains; and records of reservoir inspections and cleaning shall be maintained for at least three years.

NOTE: Authority: Sections 116350, 116375 and 131200, Health and Safety Code.
Reference: Sections 116275, 116375, 116450, 116535 and 131051, Health and Safety Code.

CHAPTER 17

**ARTICLE 2. TREATMENT REQUIREMENTS, WATERSHED PROTECTION
REQUIREMENTS, AND PERFORMANCE STANDARDS**

(58) Amend Section 64654 as follows:

Section 64654. Disinfection.

(a) All approved surface water utilized by a supplier shall be provided with continuous disinfection treatment sufficient to insure that the total treatment process provides inactivation of *Giardia lamblia* cysts and viruses, in conjunction with the removals obtained through filtration, to meet the reduction requirements specified in section 64652(a).

(b) Disinfection treatment shall comply with the following performance standards:

(1) Water delivered to the distribution system shall not contain a disinfectant residual of less than 0.2 mg/l for more than four hours in any 24 hour period.

(2) The residual disinfectant concentrations of samples collected from the distribution system shall be detectable in at least 95 percent of the samples taken each month that the system serves water to the public, except as provided in subsection (c). At any sample point in the distribution system, the presence of heterotrophic plate count (HPC) at concentrations less than or equal to 500 colony forming units per milliliter shall be considered equivalent to a detectable disinfectant residual.

(c) Paragraph (b)(2) shall not apply to suppliers serving fewer than 500 persons provided:

(1) The system is in compliance with 17 CCR sections 7583 through 7605, and with 22 CCR sections ~~6456664602, and 64630;64570(b), 64572, and 64580;~~

(2) The supplier has no means for having a sample transported and analyzed for HPC by a certified laboratory under the appropriate time and temperature conditions; and

(3) The supplier is providing adequate disinfection in the distribution system.

(d) No exemptions from the requirement in paragraph (b)(1) are permitted.

Note: Authority cited: Sections 100275, 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116270, 116275, 116365, 116375, 116385, 116390, 116400, 116525, 116530, 116535, 116540, 116550, 116555, 116625, 116735, 116750 and 131051, Health and Safety Code.

ARTICLE 4. DESIGN STANDARDS

(59) Amend Section 64658 as follows:

Section 64658. New Treatment Plants.

(a) Suppliers that propose to construct new filtration and disinfection treatment facilities or to modify or make additions to existing treatment facilities which require permit approval from the Department pursuant to Health and Safety Code sections 116525 through 116550 shall submit an engineering report to the Department describing how the proposed new treatment facilities will be designed to comply with the treatment, design, performance and reliability provisions required pursuant to this chapter. Modifications requiring permit approval include those that have a significant effect on plant performance, change the plant design rating or capacity, or change a major treatment process.

(b) All new filtration and disinfection facilities shall be designed and constructed to comply with the following criteria:

- (1) Achieve an average daily effluent turbidity goal of 0.2 NTU when using conventional, direct, and diatomaceous earth filtration plants.
- (2) Be free of structural and sanitary hazards.
- (3) Protect against contamination by backflow.
- (4) Meet the capacity and pressure requirements prescribed in 22 CCR sections ~~6456264554~~ and ~~6456664602~~.
- (5) Provide flow measuring and recording equipment.
- (6) Take into consideration the effects of events such as earthquakes, fires, floods, freezing, and sabotage that are reasonably foreseeable.
- (7) Provide reasonable access for inspection, maintenance, and monitoring of all unit processes.
- (8) Provide for filter-to-waste for each filter unit or addition of coagulant chemicals to the water used for backwashing.
- (9) Provide backwash rates and surface or subsurface wash facilities using air, water or a combination thereof to clean the filter after use to its original condition.
- (10) Provide solids removal treatment for filter backwash water if it is recycled into the treatment process. Recycled backwash water shall be returned to the headworks of the treatment plant.
- (11) Provide for the future addition of pretreatment facilities in the design of direct filtration, slow sand, or diatomaceous earth filtration plants.
- (12) Provide disinfection equipment sized for the full range of flow conditions expected and capable of feeding accurately at all flow rates.
- (13) Provide for treatment plant operation without frequent shutdowns and startups or rapid changes in filtration rates.

(c) Whenever a coagulation process is used, the process selection shall be based on pilot plant or laboratory scale (jar test) or equivalent results that demonstrate effectiveness of the coagulant chemicals over the full range of water quality conditions expected.

Note: Authority cited: Sections 100275, 116350, 116375 and 131200, Health and Safety Code. Reference: Sections 116270, 116275, 116365, 116375, 116385, 116390, 116400, 116525, 116530, 116535, 116540, 116550, 116625, 116735 and 131051, Health and Safety Code.

