

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. 6-00-57A01
WDID NO. 6B190107069

AMENDED WASTE DISCHARGE REQUIREMENTS
FOR

**LOS ANGELES COUNTY SANITATION DISTRICT NO. 20 AND
THE CITY OF LOS ANGELES WORLD AIRPORTS
PALMDALE WATER RECLAMATION PLANT**

Los Angeles County_____

The California Regional Water Quality Control Board, Lahontan Region (Regional Board) finds:

1. Discharger

Mr. James F. Stahl, Chief Engineer and General Manager of the County Sanitation Districts of Los Angeles County submitted an Amended Report of Waste Discharge (RWD) for the Los Angeles County Sanitation District No. 20 (LACSD) Palmdale Water Reclamation Plant (PWRP) dated October 24, 2003. The RWD was completed by submittal of an Engineering Report dated January 24, 2004, which documented compliance with Title 22, California Code of Regulations water recycling regulations. The City of Los Angeles World Airports (LAWA) is the owner of the Effluent Management Site (EMS), operated by LACSD. For the purposes of this Regional Board Order (Order), LACSD and LAWA are collectively referred to as the "Dischargers." This Amendment is intended to apply concurrently with Board Order No. 6-00-57, which remains in effect for the Dischargers, as described in this Order. For the purposes of water recycling, LACSD is designated as the "Producer" and "Distributor" for the current and proposed expanded reuse areas. At this time, LACSD is also designated as the "User" for the proposed reuse expansion area because a contractor operator has not yet been selected. Contract operators, whose contractual obligations are subject to change, are therefore unnamed herein, and are designated as "Users" for the current reuse area.

2. Facility

The PWRP currently collects, treats, and disposes of an average of 8.4 million gallons per day (mgd) of domestic wastewater generated from a population of approximately 125,000. Secondary wastewater treatment is provided by primary sedimentation tanks, anaerobic digesters, and six active, unlined oxidation ponds (approximately 170 acres). Additional treatment is provided by the oxidation pond aeration system. Sludge from the anaerobic digesters is dried in drying beds and hauled off site for disposal. The Facility consists of the unit processes used to provide secondary-level treatment, and the EMS. The Facility's design capacity is 15.0 mgd. The District has constructed temporary disinfection facilities and plans to construct permanent facilities by mid-2005. The Facility is located approximately two miles northeast of central Palmdale, in the Lancaster Hydrologic Area of the Antelope Hydrologic Unit within portions of Sections 16 and 20, T6N, R11W, SBB&M, as shown on Attachment "A", which is made a part of this Order.

Secondary-level treated, undisinfected effluent is currently discharged to 1,280 acres of land by land application and irrigated agriculture within portions of Sections 9, 10, and 11 of the EMS. An expansion of the EMS to include an additional 640 acres (Section 15) is authorized in this Amendment. Five center-pivot sprinkler irrigation systems, side roll, and manually moved sprinkler systems are currently used to apply recycled water at agronomic rates to fodder crops on the E ½ of Section 10 and the West ½ of Section 11. Section 3, the N ½ of Section 9, and the E ½ of Section 11 previously were authorized disposal/reuse areas specified in Board Order No. 6-00-57, but never received treated effluent. These areas are no longer part of the lease between LAWA and LACSD and are no longer considered part of the authorized disposal area. Additionally, LACSD and LAWA have revised the lease to add the W ½ and SE ¼ of Section 14, Section 15, and the NE ¼ of Section 16, T6N, R11W, SBB&M. Treated effluent is proposed to be applied to Section 15 by Fall 2004.

3. Permit History

The Regional Board previously established Waste Discharge Requirements (WDRs) for LACSD under Board Order No. 6-93-18, which was adopted on March 11, 1993. The Regional Board previously adopted separate water recycling requirements (WRRs) for LAWA under Board Order No. 6-90-64, which was adopted on October 11, 1990. The current Board Order No. 6-00-57, which combined WDRs and WRRs, was adopted on June 14, 2000. Cleanup and Abatement Order (CAO) No. R6V-2003-056 was adopted by the Regional Board on November 12, 2003, requiring the dischargers to abate the discharge contributing to the nitrate pollution and cleanup pollution and degradation of ground water caused by the discharge.

4. Reason For Action

The Regional Board is amending Board Order No. 6-00-57 to update the description of the authorized EMS to remove reference to Section 3, the N ½ of Section 9, and the E ½ of Section 11, which are no longer included in the Dischargers' lease agreement, and to add Section 15. The addition of Section 15 is proposed to provide additional crop acreage for water recycling to ultimately reduce the amount of landspreading to the S ½ of Section 9 and W ½ of Section 10. Reuse of recycled water in the expanded EMS areas is limited herein to applications at agronomic rates.

5. Water Recycling Criteria

Regulations set forth and revised by the State Department of Health Services (SDHS) in Chapter 3 (Water Recycling Criteria), Title 22, Division 4, Section 60001 (et seq.), California Code of Regulations (CCR), excerpted in Attachment "C", require that sewage effluent which is used to irrigate fodder and fiber crops, and orchards where fruit does not contact recycled waters must have a quality at least equivalent to that of undisinfected secondary effluent. Effluent limits to meet Title 22 criteria are set at levels which require that all wastewater discharged to the Dischargers' EMS water recycling sites receive a secondary level of treatment for proposed recycled water use for fodder, fiber and other appropriate crops. Treated effluent discharged to the water recycling sites must meet SDHS criteria.

The District intends to begin disinfecting the secondary effluent prior to recycled water use by adding sodium hypochlorite from an interim facility until a permanent facility is constructed.

6. Department of Health Services Consultation

An Engineering Report dated January 30, 2004, was submitted by the Dischargers. In accordance with Section 13523 of the California Water Code, the Regional Board consulted with the SDHS. In a letter dated March 4, 2004, SDHS provided its recommendations on the Engineering Report concerning WRRs, which are incorporated within the Order.

