



EDMUND G. BROWN, JR.
GOVERNOR



MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

Division of Drinking Water

November 23, 2015
System No.: 1503209

Mr. Taylor Howze
Superior Mutual Water System
19478 Enos Lane
Bakersfield, CA 93314

**RE: Violation of the Total Coliform Maximum Contaminant Level
Title 22, California Code of Regulations, Section 64426.1
Citation No. 03_12_15C_023 for September & October 2015**

Dear Mr. Howze:

Enclosed is a Citation issued to the Superior Mutual Water Company (hereinafter "Water System") public water system for noncompliance with the total coliform maximum contaminant level (MCL).

The Water System will be billed at the State Water Resources Control Board's (hereinafter "State Board") hourly rate (currently estimated at \$153.00) for the time spent on issuance of this citation. The California Health and Safety Code Section 116577 provides that a public water system must reimburse the State Board for actual costs incurred by the State Board for specified enforcement actions, including but not limited to, preparing, issuing and monitoring compliance with a citation.

The Water System will receive a bill sent from the Drinking Water Fee Branch in August of the next fiscal year. This bill will contain fees for any enforcement time spent on Water System for the current fiscal year.

If you have any questions regarding this letter and the enclosed citation, please contact Mr. Eli McFarland of my staff or me at (559) 447-3300.

Sincerely,

A handwritten signature in cursive script that reads "Tricia A. Wathen".

Tricia A. Wathen, P.E.
Senior Sanitary Engineer, Visalia District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

TAW/LR

Enclosures

Certified Mail No. 7014 3490 0001 7868 9177

cc: Kern County Environmental Health Department
Seaco Technologies, 3220 Patton Way, Bakersfield, CA 93308

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STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD
DIVISION OF DRINKING WATER

Name of Public Water System: SUPERIOR MUTUAL WATER COMPANY

Water System No: 1503209

Attention: Mr. Taylor Howze
19478 Enos Lane
Bakersfield, CA 93314

Issued: November 23, 2015

CITATION FOR NONCOMPLIANCE

TOTAL COLIFORM MAXIMUM CONTAMINANT LEVEL VIOLATION

TITLE 22, CALIFORNIA CODE OF REGULATIONS, SECTION 64426.1

SEPTEMBER AND OCTOBER 2015

Section 116650 of the California Health and Safety Code (hereinafter "CHSC"), authorizes the State Water Resources Control Board (hereinafter "State Board") to issue a citation to a public water system when the State Board determines that the public water system has violated or is violating the California Safe Drinking Water Act (hereinafter "California SDWA"), (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit, or order issued or adopted thereunder.

1 The State Board, acting by and through its Division of Drinking Water (hereinafter "Division")
2 and the Deputy Director for the Division, hereby issues this citation pursuant to Section 116650
3 of the CHSC to the Superior Mutual Water Company (hereinafter "Water System") for violation
4 of CHSC, Section 116555(a)(1) and Title 22, California Code of Regulations (hereinafter
5 "CCR"), Section 64426.1.

6
7 A copy of the applicable statutes and regulations are included in Appendix 1, which is attached
8 hereto and incorporated by reference.

9
10 **STATEMENT OF FACTS**

11 The Water System is classified as a nontransient noncommunity water system serving a
12 nontransient population of approximately 61 persons through 49 service connections.

13
14 The Water System is required to collect a minimum of one (1) distribution system
15 bacteriological sample per month. The Division received laboratory results for four (4)
16 bacteriological samples collected during September 2015 from the Water System. Three (3) of
17 the four (4) samples analyzed detected the presence of total coliform bacteria. In addition, two
18 (2) of four (4) samples collected during the month of October 2015 were also positive for total
19 coliform bacteria. None of the positive samples showed the presence of fecal coliform or *E.*
20 *coli* bacteria. All water samples for coliform bacteria are summarized in Attachment A.

21
22 Furthermore, the Water System previously failed the Total Coliform Maximum Contaminant
23 Level (MCL) for the month of March 2015.

24
25 **DETERMINATION**

26 Title 22, CCR, Section 64426.1, Total Coliform Maximum Contaminant Level (MCL) states that
27 a public water system is in violation of the total coliform MCL if it collects fewer than 40

1 bacteriological samples per month and more than one sample collected during any month is
2 total coliform-positive.

3
4 The Water System took fewer than 40 bacteriological samples during September and October
5 2015 respectively. The results of three (3) samples were total coliform positive in September
6 2015 and two (2) samples were total coliform positive in October 2015. Therefore, the Division
7 has determined that the Water System violated Title 22, CCR, Section 64426.1 during the
8 months of September and October 2015.

9
10 **DIRECTIVES**

11 The Water System is hereby directed to take the following actions:

- 12
- 13 1. Comply with Title 22, CCR, Section 64426.1, in all future monitoring periods.
 - 14
 - 15 2. The Water System shall collect five (5) routine samples for total coliform analysis during the
16 month of November 2015.
 - 17
 - 18 3. By **December 10, 2015**, the Water System shall complete and submit the enclosed
19 "Positive Total Coliform Investigation" form to the Division that describes the incident and
20 all corrective actions taken, and the results of the investigation. The appropriate
21 investigation report is provided as Attachment B.
 - 22
 - 23 4. By **December 31, 2015**, continuous chlorination equipment shall be installed on the
24 discharge of all wells. Information regarding the permanent chlorination equipment and
25 installation procedures shall be submitted to the Division for review. The installation shall
26 be conducted by a person qualified and experienced with chlorination equipment.
 - 27

- 1 5. The Water System shall have on staff or under contract a minimum of a D1 Certified
2 Distribution Operator to operate the chlorination equipment. The operator shall visit the
3 well site and review the chlorination treatment on at least a weekly basis and document the
4 date and time of the visit, the settings on the chemical feed equipment, the chlorine stock
5 on hand and the chlorine residual at the well site and in the farthest part of the distribution
6 system. Documentation of the site visits shall be submitted to the Division by the 10th day
7 of the following month.
- 8
- 9 6. By **March 1, 2016**, the Water System shall prepare and submit a Chlorination Operations
10 Plan to the Division for review. Guidance for the preparation of the plan is provided in
11 Attachment G.
- 12
- 13 7. The chlorine residual shall be measured at the time and location of the collection of the
14 monthly distribution system bacteriological samples. This residual shall be provided to the
15 Division on the laboratory analysis report.
- 16
- 17 8. By **December 10, 2015**, the Water System shall make application to the Division for a
18 permit to allow the continuous chlorination of the water supply. Form EH 100 (copy
19 enclosed) shall be used to make application. A permit fee of \$258 shall be included at the
20 time the application is submitted to the Division.
- 21
- 22 9. The Water System shall initiate monthly sampling of the raw well water for coliform
23 bacteria. The sample must be collected at a location ahead of chlorination and shall be
24 analyzed for total and fecal coliform or *E. coli* bacteria using a density analytical method
25 with the analytical results reported in MPN/100 ml. The results of all samples shall be
26 submitted to the Division by the 10th day of the following month.
- 27