7. Authorized Effluent Management Site

The authorized EMS consists of the Dischargers' land application disposal in the southern half of Section 9 and western half of Section 10 and water recycling sites in the eastern half of Section 10, western half of Section 11 and all of Section 15 shown on Attachment "A." Sections 14 and 16 are not an authorized part of the EMS.

8. Lahontan Basin Plan

The Regional Board adopted a Water Quality Control Plan for the Lahontan Region (Basin Plan) which became effective on March 31, 1995, and this Order implements the Plan, as amended.

9. Beneficial Uses

The beneficial uses of the ground waters of the Lancaster Hydrologic Area of the Antelope Hydrologic Unit as set forth and defined in the Water Quality Control Plan for the Lahontan Region are:

- a. municipal and domestic supply (MUN);
- b. agricultural supply (AGR);
- c. industrial service supply (IND); and
- d. freshwater replenishment (FRSH).

10. California Environmental Quality Act (CEQA) Compliance

This Amended Order governs the continued operation of the Facility and an expansion of the EMS of the existing Facility, into Section 15, T6N, R11W, SBB&M. The project consists only of the continued operation of the Facility and the proposed expanded EMS. The continued operation of the existing Facility is categorically exempt from provisions of the CEQA (Public Resources Code § 21000 et seq.) in accordance with Section 15301 of the CEQA Guidelines.

The District's Board of Directors certified a Negative Declaration for the proposed Section 15 expansion on July 28, 2003. No mitigation measures were proposed in the environmental document. The Regional Board concurs with the findings of the Negative Declaration for Section 15.

11. Water Recycling Requirements

The Water Recycling Requirements specified in Board Order No. 6-00-57 are consistent with the current SDHS Water Recycling Criteria in Title 22, CCR, and remain in effect, except as amended herein.

12. Palmdale Airport

LAWA may develop the Palmdale Airport as discussed in the report titled "Destination 2030 Plan" provided by the Southern California Association of Governments (SCAG). This report projects that the Palmdale Airport may be processing 12.8 million passengers annually by the year 2030. The development of Palmdale Airport may have a future impact on LAWA leased land used for effluent disposal.

13. Notification of Interested Parties

The Regional Board has notified the Discharger and interested agencies and persons of its intent to amend WDRs for the discharge.

14. Consideration of Public Comments

The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Effluent Limitations

The effluent limitations specified in Board Order No. 6-00-57 remain in effect.

B. Water Recycling Requirements

1. The recycled water shall be confined to those lands described in Finding No. 7 of this Order.
2. All water recycling requirements and provisions not affected by this amendment remain in effect.

C. Receiving Water Limitation

The receiving water limitations specified in Board Order No. 6-00-57 remain in effect.

II. PROVISIONS

A. Authorized Effluent Management Site

The authorized EMS consists of the S ½ of Section 9, Section 10, W ½ of Section 11 (excluding all portions of Little Rock Wash), and Section 15, T6N, R11W, SBB&M. The areas within the EMS authorized for land application are the S ½ of Section 9 and the W ½ of Section 10.

B. Farm Management Plan

The Farm Management Plan (FMP) previously submitted in accordance with Board Order No. 6-00-57, Provision II.B.3 shall apply to the expanded EMS, Section 15, unless an amended plan is submitted by the Discharger and accepted by the Executive Officer.

C. Effluent Disposal Plan and Land Spreading Reduction

The Effluent Disposal Plan (EDP) previously submitted in accordance with Board Order No. 6-00-57, Provision II.B.2 shall apply to the expanded EMS, Section 15 unless an amended plan is submitted by the Discharger and accepted by the Executive Officer. There shall be reduction of effluent disposal by spreading commensurate with the expanded EMS area where recycled water is applied at agronomic rates.

D. Potential Loss of LAWA Leased Land

By **April 29, 2005**, the District shall submit a report that delineates when the current leases between the District and LAWA expire for each of the effluent disposal areas currently being used or proposed for use. The report shall include a plan describing the District's alternative(s) for effluent disposal, should the District lose the ability to use some or all of the LAWA land for waste disposal and reuse. The plan must include tasks and implementation schedules for major activities identified in the plan such that any new disposal or reuse area is available when the District no longer has use of sufficient LAWA property for waste disposal and reuse.

E. Status Reports

The Semiannual Corrective Action Compliance Status Reports previously required under Board Order No. 6-00-57 Section II.B.5., are hereby superceded by the Quarterly Compliance Status Reports specified in CAO No. R6V-2003-056 Section 3.2.

F. Abandoned Well Survey

By **May 30, 2004**, the Dischargers shall provide a workplan and time schedule for identifying and properly destroying abandoned wells within the proposed expanded EMS, Section 15. The workplan must be prepared under the supervision of a Registered Civil Engineer. Upon acceptance by the Regional Board's Executive Officer, implementation of this workplan must begin within 90 days. This workplan must comply with all California State Regulations for well destruction. A Final Abandoned Well Investigation Report for the proposed expanded EMS areas shall be prepared and submitted in accordance with the workplan. No recycled water discharge may occur in Section 15 until the Final Abandoned Well Investigation Report has been submitted to the Regional Board and accepted by the Regional Board's Executive Officer.

G. Section 15 Ground Water Monitoring

There shall be no use of recycled water in the proposed expanded EMS, Section 15, until an initial round of ground water samples is collected, analyzed, and the results are submitted to the Regional Board to establish pre-discharge conditions. As a minimum, the parameters analyzed for the ground water samples shall include those identified for quarterly monitoring in MRP 00-57-A01, Section I.D.

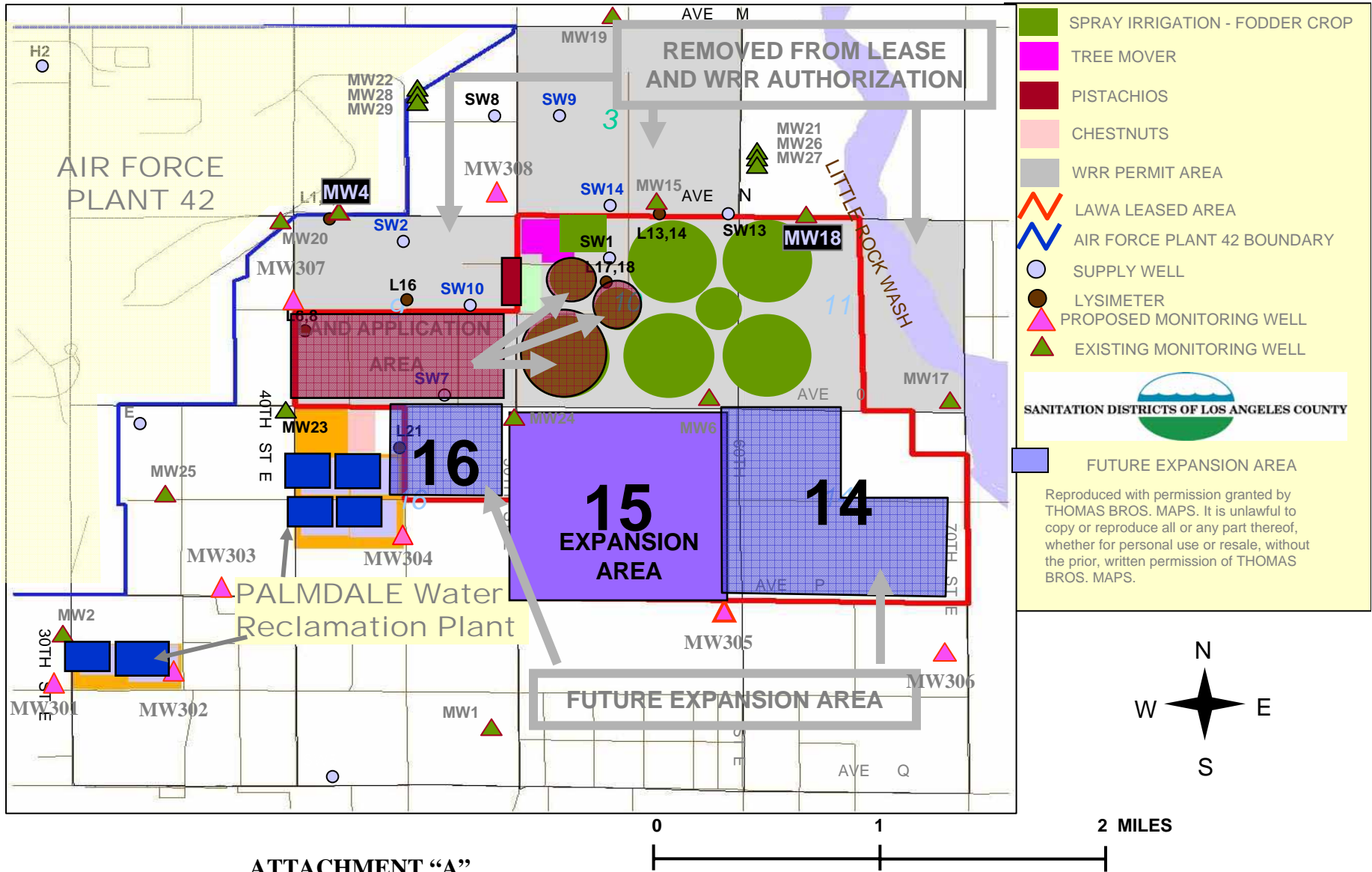
H. The Dischargers shall notify the Regional Board in writing within 15 days of hiring a contractor operator to manage crop cultivation operations within Section 15 of the expanded reuse area. The designated contractor operator will be named as a "User" for the expanded reuse area in a subsequent amendment to the WDRs.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on April 14, 2004.

HAROLD J. SINGER
EXECUTIVE OFFICER

Attachments: A. Location Map
B. Amended MRP 00-57A02
C. Excerpt – California Health Laws Related to Recycled Water – Title 22, CCR

PALMDALE WATER RECLAMATION PLANT - AGRICULTURAL REUSE EXPANSION AREAS (Current Amendment Section 15; Future NE1/4 Section 16, and NW1/4 & S1/2 Section 14)



ATTACHMENT "A"

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

**AMENDED MONITORING AND REPORTING
PROGRAM NO. 00-57-A02
WDID NO. 6B190107069
FOR
LOS ANGELES COUNTY SANITATION DISTRICT NO. 20
AND THE CITY OF LOS ANGELES WORLD AIRPORTS
PALMDALE WATER RECLAMATION PLANT**

Los Angeles County

Monitoring and Reporting Program (MRP) 00-57, for the Los Angeles County Sanitation District No. 20 and City of Los Angeles World Airports (Dischargers), Palmdale Water Reclamation Plant (Facility), was revised as MRP 00-57A01, which updated and specified additional monitoring and reporting requirements for the Dischargers, became effective on February 26, 2004.

Board Order No. 6-00-57, which specified waste discharge requirements (WDRs) and water recycling requirements (WRRs) for the Dischargers, was subsequently amended in Board Order No. 6-00-57A01, which became effective on April 14, 2004, to authorize an expansion of the Effluent Management site (EMS) for the Facility, to include Section 15, T6N, R11W, SBB&M, and to remove areas previously included in the authorized EMS, which are no longer applicable.

Monitoring and Reporting Program No. 00-57-A01 is amended as follows:

1. Section 15 Recycled Water Use Monitoring

The monitoring and reporting requirements specified in Revised MRP 00-57A01 Section I.G. (Effluent Management Site Monitoring) also apply to the Section 15 EMS expansion area.

2. Sampling and Analysis Plan Modification

Revised MRP 00-57A01 requires (See Section II. Reporting, General Provision A.1.), that a Sampling and Analysis Plan (SAP), describing field and sample collection and laboratory analytical methods, be submitted by the Dischargers. An amended SAP shall be submitted by **June 1, 2004**. The amended SAP shall include designations and locations for vadose zone monitoring for the authorized EMS expansion area, Section 15.