10. The Water System shall initiate distribution sampling for **TTHM and HAA5** on an **annual basis starting in the summer of 2016**. The Stage 2 DBP Monitoring Plan Form provided as Attachment H, shall be completed and submitted to the Division **by March 1, 2016**. The sample(s) must be collected during the month of warmest water temperature (July, August or September) from a location representing the maximum residence time in the distribution system. If the annual sample(s) exceeds the MCL, the monitoring frequency will be increased to 1 sample per quarter. The Water System must notify the Division if an exceedance of the TTHM, HAA5 MCLs or Chlorine Disinfectant MRDL (maximum residual disinfectant level) of 4.0 mg/L occurs. These levels are listed below.

<u>Contaminant</u>	<u>MCL</u>
Total Trihalomethane (TTHM)	0.080 mg/L
Haloacetic Acids (HAA5)	0.060 mg/L
	<u>MRDL</u>
Chlorine	4.0 mg/L as Cl ₂

All submittals required by this Citation shall be submitted to the Division at the following address:

Tricia Wathen, P.E., Senior Sanitary Engineer
 State Water Resources Control Board
 Division of Drinking Water, Visalia District
 265 W. Bullard Ave, Suite 101
 Fresno, CA 93704

The State Board reserves the right to make such modifications to the Citation as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Citation and shall be effective upon issuance.

1 Nothing in this Citation relieves the Water System of its obligation to meet the requirements of
2 the California SDWA (CHSC, Division 104, Part 12, Chapter 4, commencing with Section
3 116270), or any regulation, standard, permit or order issued or adopted thereunder.
4

5 **PARTIES BOUND**

6 This Citation shall apply to and be binding upon the Water System, its owners, shareholders,
7 officers, directors, agents, employees, contractors, successors, and assignees.
8

9 **SEVERABILITY**

10 The directives of this Citation are severable, and the Water System shall comply with each and
11 every provision hereof, notwithstanding the effectiveness of any other provision.
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FURTHER ENFORCEMENT ACTION

The California SDWA authorizes the State Board to: issue a citation with assessment of administrative penalties to a public water system for violation or continued violation of the requirements of the California SDWA or any regulation, permit, standard, citation, or order issued or adopted thereunder including, but not limited to, failure to correct a violation identified in a citation or compliance order. The California SDWA also authorizes the State Board to take action to suspend or revoke a permit that has been issued to a public water system if the public water system has violated applicable law or regulations or has failed to comply with an order of the State Board, and to petition the superior court to take various enforcement measures against a public water system that has failed to comply with an order of the State Board. The State Board does not waive any further enforcement action by issuance of this Citation.

Tricia A. Wathen

November 23, 2015

Tricia Wathen, P.E.
Senior Sanitary Engineer, Visalia District
DRINKING WATER FIELD OPERATIONS BRANCH

Date



TAW/LR

Enclosures (7):

- Appendix 1: Applicable Statutes and Regulations
- Attachment A: Summary of Distribution Bacteriological Samples
- Attachment B: Summary of Source Bacteriological Samples
- Attachment C: Positive Total Coliform Investigation report
- Attachment D: Public Notices for September and October 2015
- Attachment E: Proof of Notification Forms for September and October 2015
- Attachment F: Permit Amendment Application
- Attachment G: Chlorination Operations Plan Form
- Attachment H: Stage 2 DBP Monitoring Plan Form

Certified Mail No. [7014 3490 0001 7868 9177]

APPENDIX 1

Applicable Statutes and Regulations for Citation No. 03_12_15C_023

Violation of Total Coliform Rule MCL

Section 116271 of the CHSC states in relevant part:

- (a) The State Water Resources Control Board succeeds to and is vested with all of the authority, duties, powers, purposes, functions, responsibilities, and jurisdiction of the State Department of Public Health, its predecessors, and its director for purposes of all of the following:
- (1) The Environmental Laboratory Accreditation Act (Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101).
 - (2) Article 3 (commencing with Section 106875) of Chapter 4 of Part 1.
 - (3) Article 1 (commencing with Section 115825) of Chapter 5 of Part 10.
 - (4) This chapter and the Safe Drinking Water State Revolving Fund Law of 1997 (Chapter 4.5 (commencing with Section 116760)).
 - (5) Article 2 (commencing with Section 116800), Article 3 (commencing with Section 116825), and Article 4 (commencing with Section 116875) of Chapter 5.
 - (6) Chapter 7 (commencing with Section 116975).
 - (7) The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Division 43 (commencing with Section 75001) of the Public Resources Code).
 - (8) The Water Recycling Law (Chapter 7 (commencing with Section 13500) of Division 7 of the Water Code).
 - (9) Chapter 7.3 (commencing with Section 13560) of Division 7 of the Water Code.
 - (10) The California Safe Drinking Water Bond Law of 1976 (Chapter 10.5 (commencing with Section 13850) of Division 7 of the Water Code).
 - (11) Wholesale Regional Water System Security and Reliability Act (Division 20.5 (commencing with Section 73500) of the Water Code).
 - (12) Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Division 26.5 (commencing with Section 79500) of the Water Code).
- (b) The State Water Resources Control Board shall maintain a drinking water program and carry out the duties, responsibilities, and functions described in this section. Statutory reference to "department," "state department," or "director" regarding a function transferred to the State Water Resources Control Board shall refer to the State Water Resources Control Board. This section does not impair the authority of a local health officer to enforce this chapter or a county's election not to enforce this chapter, as provided in Section 116500...
- (k)
- (1) The State Water Resources Control Board shall appoint a deputy director who reports to the executive director to oversee the issuance and enforcement of public water system permits and other duties as appropriate. The deputy director shall have public health expertise.
 - (2) The deputy director is delegated the State Water Resources Control Board's authority to provide notice, approve notice content, approve emergency notification plans, and take other action pursuant to Article 5 (commencing with Section 116450), to issue, renew, reissue, revise, amend, or deny any public water system permits pursuant to Article 7 (commencing with Section 116525), to suspend or revoke any public water system permit pursuant to Article 8 (commencing with Section 116625), and to issue citations, assess penalties, or issue orders pursuant to Article 9 (commencing with Section 116650). Decisions and actions of the deputy director taken pursuant to Article 5 (commencing with Section 116450) or Article 7 (commencing with Section 116525) are deemed decisions and actions taken, but are not subject to reconsideration, by the State Water Resources Control Board. Decisions and actions of the deputy director taken pursuant to Article 8 (commencing with Section 116625) and Article 9 (commencing with Section 116650) are deemed decisions and actions taken by the State Water Resources Control Board, but any aggrieved person may petition the State Water Resources Control Board for reconsideration of the decision or action. This subdivision is not a limitation on the State Water Resources Control Board's authority to delegate any other powers and duties.