3. Ground Water Monitoring

The following ground water monitoring wells are added to the list of ground water monitoring wells that must be sampled in accordance with Section I.D. of the MRP. The number of monitoring wells to be sampled is now 26.

MW301	MW305
MW302	MW306
MW303	MW307
MW304	MW308

4. Vadose Zone Monitoring

- A. The Vadose Zone monitoring system shall be monitored in accordance with Monitoring Requirement I.E., Vadose Zone Monitoring, as specified in the Revised MRP 00-57A01.
- B. The initial round of samples from the vadose zone monitoring system for the expanded EMS area, Section 15, shall be collected, analyzed and the results submitted to the Regional Board prior to the initiation of recycled water application to Section 15.

5. Reporting Requirements

- A. The Revised Monitoring and Reporting Program (MRP) No. 00-57A01, including the "General Provisions for Monitoring and Reporting" dated September 1, 1994 incorporated therein, remain in effect. In addition, amended MRP No. 00-57A02, also applies.
- B. Pursuant to Section 13267 of the California Water Code, the Dischargers shall comply with MRPs No. 00-57A01 and 00-57A02, the "General Provisions for Monitoring and Reporting", and the "Standard Provisions for Waste Discharge Requirements" dated September 1, 1994, incorporated into Board Order No. 6-00-57.
- C. A copy of all applicable Regional Board Orders and MRPs for the PWRP shall be available at all times at the treatment plant and at each reuse site operated by a secondary user.

Ordered by: _____

Dated: April 14, 2004

HAROLD J. SINGER
EXECUTIVE OFFICER

ATTACHMENT C

California Health Laws Related to Recycled Water Title 22

June 2001 Edition

CHAPTER 3 WATER RECYCLING CRITERIA ARTICLE 1 DEFINITIONS

60301. Definitions

60301.100. Approved laboratory

"Approved laboratory" means a laboratory that has been certified by the Department to perform microbiological analyses pursuant to section 116390, Health and Safety Code.

60301.160. Coagulated wastewater

"Coagulated wastewater" means oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated upstream from a filter by the addition of suitable floc-forming chemicals.

60301.170. Conventional treatment

"Conventional treatment" means a treatment chain that utilizes a sedimentation unit process between the coagulation and filtration processes and produces an effluent that meets the definition for disinfected tertiary recycled water.

60301.200. Direct beneficial use

"Direct beneficial use" means the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to waters of the State.

60301.220. Disinfected secondary-2.2 recycled water

"Disinfected secondary-2.2 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period.

60301.225. Disinfected secondary-23 recycled water

"Disinfected secondary-23 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100

milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period.

60301.230. Disinfected tertiary recycled water

"Disinfected tertiary recycled water" means a filtered and subsequently disinfected wastewater that meets the following criteria:

(a) The filtered wastewater has been disinfected by either:

(1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or

(2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

(b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

60301.240. Drift

"Drift" means the water that escapes to the atmosphere as water droplets from a cooling system.

60301.245. Drift eliminator

"Drift eliminator" means a feature of a cooling system that reduces to a minimum the generation of drift from the system.

60301.250. Dual plumbed system

"Dual plumbed system" or "dual plumbed" means a system that utilizes separate piping systems for recycled water and potable water within a facility and where the recycled water is used for either of the following purposes:

(a) To serve plumbing outlets (excluding fire suppression systems) within a building or

(b) Outdoor landscape irrigation at individual residences.

60301.300. F-Specific bacteriophage MS-2

"F-specific bacteriophage MS-2" means a strain of a specific type of virus that infects coliform bacteria that is traceable to the American Type Culture Collection (ATCC 1559781) and is grown on lawns of E. coli (ATCC 15597).

60301.310. Facility

"Facility" means any type of building or structure, or a defined area of specific use that receives water for domestic use from a public water system as defined in section 116275 of the Health and Safety Code.

60301.320. Filtered wastewater

"Filtered wastewater" means an oxidized wastewater that meets the criteria in subsection (a) or (b):

(a) Has been coagulated and passed through natural undisturbed soils or a bed of filter media pursuant to the following:

(1) At a rate that does not exceed 5 gallons per minute per square foot of surface area in mono, dual or mixed media gravity, upflow or pressure filtration systems, or does not exceed 2 gallons per minute per square foot of surface area in traveling bridge automatic backwash filters; and

(2) So that the turbidity of the filtered wastewater does not exceed any of the following:

(A) An average of 2 NTU within a 24-hour period;

(B) 5 NTU more than 5 percent of the time within a 24-hour period; and

California Health Laws Related to Recycled Water Title 22

(C) 10 NTU at any time.

(b) Has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following:

(1) 0.2 NTU more than 5 percent of the time within a 24-hour period; and

(2) 0.5 NTU at any time.

60301.330. Food crops

"Food crops" means any crops intended for human consumption.

60301.400. Hose bibb

"Hose bibb" means a faucet or similar device to which a common garden hose can be readily attached.

60301.550. Landscape impoundment

"Landscape impoundment" means an impoundment in which recycled water is stored or used for aesthetic enjoyment or landscape irrigation, or which otherwise serves a similar function and is not intended to include public contact.

60301.600.

Modal contact time

"Modal contact time" means the amount of time elapsed between the time that a tracer, such as salt or dye, is injected into the influent at the entrance to a chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber.

60301.620. Nonrestricted recreational impoundment

"Nonrestricted recreational impoundment" means an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.

60301.630. NTU

"NTU" (Nephelometric turbidity unit) means a measurement of turbidity as determined by the ratio of the intensity of light scattered by the sample to the intensity of incident light as measured by method 2130 B. in Standard Methods for the Examination of Water and Wastewater, 20th ed.; Eaton, A. D., Clesceri, L. S., and Greenberg, A. E., Eds; American Public Health Association: Washington, DC, 1995; p. 2-8.

60301.650. Oxidized wastewater.

"Oxidized wastewater" means wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.

60301.660. Peak dry weather design flow

"Peak Dry Weather Design Flow" means the arithmetic mean of the maximum peak flow rates sustained over some period of time (for example three hours) during the maximum 24-hour dry weather period. Dry weather period is defined as periods of little or no rainfall.

60301.700. Recycled water agency.

"Recycled water agency" means the public water system, or a publicly or privately owned or operated recycled water system, that delivers or proposes to deliver recycled water to a facility.

60301.710. Recycling plant

"Recycling plant" means an arrangement of devices, structures, equipment, processes and controls which produce recycled water.

60301.740. Regulatory Agency

"Regulatory agency" means the California Regional Water Quality Control Board(s) that have jurisdiction over the recycling plant and use areas.

60301.750. Restricted access golf course

"Restricted access golf course" means a golf course where public access is controlled so that areas irrigated with recycled water cannot be used as if they were part of a park, playground, or school yard and where irrigation is conducted only in areas and during periods when the golf course is not being used by golfers.

60301.760. Restricted recreational impoundment

"Restricted recreational impoundment" means an impoundment of recycled water in which recreation is limited to fishing, boating, and other non-body-contact water recreational activities.

60301.800. Spray irrigation

"Spray irrigation" means the application of recycled water to crops to maintain vegetation or support growth of vegetation by applying *it* from sprinklers.

Section 60301.830. Standby Unit Process.

"Standby unit process" means an alternate unit process or an equivalent alternative process which is maintained in operable condition and which is capable of providing comparable treatment of the actual flow through the unit for which it is a substitute.

60301.900. Undisinfected secondary recycled water.

"Undisinfected secondary recycled water" means oxidized wastewater.

60301.920. Use area

"Use area" means an area of recycled water use with defined boundaries. A use area, may contain one or more facilities.

ARTICLE 2. SOURCES OF RECYCLED WATER.

60302. Source specifications.

The requirements in this chapter shall only apply to recycled water from sources that contain domestic waste, in whole or in part.

ARTICLE 3. USES OF RECYCLED WATER.

60303. Exceptions

The requirements set forth in this chapter shall not apply to the use of recycled water onsite at a water recycling plant, or wastewater treatment plant, provided access by the public to the area of onsite recycled water use is restricted.

60304. Use of recycled water for irrigation

(a) Recycled water used for the surface irrigation of the following shall be a disinfected tertiary recycled water, except that for filtration pursuant to Section 60301.320(a) coagulation need not be used as part of the treatment process provided that the filter effluent turbidity does not exceed 2 NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and that there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes:

- (1) Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop,
- (2) Parks and playgrounds,
- (3) School yards,
- (4) Residential landscaping,

(5) Unrestricted access golf courses, and

(6) Any other irrigation use not specified in this section and not prohibited by other sections of the California Code of Regulations.

(b) Recycled water used for the surface irrigation of food crops where the edible portion is produced above ground and not contacted by the recycled water shall be at least disinfected secondary-2.2 recycled water.

(c) Recycled water used for the surface irrigation of the following shall be at least disinfected secondary-23 recycled water:

(1) Cemeteries,

(2) Freeway landscaping,

(3) Restricted access golf courses,

(4) Ornamental nursery stock and sod farms where access by the general public is not restricted.

{5} Pasture for animals producing milk for human consumption, and

(6) Any nonedible vegetation where access is controlled so that the irrigated area cannot be used as if it were part of a park, playground or school yard

(d) Recycled wastewater used for the surface irrigation of the following shall be at least undisinfected secondary recycled water:

(1) Orchards where the recycled water does not come into contact with the edible portion of the crop,

(2) Vineyards where the recycled water does not come into contact with the edible portion of the crop,

(3) Non food-bearing trees (Christmas tree farms are included in this category provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting or allowing access by the general public),

(4) Fodder and fiber crops and pasture for animals not producing milk for human consumption,

(5) Seed crops not eaten by humans,

(6) Food crops that must undergo commercial pathogen-destroying processing before being consumed by humans, and

(7) Ornamental nursery stock and sod farms provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public.

(e) No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops eaten raw by humans unless the recycled water complies with subsection (a).

60305. Use of recycled water for impoundments.

(a) Except as provided in subsection (b), recycled water used as a source of water supply for nonrestricted recreational impoundments shall be disinfected tertiary recycled water that has been subjected to conventional treatment.

(b) Disinfected tertiary recycled water that has not received conventional treatment may be used for nonrestricted recreational impoundments provided the recycled water is monitored for the presence of pathogenic organisms in accordance with the following:

(1) During the first 12 months of operation and use the recycled water shall be sampled and analyzed monthly for *Giardia*, enteric viruses, and *Cryptosporidium*. Following the first 12 months of use, the recycled water shall be sampled and analyzed quarterly for *Giardia*, enteric viruses, and *Cryptosporidium*. The ongoing monitoring may be discontinued after the first two years of operation with the approval of the department. This monitoring shall be in addition to the monitoring set forth in section 60321.

(2) The samples shall be taken at a point following disinfection and prior to the point where the recycled water enters the use impoundment. The samples shall be analyzed by an approved laboratory and the results submitted quarterly to the regulatory agency.

(c) The total coliform bacteria concentrations recreational impoundments, measured at a the point between the disinfection process and the point of entry to the use impoundment, shall comply with the criteria specified in section 60301.230 (b) for disinfected tertiary recycled water.

(d) Recycled water used as a source of supply for restricted recreational impoundments and for any publicly accessible impoundments at fish hatcheries shall be at least disinfected secondary-2.2 recycled water.

(e) Recycled water used as a source of supply for landscape impoundments that do not utilize decorative fountains shall be at least disinfected secondary-23 recycled water.