Section 116555(a)(1) of the CHSC states in relevant part:

- (a) Any person who owns a public water system shall ensure that the system does all of the following:
- (1) Complies with primary and secondary drinking water standards.

Section 116650 (Citations) of the CHSC states in relevant part:

- (a) If the department determines that a public water system is in violation of this chapter or any regulation, permit, standard, citation, or order issued or adopted thereunder, the department may issue a citation to the public water system. The citation shall be served upon the public water system personally or by certified mail. Service shall be deemed effective as of the date of personal service or the date of receipt of the certified mail. If a person to whom a citation is directed refuses to accept delivery of the certified mail, the date of service shall be deemed to be the date of mailing.
- (b) Each citation shall be in writing and shall describe the nature of the violation or violations, including a reference to the statutory provision, standard, order, citation, permit, or regulation alleged to have been violated.
- (c) A citation may specify a date for elimination or correction of the condition constituting the violation.
- (d) A citation may include the assessment of a penalty as specified in subdivision (e).

(e) The department may assess a penalty in an amount not to exceed one thousand dollars (\$1,000) per day for each day that a violation occurred, and for each day that a violation continues to occur. A separate penalty may be assessed for each violation.

Section 64426.1 (Total Coliform Maximum Contaminant Level (MCL)) of the CCR states in relevant part:

- (a) Results of all samples collected in a calendar month pursuant to Sections 64423, 64424, and 64425 that are not invalidated by the State Board or the laboratory shall be included in determining compliance with the total coliform MCL. Special purpose samples such as those listed in section 64421(b) and samples collected by the water supplier during special investigations shall not be used to determine compliance with the total coliform MCL.
- (b) A public water system is in violation of the total coliform MCL when any of the following occurs:
- (1) For a public water system which collects at least 40 samples per month, more than 5.0 percent of the samples collected during any month are total coliform-positive; or
 - (2) For a public water system which collects fewer than 40 samples per month, more than one sample collected during any month is total coliform-positive; or
 - (3) Any repeat sample is fecal coliform-positive or E. coli-positive; or
 - (4) Any repeat sample following a fecal coliform-positive or E. coli-positive routine sample is total coliform-positive.
- (c) If a public water system is not in compliance with paragraphs (b)(1) through (4), during any month in which it supplies water to the public, the water supplier shall notify the State Board by the end of the business day on which this is determined, unless the determination occurs after the State Board office is closed, in which case the supplier shall notify the State Board within 24 hours of the determination. The water supplier shall also notify the consumers served by the water system. A Tier 2 Public Notice shall be given for violations of paragraph (b)(1) or (2), pursuant to section 64463.4. A Tier 1 Public Notice shall be given for violations of paragraph (b)(3) or (4), pursuant to section 64463.1.

Section 64463.4 (Tier 2 Public Notice) of the CCR states in relevant part:

- (a) A water system shall give public notice pursuant to this section if any of the following occurs:
- (1) Any violation of the MCL, MRDL, and treatment technique requirements, except:
 - (A) Where a Tier 1 public notice is required under section 64463.1; or
 - (B) Where the State Board determines that a Tier 1 public notice is required, based on potential health impacts and persistence of the violations;
 - (2) All violations of the monitoring and testing procedure requirements in sections 64421 through 64426.1, article 3 (Primary Standards – Bacteriological Quality), for which the State Board determines that a Tier 2 rather than a Tier 3 public notice is required, based on potential health impacts and persistence of the violations;
 - (3) Other violations of the monitoring and testing procedure requirements in this chapter, and chapters 15.5, 17 and 17.5, for which the State Board determines that a Tier 2 rather than a Tier 3 public notice is required, based on potential health impacts and persistence of the violations; or
 - (4) Failure to comply with the terms and conditions of any variance or exemption in place.
- (b) A water system shall give the notice as soon as possible within 30 days after it learns of a violation or occurrence specified in subsection (a), except that the water system may request an extension of up to 60 days for providing the notice. This extension would be subject to the State Board's written approval based on the violation or occurrence having been resolved and the State Board's determination that public health and welfare would in no way be adversely affected. In addition, the water system shall:
- (1) Maintain posted notices in place for as long as the violation or occurrence continues, but in no case less than seven days;
 - (2) Repeat the notice every three months as long as the violation or occurrence continues. Subject to the State Board's written approval based on its determination that public health would in no way be adversely affected, the water system may be allowed to notice less frequently but in no case less than once per year. No allowance for reduced frequency of notice shall be given in the case of a total coliform MCL violation or violation of a Chapter 17 treatment technique requirement; and
 - (3) For turbidity violations pursuant to sections 64652.5(c)(2) and 64653(c), (d) and (f), as applicable, a water system shall consult with the State Board as soon as possible within 24 hours after the water system learns of the violation to determine whether a Tier 1 public notice is required. If consultation does not take place within 24 hours, the water system shall give Tier 1 public notice within 48 hours after learning of the violation.
- (c) A water system shall deliver the notice, in a manner designed to reach persons served, within the required time period as follows:
- (1) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, **community** water systems shall give public notice by:
 - (A) Mail or direct delivery to each customer receiving a bill including those that provide their drinking water to others (e.g., schools or school systems, apartment building owners, or large private employers), and other service connections to which water is delivered by the water system; and
 - (B) Use of one or more of the following methods to reach persons not likely to be reached by a mailing or direct delivery (renters, university students, nursing home patients, prison inmates, etc.):
 1. Publication in a local newspaper;
 2. Posting in conspicuous public places served by the water system, or on the Internet; or
 3. Delivery to community organizations.

(2) Unless otherwise directed by the State Board in writing based on its assessment of the violation or occurrence and the potential for adverse effects on public health and welfare, **noncommunity** water systems shall give the public notice by:

- (A) Posting in conspicuous locations throughout the area served by the water system; and
- (B) Using one or more of the following methods to reach persons not likely to be reached by a public posting:
 1. Publication in a local newspaper or newsletter distributed to customers;
 2. E-mail message to employees or students;
 3. Posting on the Internet or intranet; or
 4. Direct delivery to each customer.