60306. Use of recycled water for cooling

(a) Recycled water used for industrial or commercial cooling or air conditioning that involves the use of a cooling tower, evaporative condenser, spraying or any mechanism that creates a mist shall be a disinfected tertiary recycled water.

(b) Use of recycled water for industrial or commercial cooling or air conditioning that does not involve the use of a cooling tower, evaporative condenser, spraying, or any mechanism that creates a mist shall be at least disinfected secondary-23 recycled water.

(c) Whenever a cooling system, using recycled water in conjunction with an air conditioning facility, utilizes a cooling tower or otherwise creates a mist that could come into contact with employees or members of the public, the cooling system shall comply with the following:

1) A drift eliminator shall be used whenever the cooling system is in operation.

(2) A chlorine, or other, biocide shall be used to treat the cooling system recirculating water to minimize the growth of *Legionella* and other micro-organisms.

60307. Use of recycled water for other purposes

(a) Recycled water used for the following shall be disinfected tertiary recycled water, except that for filtration being provided pursuant to Section 60301.320(a) coagulation need not be used as part of the treatment process provided that the filter effluent turbidity does not exceed 2 NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and that there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes:

- (1) Flushing toilets and urinals,
- (2) Priming drain traps,
- (3) Industrial process water that may come into contact with workers,
- (4) Structural fire fighting,
- (5) Decorative fountains,
- (6) Commercial laundries,
- (7) Consolidation of backfill around potable water pipelines,
- (8) Artificial snow making for commercial outdoor use, and
- (9) Commercial car washes, including hand washes if the recycled water is not heated, where the general public is excluded from the washing process.

(b) Recycled water used for the following uses shall be at least disinfected secondary- 23 recycled water:

- (1) Industrial boiler feed,
- (2) Nonstructural fire fighting,
- (3) Backfill consolidation around nonpotable piping,
- (4) Soil compaction,
- (5) Mixing concrete,
- (6) Dust control on roads and streets,
- (7) Cleaning roads, sidewalks and outdoor work areas and
- (8) Industrial process water that will not come into contact with workers.

(c) Recycled water used for flushing sanitary sewers shall be at least undisinfected secondary recycled water.

ARTICLE 4. USE AREA REQUIREMENTS.

60310. Use area requirements

(a) No irrigation with disinfected tertiary recycled water shall take place within 50 feet of any domestic water supply well unless all of the following conditions have been met:

- (1) A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface.
- (2) The well contains an annular seal that extends from the surface into the aquitard.
- (3) The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
- (4) The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
- (5) The owner of the well approves of the elimination of the buffer zone requirement.

(b) No impoundment of disinfected tertiary recycled water shall occur within 100 feet of any domestic water supply well.

(c) No irrigation with, or impoundment of, disinfected secondary-2.2 or disinfected secondary-23 recycled water shall take place within 100 feet of any domestic water supply well.

(d) No irrigation with, or impoundment of, undisinfected secondary recycled water shall take place within 150 feet of any domestic water supply well.

(e) Any use of recycled water shall comply with the following:

- (1) Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency.
- (2) Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
- (3) Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

(f) No spray irrigation of any recycled water, other than disinfected tertiary recycled water, shall take place within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or school yard.

(g) All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide, that include the following wording: "RECYCLED WATER - DO NOT DRINK". Each sign shall display an international symbol similar to that shown in figure 60310-A. The Department may accept alternative signage and wording, or an educational program, provided the applicant demonstrates to the Department that the alternative approach will assure an equivalent degree of public notification.

(h) Except as allowed under section 7604 of title 17, California Code of Regulations, r physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water.

(i) The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibbs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.



Water Recycling Criteria

FIGURE 60310-A

ARTICLE 5. DUAL PLUMBED RECYCLED WATER SYSTEMS,

60313. General requirements.

(a) No person other than a recycled water agency shall deliver recycled water to a dual- plumbed facility.

(b) No recycled water agency shall deliver recycled water for any internal use to any individually-owned residential units including free-standing structures, multiplexes, or condominiums.

(c) No recycled water agency shall deliver recycled water for internal use except for fire suppression systems, to any facility that produces or processes food products or beverages. For purposes of this Subsection, cafeterias or snack bars in a facility whose primary function does not involve the production or processing of foods or beverages are not considered facilities that produce or process foods or beverages.

(d) No recycled water agency shall deliver recycled water to a facility using a dual plumbed system unless the report required pursuant to section 13522.5 of the Water Code, and which meets the requirements set forth in section 60314, has been submitted to, and approved by, the regulatory agency.

60314. Report submittal

(a) For dual-plumbed recycled water systems, the report submitted pursuant to section 13522.5 of the Water Code shall contain the following information in addition to the information required by section 60323:

(1) A detailed description of the intended use area identifying the following:

(A) The number, location, and type of facilities within the use area proposing to use dual plumbed systems,

(B) The average number of persons estimated to be served by each facility on a daily basis,

(C) The specific boundaries of the proposed use area including a map showing the location of each facility to be served,

(D) The person or persons responsible for operation of the dual plumbed system at each facility, and

(E) The specific use to be made of the recycled water at each facility.

(2) Plans and specifications describing the following:

(A) Proposed piping system to be used,

(B) Pipe locations of both the recycled and potable systems,

(C) Type and location of the outlets and plumbing fixtures that will be accessible to the public, and

(D) The methods and devices to be used to prevent backflow of recycled water into the public water system.

(3) The methods to be used by the recycled water agency to assure that the installation and operation of the dual plumbed system will not result in cross connections between the recycled water piping system and the potable water piping system. This shall include a description of pressure, dye or other test methods to be used to test the system every four years.

(b) A master plan report that covers more than one facility or use site may be submitted provided the report includes the information required by this section. Plans and specifications for individual facilities covered by the report may be submitted at any time prior to the delivery of recycled water to the facility.