Section 64465 (Public Notice Content and Format) of the CCR states in relevant part:

(a) Each public notice given pursuant to this article, except Tier 3 public notices for variances and exemptions pursuant to subsection (b), shall contain the following:

- (1) A description of the violation or occurrence, including the contaminant(s) of concern, and (as applicable) the contaminant level(s);
- (2) The date(s) of the violation or occurrence;
- (3) Any potential adverse health effects from the violation or occurrence, including the appropriate standard health effects language from appendices 64465-A through G;
- (4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in drinking water;
- (5) Whether alternative water supplies should be used;
- (6) What actions consumers should take, including when they should seek medical help, if known;
- (7) What the water system is doing to correct the violation or occurrence;
- (8) When the water system expects to return to compliance or resolve the occurrence;
- (9) The name, business address, and phone number of the water system owner, operator, or designee of the water system as a source of additional information concerning the public notice;
- (10) A statement to encourage the public notice recipient to distribute the public notice to other persons served, using the following standard language: —Please share this information with all the other people who drink this water, especially those who may not have received this public notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mailll; and
- (11) For a water system with a monitoring and testing procedure violation, this language shall be included: “We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period dates], we [‘did not monitor or test’ or ‘did not complete all monitoring or testing’] for [contaminant(s)], and therefore, cannot be sure of the quality of your drinking water during that time.” ...

(c) A public water system providing notice pursuant to this article shall comply with the following multilingual-related requirements:

- (2) For a Tier 2 or Tier 3 public notice:
 - (A) The notice shall contain information in Spanish regarding the importance of the notice, or contain a telephone number or address where Spanish-speaking residents may contact the public water system to obtain a translated copy of the notice or assistance in Spanish; and
 - (B) When a non-English speaking group other than Spanish-speaking exceeds 1,000 residents or 10 percent of the residents served by the public water system, the notice shall include:
 1. Information in the appropriate language(s) regarding the importance of the notice; or
 2. A telephone number or address where such residents may contact the public water system to obtain a translated copy of the notice or assistance in the appropriate language; and
- (3) For a public water system subject to the Dymally-Alatorre Bilingual Services Act, Chapter 17.5, Division 7, of the Government Code (commencing with section 7290), meeting the requirements of this Article may not ensure compliance with the Dymally-Alatorre Bilingual Services Act.

(d) Each public notice given pursuant to this article shall:

- (1) Be displayed such that it catches people’s attention when printed or posted and be formatted in such a way that the message in the public notice can be understood at the eighth-grade level;
- (2) Not contain technical language beyond an eighth-grade level or print smaller than 12 point; and
- (3) Not contain language that minimizes or contradicts the information being given in the public notice.

Appendix 64465-A. Health Effects Language - Microbiological Contaminants.

Contaminant	Health Effects Language
Total Coliform	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Fecal coliform/ <i>E. coli</i>	Fecal coliforms and <i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Turbidity	Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Section 64469 (Reporting Requirements) of CCR states in relevant part:

- (d) Within 10 days of giving initial or repeat public notice pursuant to Article 18 of this Chapter, except for notice given under section 64463.7(d), each water system shall submit a certification to the State Board that it has done so, along with a representative copy of each type of public notice given.

Bacteriological Distribution Monitoring Report

1503209 Superior Mutual Water Company
Distribution System Freq: 1/M

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
10/7/2015	31110 7th Standard	P	A			Routine					
10/7/2015	9483 Enos Ln	A	A			Routine					
10/7/2015	19474-B Enos Ln.	A	A			Routine					
10/7/2015	9521 Enos Ln	P	A			Routine			MCL		
9/14/2015	31110 7th Standard	P	A			Repeat	0.07		MCL		
9/14/2015	19474 B Enos Ln.	P	A			Repeat	0.06				
9/14/2015	9483 B Enos Ln.	A	A			Repeat	0.03				
9/10/2015	31110 7th Standard	P	A			Routine	0.05				
8/6/2015	9521 Enos Ln.	A	A			Routine	0.12				
7/7/2015	9483 Enos	A	A			Routine					
6/10/2015	31110 7th Standard	A	A			Routine	0.14				
6/10/2015	9309 Enos Ln	A	A			Routine	0.0				5th "routine" was collected at well.
6/10/2015	9323 Enos Ln	A	A			Routine	0.0				
6/10/2015	9521 Enos Lane	A	A			Routine	0.0				
5/15/2015	31110 7th Std. Rd.	<1	<1			Repeat	0.31				
5/15/2015	9309 Enos Ln.	<1	<1			Repeat	0.09				
5/15/2015	9483 Enos Ln.	<1	<1			Repeat	0.43				
5/15/2015	9521 Enos Ln.	<1	<1			Repeat	0.07				
5/15/2015	19474 B Enos Ln.	<1	<1			Repeat	0.39				
5/13/2015	31110 7th Std. Rd.	P	A			Routine	0.00				
5/13/2015	9309 Enos Ln.	P	A			Routine	0.15				
5/13/2015	9483 Enos Ln.	A	A			Routine	0.10				
5/13/2015	19474 B Enos Ln.	P	A			Routine	0.00				
5/13/2015	9521 Enos Ln.	P	A			Routine	0.00		MCL		7/10/15 Issued Cit 03_12_15C_010.
4/8/2015	9309 Enos Lane	A	A			Routine					
4/8/2015	9323 Enos Lane	A	A			Routine					
4/8/2015	9483 Enos Lane	A	A			Routine					
4/8/2015	9521 Enos Lane	A	A			Routine					
4/7/2015	31110 7th Standard Rd.	A	A			Routine	0.25				
3/9/2015	31110 7th Standard Rd.	A	A			Repeat					
3/9/2015	9309 Enos Lane	A	A			Routine					
3/9/2015	19474 Enos Lane	A	A			Repeat					
3/9/2015	9483 Enos Lane	A	A			Repeat					
3/9/2015	9521 Enos Lane	A	A			Repeat					
3/4/2015	31110 7th Standard Rd.	P	A			Routine					
3/4/2015	9309 Enos Lane	P	A			Routine			MCL		4/16/15 Issued Cit 03-12-15C-004.
3/4/2015	9474 Enos Lane	A	A			Routine					
3/4/2015	9483 Enos Lane	P	A			Routine					
3/4/2015	9521 Enos Lane	P	A			Routine					