60315. Design requirements

The public water supply shall not be used as a backup or supplemental source of water for a dual-plumbed recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of sections 7602 (a) and 7603 (a) of title 17, California Code of Regulations, and the approval of the public water system has been obtained.

60316. Operation requirements

(a) Prior to the initial operation of the dual-plumbed recycled water system and annually thereafter, the Recycled Water Agency shall ensure that the dual plumbed system within each facility and use area is inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in the report submitted pursuant to section 60314. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-Nevada section of the American Water Works Association or an organization with equivalent certification requirements. A written report documenting the result of the inspection or testing for the prior year shall be submitted to the department within 30 days following completion of the inspection or testing.

(b) The recycled water agency shall notify the department of any incidence of backflow from the dual-plumbed recycled water system into the potable water system within 24 hours of the discovery of the incident.

(c) Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with section 7605 of Title 17, California Code of Regulations.

ARTICLE 5.1 GROUNDWATER RECHARGE

60320. Groundwater recharge

(a) Reclaimed water used for groundwater recharge of domestic water supply aquifers by surface spreading shall be at all times of a quality that fully protects public health. The State Department of Health Services' recommendations to the Regional Water Quality Control Boards for proposed groundwater recharge projects and for expansion of existing projects will be made on an individual case basis where the use of reclaimed water involves a potential risk to public health.

(b) The State Department of Health Services' recommendations will be based on all relevant aspects of each project, including the following factors: treatment provided; effluent quality and quantity; spreading area operations; soil characteristics; hydrogeology; residence time; and distance to withdrawal.

(c) The State Department of Health Services will hold a public hearing prior to making the final determination regarding the public health aspects of each groundwater recharge project. Final recommendations will be submitted to the Regional Water Quality Control Board in an expeditious manner.

ARTICLE 5.5. OTHER METHODS OF TREATMENT

60320.5. Other methods of treatment

Methods of treatment other than those included in this chapter and their reliability features may be accepted if the applicant demonstrates to the satisfaction of the State Department of Health that the methods of treatment and reliability features will assure an equal degree of treatment and reliability.

ARTICLE 6. SAMPLING AND ANALYSIS

60321. Sampling and analysis

(a) Disinfected secondary-23, disinfected secondary-2.2, and disinfected tertiary recycled water shall be sampled at least once daily for total coliform bacteria. The samples shall be taken from the disinfected effluent and shall be analyzed by an approved laboratory.

(b) Disinfected tertiary recycled water shall be continuously sampled for turbidity using a continuous turbidity meter and recorder following filtration. Compliance with the daily average operating filter effluent turbidity shall be determined by averaging the levels of recorded turbidity taken at four-hour intervals over a 24-hour period. Compliance with turbidity pursuant to section 60301.320 (a)(2)(B) and (b)(1) shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2-hours over a 24-hour period. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2-hours may be substituted for a period of up to 24-hours. The results of the daily average turbidity determinations shall be reported quarterly to the regulatory agency.

(c) The producer or supplier of the recycled water shall conduct the sampling required in subsections (a) and (b).

ARTICLE 7. ENGINEERING REPORT AND OPERATIONAL REQUIREMENTS

60323. Engineering report

(a) No person shall produce or supply reclaimed water for direct reuse from a proposed water reclamation plant unless he files an engineering report.

(b) The report shall be prepared by a properly qualified engineer registered in California and experienced in the field of wastewater treatment, and shall contain a description of the design of the proposed reclamation system. The report shall clearly indicate the means for compliance with these regulations and any other features specified by the regulatory agency.

(c) The report shall contain a contingency plan which will assure that no untreated or inadequately treated wastewater will be delivered to the use area.

60325. Personnel

(a) Each reclamation plant shall be provided with a sufficient number of qualified personnel to operate the facility effectively so as to achieve the required level of treatment at all times.

(b) Qualified personnel shall be those meeting requirements established pursuant to Chapter 9 (commencing with Section 13625) of the Water Code.

60327. Maintenance

A preventive maintenance program shall be provided at each reclamation plant to ensure that all equipment is kept in a reliable operating condition.

60329. Operating records and reports

(a) Operating records shall be maintained at the reclamation plant or a central depository within the operating agency. These shall include: all analyses specified in the reclamation criteria; records of operational problems, plant and equipment breakdowns, and diversions to emergency storage or disposal; all corrective or preventive action taken.

(b) Process or equipment failures triggering an alarm shall be recorded and maintained as a separate record file. The recorded information shall include the time and cause of failure and corrective action taken.

(c) A monthly summary of operating records as specified under (a) of this section shall be filed monthly with the regulatory agency.

(d) Any discharge of untreated or partially treated wastewater to the use area, and the cessation of same, shall be reported immediately by telephone to the regulatory agency, the State Department of Health, and the local health officer.

60331. Bypass

There shall be no bypassing of untreated or partially treated wastewater from the reclamation plant or any intermediate unit processes to the point of use.

ARTICLE 8. GENERAL REQUIREMENTS OF DESIGN

60333. Flexibility of design

The design of process piping, equipment arrangement, and unit structures in the reclamation plant must allow for efficiency and convenience in operation and maintenance and provide flexibility of operation to permit the highest possible degree of treatment to be obtained under varying circumstances.

60335. Alarms

(a) Alarm devices required for various unit processes as specified **in** other sections of these regulations shall be installed to provide warning of:

(1) Loss of power from the normal power supply.

(2) Failure of a biological treatment process.

(3) Failure of a disinfection process.

(4) Failure of a coagulation process.

(5) Failure of a filtration process.

(6) Any other specific process failure for which warning is required by the regulatory agency.

(b) All required alarm devices shall be independent of the normal power supply of the reclamation plant.

(c) The person to be warned shall be the plant operator, superintendent, or any other responsible person designated by the management of the reclamation plant and capable of taking prompt corrective action.

(d) Individual alarm devices may be connected to a master alarm to sound at a location where it can be conveniently observed by the attendant. In case the reclamation plant is not attended full time, the alarm(s) shall be connected to sound at a police station, fire station or other full time service unit with which arrangements have been made to alert the person in charge at times that the reclamation plant is unattended.

60337. Power supply

The power supply shall be provided with one of the following reliability features:

(a) Alarm and standby power source.

(b) Alarm and automatically actuated short-term retention or disposal provisions as specified in Section 60341.

(c) Automatically actuated long-term storage or disposal provisions as specified in Section 60341.

ARTICLE 9. RELIABILITY REQUIREMENTS FOR PRIMARY EFFLUENT

60339. Primary treatment

Reclamation plants, producing reclaimed water exclusively for uses for which primary effluent is permitted shall be provided with one of the following reliability features:

(a) Multiple primary treatment units capable of producing primary effluent with one unit not in operation.

(b) Long-term storage or disposal provisions as specified in Section 60341

Note: Use of primary effluent for recycled water is no longer allowed. [repeal of Section 60309, effective December 2000]

ARTICLE 10. RELIABILITY REQUIREMENTS FOR FULL TREATMENT

60341. Emergency storage or disposal

(a) Where short-term retention or disposal provisions are used as a reliability feature, these shall consist of facilities reserved for the purpose of storing or disposing of untreated or partially treated

wastewater for at least a 24-hour period. The facilities shall include all the necessary diversion devices, provisions for odor control, conduits, and pumping and pump back equipment. All of the equipment other than the pump back

equipment shall be either independent of the normal power supply or provided with a standby power source.

(b) Where long-term storage or disposal provisions are used as a reliability feature, these shall consist of ponds, reservoirs, percolation areas, downstream sewers leading to other treatment or disposal facilities or any other facilities reserved for the purpose of emergency storage or disposal of untreated or partially treated wastewater. These facilities shall be of sufficient capacity to provide disposal or storage of wastewater for at least 20 days, and shall include all the necessary diversion works, provisions for odor and nuisance control, conduits, and pumping and pump back equipment. All of the equipment other than the pump back equipment shall be either independent of the normal power supply or provided with a standby power source.

(c) Diversion to a less demanding reuse is an acceptable alternative to emergency disposal of partially treated wastewater provided that the quality of the partially treated wastewater is suitable for the less demanding reuse.

(d) Subject to prior approval by the regulatory agency, diversion to a discharge point which requires lesser quality of wastewater is an acceptable alternative to emergency disposal of partially treated wastewater.

(e) Automatically actuated short-term retention or disposal provisions and automatically actuated long-term storage or disposal provisions shall include, in addition to provisions of (a), (b), (c), or (d) of this section, all the necessary sensors, instruments, valves and other devices to enable fully automatic diversion of untreated or partially treated wastewater to approved emergency storage or disposal in the event of failure of a treatment process and a manual reset to prevent automatic restart until the failure is corrected.

60343. Primary treatment

All primary treatment unit processes shall be provided with one of the following reliability features:

(a) Multiple primary treatment units capable of producing primary effluent with one unit not in operation.

(b) Standby primary treatment unit process.

(c) Long-term storage or disposal provisions.

60345. Biological treatment

All biological treatment unit processes shall be provided with one of the following reliability features:

(a) Alarm and multiple biological treatment units capable of producing oxidized wastewater with one unit not in operation.

(b) Alarm, short-term retention or disposal provisions, and standby replacement equipment.

(c) Alarm and long-term storage or disposal provisions.

(d) Automatically actuated long-term storage or disposal provisions.

60347. Secondary sedimentation

All secondary sedimentation unit processes shall be provided with one of the following reliability features:

(a) Multiple sedimentation units capable of treating the entire flow with one unit not in operation.

(b) Standby sedimentation unit process.

(c) Long-term storage or disposal provisions.

60349. Coagulation

(a) All coagulation unit processes shall be provided with the following mandatory features for uninterrupted coagulant feed:

1) Standby feeders,

(2) Adequate chemical stowage and conveyance facilities,

(3) Adequate reserve chemical supply, and

(4) Automatic dosage control,

(b) All coagulation unit processes shall be provided with one of the following reliability features:

(1) Alarm and multiple coagulation units capable of treating the entire flow with one unit not in operation;

(2) Alarm, short-term retention or disposal provisions, and standby replacement equipment;

(3) Alarm and long-term storage or disposal provisions;

(4) Automatically actuated long-term storage or disposal provisions, or

(5) Alarm and standby coagulation process.

60351. Filtration

All filtration unit processes shall be provided with one of the following reliability features:

(a) Alarm and multiple filter units capable of treating the entire flow with one unit not in operation.

(b) Alarm, short-term retention or disposal provisions and standby replacement equipment.

(c) Alarm and long-term storage or disposal provisions.

(d) Automatically actuated long-term storage or disposal provisions.

(e) Alarm and standby filtration unit process.

Section 60353. Disinfection

(a) All disinfection unit processes where chlorine is used as the disinfectant shall be provided with the following features for uninterrupted chlorine feed:

- (1) Standby chlorine supply,
- (2) Manifold systems to connect chlorine cylinders,
- (3) Chlorine scales, and
- (4) Automatic devices for switching to full chlorine cylinders.

Automatic residual control of chlorine dosage, automatic measuring and recording 01 chlorine residual, and hydraulic performance studies may also be required.

(b) All disinfection unit processes where chlorine is used as the disinfectant shall be provided with one of the following reliability features:

- (1) Alarm and standby chlorinator;
- (2) Alarm, short-term retention or disposal provisions, and standby replacement equipment;
- (3) Alarm and long-term storage or disposal provisions;
- (4) Automatically actuated long-term storage or disposal provisions; or
- (5) Alarm and multiple point chlorination, each with independent power source, separate chlorinator, and separate chlorine supply.

60355. Other alternatives to reliability requirements

Other alternatives to reliability requirements set forth in Articles 8 to 10 may be accepted if the applicant demonstrates to the satisfaction of the State Department of Health that the proposed alternative will assure an equal degree of reliability.