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

1503209 Superior Mutual Water Company

<i>Sample Date</i>	<i>Time</i>	<i>Source</i>	<i>Sample Type</i>	<i>Test Method</i>	<i>T Coli</i>	<i>E Coli</i>	<i>F Coli</i>	<i>HPC</i>	<i>Violation</i>	<i>Comments</i>
10/7/2015	13:00	Well 1	Well	P/A	A	A				
9/14/2015	9:00	Well 1	GWR Well	MPN	5.3	<1				
6/10/2015	13:11	Well 1	Well	P/A	A	A				
3/6/2015	11:15	Well 1	GWR Well	MPN	<1	<1				
2/9/2015	9:22	Well 1	GWR Well	P/A	A	A				

POSITIVE TOTAL COLIFORM INVESTIGATION
Simple Well with Pressure Tank Systems

This form is intended to assist public water systems in completing the investigation required by the Division of Drinking Water (Section 64426(b) of Title 22, California Code of Regulations) and may be modified to take into account conditions unique to the system.

ADMINISTRATIVE INFORMATION

PWS Name:		PWSID NUMBER:	
Name		Address	
Operator in Responsible Charge (ORC)		Telephone #	
Person that collected TC samples if different than ORC			
Owner			
Certified Laboratory for Microbiological Analyses			
Date Investigation Completed:			
Month(s) of Total Coliform MCL Failure:			

INVESTIGATION DETAILS

SOURCE	WELL (name)	WELL (name)	WELL (name)	WELL (name)	COMMENTS
1. Inspect each well head for physical defects and report					
a. Is raw water sample tap upstream from point of disinfection?					
b. Is wellhead vent pipe screened?					
c. Is wellhead seal watertight?					
d. Is well head located in pit or is any piping from the wellhead submerged?					
e. Does the ground surface slope towards well head?					
f. Is there evidence of standing water near the wellhead?					
g. Are there any connections to the raw water piping that could be cross connections? (describe all connections in comments)					
h. Is the wellhead secured to prevent unauthorized access?					
i. To what treatment plant (name) does this well pump?					
j. How often do you take a raw water total coliform (TC) test?					
k. Provide the date and result of the last TC test at this location					

DISTRIBUTION SYSTEM

SYSTEM RESPONSES

1. What is the minimum pressure you are maintaining in the distribution system?
2. Did pressure in the distribution system drop to less than 5 psi prior to experiencing the TCR positive finding.

POSITIVE TOTAL COLIFORM INVESTIGATION

Page 2 of 3

DISTRIBUTION SYSTEM	SYSTEM RESPONSES
3. Has the distribution system been worked on within the last week? (service taps, hydrant flushing, main breaks, main extensions, etc.) If yes, provide details.	
4. Are there any signs of excavations near your distribution system not under the direct control of your maintenance staff?	
5. Did you inspect your distribution system to check for mainline leaks? Do you or did you have a mainline leak?	
6. If there was a mainline leak, when was it repaired?	
7. On what date was the distribution system last flushed?	
8. Is there a written flushing procedure you can provide for our review?	
9. Do you have an active cross connection control program?	
10. What is name and phone number of your Cross-Connection Control Program Coordinator?	
11. Is the review and testing of backflow prevention devices current?	
12. On what date was the last physical survey of the system done to identify cross-connections?	

SAMPLE SITE EVALUATION (Complete for all TC+ or EC+ findings)	Routine Site TC+ or EC+	Upstream Site	Downstream Site	Sample 4 (specify)
1. What is the height of the sample tap above grade? (inches)				
2. Is the sample tap located in an exterior location or is it protected by an enclosure?				
3. Is the sample tap threaded, have a swing arm (kitchen sink) or aerator (sinks)?				
4. Is the sample tap in good condition, free of leaks around the stem or packing?				
5. Can the sample tap be adjusted to the point where a good laminar flow can be achieved without excessive splash?				
6. Is the sample tap and area around the sample tap clean and dry (free of animal droppings, other contaminants or spray irrigation systems)				
7. Is the area around the sample tap free of excessive vegetation or other impediments to sample collection				
8. Describe how the tap was treated in preparation for sample collection (ran water, swabbed with disinfectant, flamed, etc.)				
9. Is this sample tap designated on the sampling plan submitted with this information request?				
10. What were the weather conditions at the time of the positive sample (rainy, windy, sunny),				

POSITIVE TOTAL COLIFORM INVESTIGATION

Page 3 of 3

GENERAL OPERATIONS:	Response
1. Where there any power outages that affected water system facilities during the 30 days prior to the TC+ or EC + findings?	
2. Where there any main breaks, water outages, or low pressure reported in the service area where TC+ or EC+ samples were located.	
3. Does the system have backup power or elevated storage?	
4. During or soon after bacteriological quality problems, did you receive any complaints of any customers' illness suspected of being waterborne? How many?	
5. What were the symptoms of illness if you received complaints about customers being sick?	

ADDITIONAL INFORMATION TO BE SUBMITTED WITH RESPONSES TO THE ABOVE QUESTIONS

1. **Sketch** of System showing all sources, treatment locations, storage tanks, microbiological sampling sites and general layout of the distribution system including the location of all hazardous connections such as the wastewater treatment facility.
2. A set of photographs of the well, pressure tanks, and storage tanks in the system may be submitted if they would show that the contamination is directly related and changes have been made since the last inspection by our Department
3. Name, certification level and certificate number of the Operator in Responsible Charge.
4. Copy of the last cross connection survey performed that identifies the location of all unprotected cross connections.

SUMMARY: BASED ON THE RESULTS OF YOUR INVESTIGATION AND ANY OTHER INFORMATION AT YOUR DISPOSAL, WHAT DO YOU BELIEVE TO BE THE CAUSE OF THE POSITIVE TOTAL COLIFORM SAMPLES FROM YOUR PUBLIC WATER SYSTEM?

CERTIFICATION: I CERTIFY THAT THE INFORMATION SUBMITTED IN RESPONSE TO THE QUESTIONS ABOVE IS ACCURATE TO THE BEST OF MY PROFESSIONAL KNOWLEDGE

NAME: _____ TITLE: _____ DATE: _____

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

Superior Mutual Water Company Has Levels of Coliform Bacteria Above the Drinking Water Standard

Our water system recently failed a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what you should do, what happened and what we did to correct this situation.

We routinely monitor for drinking water contaminants. We took 5 samples to test for the presence of coliform bacteria in September 2015. 4 of these samples showed the presence of total coliform bacteria. The standard is that no more than 1 sample per month may show the presence of coliform bacteria.

What should I do?

- **You do not need to boil your water or take other corrective actions.**
- This is not an emergency. If it had been, you would have been notified immediately. Total coliform bacteria are generally not harmful themselves. *Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.*
- Usually, coliforms are a sign that there could be a problem with the treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or *E. coli*, are present. **We did not find any of these bacteria in our subsequent testing.**
- People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1(800) 426-4791.
- If you have other health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? What is being done?

Chlorinated the system. We anticipate resolving the problem within the coming month (October/2015). The system is being mandated to be a continuously chlorinated.

For more information, please contact Scott Moore at 661-213-6930 or at the following mailing address: 3220 Patton Way, Bakersfield CA 93308.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mail.

Secondary Notification Requirements

Upon receipt of notification from a person operating a public water system, the following notification must be given within 10 days [Health and Safety Code Section 116450(g)]:

- **SCHOOLS:** Must notify school employees, students, and parents (if the students are minors).
- **RESIDENTIAL RENTAL PROPERTY OWNERS OR MANAGERS** (including nursing homes and care facilities): Must notify tenants.
- **BUSINESS PROPERTY OWNERS, MANAGERS, OR OPERATORS:** Must notify employees of businesses located on the property.

This notice is being sent to you by Superior MWC system.

Date distributed: 10/2/15

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

RECEIVED

Superior Mutual Water Company Has Levels of Coliform Bacteria Above the Drinking Water Standard

OCT 24 2015

Our water system recently failed a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what you should do, what happened and what we did to correct this situation.

We routinely monitor for drinking water contaminants. We took five samples to test for the presence of coliform bacteria in October 2015. Two of these samples showed the presence of total coliform bacteria. The standard is that no more than 1 sample per month may show the presence of coliform bacteria.

What should I do?

- **You do not need to boil your water or take other corrective actions.**
- This is not an emergency. If it had been, you would have been notified immediately. Total coliform bacteria are generally not harmful themselves. *Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.*
- Usually, coliforms are a sign that there could be a problem with the treatment or distribution system (pipes). Whenever we detect coliform bacteria in any sample, we do follow-up testing to see if other bacteria of greater concern, such as fecal coliform or *E. coli*, are present. **We did not find any of these bacteria in our subsequent testing.**
- People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1(800) 426-4791.
- If you have other health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? What is being done?

The water system has been required to initiate continuous chlorination of the water delivered to the customers. We anticipate resolving the problem by November 15, 2015.

For more information, please contact Scott Moore at (661) 213-6930 or at the following mailing address: 3220 Patton Way, Bakersfield, Ca 93308.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mail.

Secondary Notification Requirements

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- **SCHOOLS:** Must notify school employees, students, and parents (if the students are minors).
- **RESIDENTIAL RENTAL PROPERTY OWNERS OR MANAGERS** (including nursing homes and care facilities): Must notify tenants.
- **BUSINESS PROPERTY OWNERS, MANAGERS, OR OPERATORS:** Must notify employees of businesses located on the property.

This notice is being sent to you by Superior MWC system.

Date distributed: 10/22/15

PROOF OF NOTIFICATION
(Return with copy of the Notice)

As required by Section 116450 of the California Health and Safety Code, I notified all users of water supplied by the Superior Mutual Water Company (1503209) of the failure to meet the **total coliform bacteria MCL** for the month of March 2015 as directed by the Division. At least one primary distribution method is required: mail, hand-delivery or posting in conspicuous locations. A second method is also required in order to reach persons not likely to be reached by a mailing, direct delivery or posting:

Notification was made on 10/2/15
(date)

To summarize report delivery used and good-faith efforts taken please check all items below that apply and fill-in where appropriate:

- The notice was distributed by mail delivery to each customer served by the water system.
- The notice was distributed by direct delivery to each customer served by the water system. Specify direct delivery method(s) used: _____
- Publication of the notice in a local newspaper or newsletter of general circulation (attach a copy of the published notice, including name of newspaper and date published).
- Posted the notice at the following conspicuous locations served by the water system (if needed, please attach a list of locations). _____
- Email message to employees or students. _____
- Other method used to notify customers. _____

RECEIVED
OCT - 8 2015

DISCLOSURE: Be advised that Section 116725 and 116730 of the California Health and Safety Code state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the attached order may be liable for a civil penalty not to exceed five thousand dollars (\$5,000) for separate violation for each day that violation continues. In addition, the violators may be prosecuted in criminal court and upon conviction, be punished by a fine of not more than \$25,000 for each day of violation, or be imprisoned in the county jail not to exceed one year, or by both the fine and imprisonment.

Certified by Name and Title: Taylor J. Howze / Contact
Date: 10/1/15 Signature: Taylor J. Howze

Due to the Division of Drinking Water within 10 days of notification to the public
Total Coliform MCL Failure / Enforcement Action No.: In progress

RECEIVED
OCT 24 2015

PROOF OF NOTIFICATION
(Return with copy of the Notice)

As required by Section 116450 of the California Health and Safety Code, I notified ~~all users of~~ ~~the~~ water supplied by the **Superior Mutual Water Company (1503209)** of the failure to meet the **total coliform bacteria MCL** for the month of **October 2015** as directed by the Division. At least one primary distribution method is required: mail, hand-delivery or posting in conspicuous locations. A second method is also required in order to reach persons not likely to be reached by a mailing, direct delivery or posting:

Notification was made on 10 / 22 / 15
(date)

To summarize report delivery used and good-faith efforts taken please check all items below that apply and fill-in where appropriate:

- The notice was distributed by mail delivery to each customer served by the water system.
- The notice was distributed by direct delivery to each customer served by the water system. Specify direct delivery method(s) used: _____
- Publication of the notice in a local newspaper or newsletter of general circulation (attach a copy of the published notice, including name of newspaper and date published).
- Posted the notice at the following conspicuous locations served by the water system (if needed, please attach a list of locations). _____
- Email message to employees or students. _____
- Other method used to notify customers. _____

DISCLOSURE: Be advised that Section 116725 and 116730 of the California Health and Safety Code state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the attached order may be liable for a civil penalty not to exceed five thousand dollars (\$5,000) for separate violation for each day that violation continues. In addition, the violators may be prosecuted in criminal court and upon conviction, be punished by a fine of not more than \$25,000 for each day of violation, or be imprisoned in the county jail not to exceed one year, or by both the fine and imprisonment.

Certified by Name and Title: Taylor Howze / Contact
Date: 10/21/15 Signature: Taylor A. Howze

Due to the Division of Drinking Water within 10 days of notification to the public
Total Coliform MCL Failure / Enforcement Action No.: In progress

STATE OF CALIFORNIA
APPLICATION
 FOR
DOMESTIC WATER SUPPLY PERMIT AMENDMENT
 FROM

Applicant: _____
 (Enter the name of legal owner, person(s) or organization)

Address: _____

System Name: _____

System Number: _____

TO: Division of Drinking Water
 Southern California Branch
 Drinking Water Field Operations
 Visalia District Office
 265 W. Bullard Avenue, Suite 101
 Fresno, California, 93704



Pursuant and subject to the requirements of the California Health and Safety Code, Division 104, Part 12, Chapter 4 (California Safe Drinking Water Act), Article 7, Section 116550, relating to changes requiring an amended permit, application is hereby made to amend an existing water supply permit to _____

(Applicant must state specifically what is being applied for - whether to construct

new works, make alterations or additions in works or sources, or change or modify treatment.)

I (We) declare under penalty of perjury that the statements on this application and on the accompanying attachments are correct to my (our) knowledge and that I (we) are acting under authority and direction of the responsible legal entity under whose name this application is made.

By: _____

Signature: _____

Title: _____

Address: _____

Telephone: _____

Dated: _____

CHLORINATION TREATMENT OPERATIONS PLAN (GROUNDWATER SOURCE)

Date of Plan: _____

Water System Name: _____ System No.: _____

Name of Treatment Facility: _____

Brief description of water system, number of service connections and population served, source (date of drilling, depth, perforations, pump setting), storage (capacity and material), chlorinator treatment unit (type of chlorinator pump, capacity of pump, manufacturer and model, and size of the chlorine solution storage tank):

Inspection: A certified water distribution/treatment operator and trained personnel conduct inspection of the treatment facility(ies) which consists of visual inspection of the equipment, checking and filling the chlorine solution vessel, measuring the chlorine residual, adjusting the equipment, calculating the dosage rate and writing down the results of the inspection as explained below. Specifically:

1. A **certified water distribution or certified treatment operator** must come on-site and inspect the chlorination facility **MONTHLY**.
2. A certified operator can also assign **trained personnel** to do the following required activities **WEEKLY**.

A. Visual inspection of chlorination pump and disinfection reservoir

- i. Inspect the pump for proper operation.
- ii. Inspect the disinfectant in the reservoir for concentration and adequate volume for the operational period (record results).
- iii. Determine if there is enough disinfectant on hand for one or more weeks.

B. Measure the disinfectant residual in the distribution system (approved free chlorine test kit required).

- i. Record the results **WEEKLY** in the Chlorine Residual Report (see the attached sheet).
- ii. Determine if an adequate level of disinfectant is maintained.
- iii. If disinfectant level is low, determine the reason and correct.
- iv. If no measurable disinfectant, notify owner, determine reason, and remedy. If no disinfectant for 24 hours, notify Division.
- v. Send the Chlorine Residual Report monthly to the Division by fax or mail hardcopies by the 10th day following the end of month when the residuals were collected.

Responding to failures or interruptions: Failure or interruption of chlorination treatment will be handled in accordance with the attached written procedure. This procedure will include prompt correction of the problem and restoration of the chlorine residual. The availability of a replacement or back-up chemical feed system will be addressed. The certified operator, or trained personnel under direction of the certified operator, shall be the only people permitted to respond to failures or interruptions.

Record Keeping: The record keeping requirements are shown on the attached forms. These forms or their equivalent will be used to maintain the following records:

1. Date and time of inspection, name of operator
2. Chlorine residual and location of residual measurement
3. Production records
4. Operational notes including weekly calculation of chemical dosage (see attached form)
5. Chlorination failure log
6. Maintenance performed (both preventative and unscheduled maintenance)

Operator Certification

Water System Name: _____ System No. _____

Name of the Person Preparing the Operations Plan: _____

Signature of the Person: _____ Date: _____

Attachments - Forms for calculating dosages, chlorination failure plan, and monitoring

Response to Failures and Interruptions for Hypochlorination Systems

Name of Water System: _____ System Number: _____

In the event the chlorination system is found to be not operating or injecting too little chlorine solution, the following plan of action will be taken to correct the problem or situation. The plan should address the availability of a spare chlorinator, manual feeding of chlorine until the problem is resolved, more frequent chlorine residual monitoring, etc.:

Short-term chlorinator interruption (i.e. less than one day):

Long-term chlorine interruption (i.e. chlorinator cannot be repaired):

Prepared by: _____ Date: _____

Notes: This plan is to be posted at the chlorination station.
This plan is to be reviewed and updated annually.

Calculating Chemical Dosages

The calculation of chemical dosages is important in order to track the effectiveness of the chemical feed process. To calculate the chemical dosage over a specific period of time, you need to know:

1. Quantity of water produced (gallons)
2. Amount of solution injected (gallons)
3. Percent of available chlorine in liquid hypochlorite (usually 5.25% or 12.5%)
4. Number of gallons of liquid hypochlorite used to make the solution.
5. Number of gallons of solution made with one gallon of the liquid hypochlorite. For example, if one gallon of liquid hypochlorite were added to 24 gallons of water, the final mixture would contain 25 gallons of solution.

The dosage is calculated by plugging these numbers into the following formula.

NOTE: "X" means multiply!

$$\text{Dosage} = \frac{10,000 \times (\text{Amount of solution injected}) \times (\text{Percent of available chlorine})}{(\text{Quantity of water produced}) \times (\text{Gallons of solution made with one gallon of hypochlorite})}$$

Example: Over a seven-day period, a system produced 40,000 gallons of water. During that time period, the system used 30 gallons of solution. When mixing up the solution, the operator mixes one gallon of chlorine with 24 gallons of water to make 25 gallons of solution. The strength of the liquid chlorine solution is 12.5%. The following is a calculation of the dosage:

$$\text{Dosage} = \frac{10,000 \times (30) \times (12.5)}{(40,000) \times (25)} = 3.75 \text{ milligrams per liter (mg/L)}$$

Weekly Dosage Calculations

Week 1 - Date _____ Dosage = $\frac{10,000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Week 2 - Date _____ Dosage = $\frac{10,000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Week 3 - Date _____ Dosage = $\frac{10,000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Week 4 - Date _____ Dosage = $\frac{10,000 \times (\quad) \times (\quad)}{(\quad) \times (\quad)} =$

Chlorination Operational Log

Month and Year _____

System Name _____ Facility Name _____

Maximum Capacity of the Chlorination Pump _____

Were there any malfunctions of the chlorination system this month? Yes _____ No _____

If yes, list the date the malfunction occurred and action taken. Problems that cannot be promptly corrected must be reported to the California Department of Public Health. Bacteriological sampling must be conducted if the safety of the water is in question:

Date	Time	Operator	Chlorine Rate		Crock Level	Meter Reading	Chlorine Residual		Operational Notes
			Speed	Stroke			Injection Pt.	Distribution	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

1. Operational notes include weekly dosage calculations, addition of solution, changes in feed rate and other pertinent info.
2. This form is to be maintained for each chlorination facility.
3. This form is to be kept on file for review by the Department.

Chlorine Residual Report

System Name: _____ Month: _____
System Number: _____ Year: _____

Day	Sampling Address	Residual
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Guidance on Operational Requirements for Chlorination Systems

This document summarizes basic operational requirements for chlorination systems serving public water systems under the regulatory jurisdiction of the Division of Drinking Water (Division). Compliance with these requirements will help ensure reliable and consistent chlorination.

This document does not address safety considerations, which are of obvious importance. These requirements relate to the operation of existing chlorination systems. These requirements do not address design standards. The design of new chlorination systems is reviewed in the Division's water supply permit process. Problems with design of existing systems noted by the Division during inspections will be brought to the attention of the water supplier.

Applicability: These requirements are directed towards chlorination of groundwater sources (i.e. wells), which are not subject to significant bacteriological contamination. Wells that show significant bacteriological contamination of the raw water may be subject to additional reliability requirements and surface water filtration requirements.

The bacteriological quality of the source should be established based on raw water bacteriological sampling. Ongoing sampling of the raw water source should be done to ensure that a significant problem is not being masked by the chlorination process. This document does not address chlorination of surface water, which is subject to more stringent requirements.

Equipment

1. The equipment must be maintained in good operating condition.
2. The equipment must be covered from the elements and protected against unauthorized access. Hypochlorite solutions must be sheltered from direct sunlight to prevent the formation of chlorination byproducts.
3. Equipment must provide a consistent feed rate under all operating conditions.
4. The chlorinator must be activated by the circuit controlling the well pump or in response to a signal from the flow meter.
5. A flow meter must be provided in order to calculate chemical dosages.
6. The chlorine solution storage crock must be designed for use in mixing and measuring chlorine solutions. It should be large enough to hold enough solution for one week of peak use plus a prudent reserve. The amount of chemical in the crock must be able to be accurately measured by taking readings marked on the container.
7. Equipment for monitoring chlorine residuals must use the DPD method. For example, the Hach DR100 Colorimeter or equivalent may be used.

Chemical Additive Requirements

Effective January 1, 1994, all chemicals or products, including chlorine, added directly to the drinking water as part of a treatment process must meet the ANSI/NSF Standard 60. The manufacturer or distributor of the chemical should be able to provide you with documentation of compliance with this requirement.

Monitoring of Chlorination System

Inspecting and adjusting the equipment: Equipment should be inspected often enough to ensure prompt detection of problems. Daily inspection of the equipment is recommended. The required frequency of inspecting the equipment is set on a case-by-case basis depending on the system

configuration, the consequences of an undetected failure and historical system reliability. The Division requires that all groundwater systems that chlorinate inspect their chlorination systems at least once per week and maintain written records for 5 years.

The inspection should consist of a visual inspection of the equipment, checking and filling the chlorine solution level, measuring the free chlorine residual, adjusting the equipment, calculating the dosage rate and writing down the results of the inspection. Any problems noted must be corrected.

Monitoring the free chlorine residual: The free chlorine residual of the water must be measured and recorded on a regular basis. Daily measurement of the residual is generally required and is strongly recommended. The required frequency for measuring the residual is set on a case-by-case basis.

Responding to failures or interruptions: Each system must have a written procedure for responding to chlorination failures or interruptions. This procedure must include prompt repair or correction of the problem and restoration of the chlorine residual. The availability of a replacement or back-up chemical feed system must be addressed.

Record-keeping: The minimum record-keeping requirements are shown on the attached forms. These forms must be used to maintain the following minimum records:

1. Date and time of inspection, name of operator
2. Chlorine residual and location of residual measurements using the DPD method
Note: The orthotolodine (OTO) method cannot be used for compliance purposes
3. Production records
4. Operational notes including weekly calculation of chemical dosage (see attached form)
5. Chlorination failure log
6. Maintenance performed (both preventative and unscheduled maintenance)

Operator Certification

The Division's Operator Certification Regulations specify that all public water systems that have water treatment facilities will require certified water treatment operators, except those systems that only use disinfection facilities for groundwater, where no Giardia or virus reduction is required, can meet the operator certification requirements with a certified distribution operator. Please refer to the classification assigned to your water system or contact the Division for the classification. The certified operator shall be responsible for determining and controlling the proper chlorine dosage rates and distribution system chlorine residual levels.

Stage II Disinfectants/Disinfection Byproduct Rule Monitoring Plan Form For Small Water Systems

TTHM MCL = 0.080 mg/l HAA5 MCL = 0.060 mg/l

System Name: _____ System No. _____

No. of Monitoring Locations: _____ Population: _____ No. of pressure zones: _____

Source Type: (Circle all that apply): Groundwater Surface Water Both

(The following information may be attached in a separate table or sheet if necessary.)

A map of the distribution system must be attached to include all the facilities mentioned below and DBP sample location(s) is required. A picture of the DBP monitoring location(s) is optional.

TTHM/HAA5 Monitoring Frequency

Location 1: _____ PSCode: _____

Frequency: Routine _____ Increased _____ Reduced _____

Sample Location Description (Address, Building No., Source, etc.): _____

Water Quality Lab: _____

Sample Date (Month): _____

Justification for selecting site: _____

Location 2: _____ PSCode: _____

Frequency: Routine _____ Increased _____ Reduced _____

Sample Location Description (Address, Building No., Source, etc.): _____

Water Quality Lab: _____

Sample Date (Month): _____

Justification for selecting site: _____

(If there are more monitoring locations attach on an additional sheet.)

Calculating MCL Compliance

Compliance will be based on concentration of an annual sample result per sample location.

Disinfectant Residual Monitoring (Free Chlorine Residual)

Sample Location & Frequency: Same time and location as coliform bacteriological monitoring sample(s). See system Bacteriological Sample Siting Plan. The maximum residual disinfectant level (MRDL) = 4 mg/L.

Source Name(s), Location(s) and, if applicable, Seasonal Variability of Use:

Treatment Plant Facilities (Includes each chlorinator and its injection point):

Storage Tank(s) Identification & Location:

Signature

Date

