

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0119

WASTE DISCHARGE REQUIREMENTS  
FOR  
EAST BAY MUNICIPAL UTILITY DISTRICT  
PARDEE CENTER WASTEWATER TREATMENT FACILITY  
CALAVERAS COUNTY

The California Regional Water Quality Control Board, Central Valley Region (hereafter Regional Board), finds that:

1. The East Bay Municipal Utility District (EBMUD; hereafter Discharger) submitted a Report of Waste Discharge (RWD), dated 20 December 2002 for updating Waste Discharge Requirements (WDRs) for the Pardee Center wastewater treatment facility. Supplemental information was received on 10 February, 10 April, and 6 June 2003.
2. For the purposes of this Order, the term “wastewater treatment facility” (WWTF) shall mean the sewage collection and transport system, the wastewater treatment system, the evaporation/percolation pond, and the spray disposal field.
3. WDRs Order No. 88-165, adopted by the Regional Board on 23 September 1988, prescribes requirements for the Discharger’s WWTF. This Order is neither adequate nor consistent with the current plans and policies of the Regional Board.

**Existing Wastewater Treatment and Disposal System**

4. The Pardee Center WWTF is on Assessors Parcel Number 16-001-01 and is owned and operated by the Discharger. The facility is on the west shore of Pardee Reservoir approximately three miles northeast of the town of Campo Seco, in Section 35, T5N, R10E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference.
5. The WWTF serves the Pardee Center’s administrative offices, maintenance buildings, McLean Hall, and a lodge. There are three permanent residences, 47 employees, and up to 29 overnight guests that can be accommodated at Pardee Center. In addition, there may be 15 to 20 visitors and/or EBMUD Oakland office employees at Pardee Center on any given day. The number of visitors can peak to 150 people for special events. As a result of the fluctuation in day use at Pardee Center, wastewater flows to the WWTF varies daily, as well as throughout the year.
6. The wastewater treatment system consists of a gravity sewer collection system, an extended aeration activated sludge package plant, a secondary clarifier, a pump station, an evaporation/percolation pond, and spray disposal fields, as shown on Attachment B, which is attached hereto and made part of this Order by reference.
7. The extended aeration activated sludge package plant is designed to manage relatively light loading but provide a long retention time. Based on the system discharge requirements, the detention time of the package plant is one to two days under average flow conditions, but can be

less than a half day under extreme high flow conditions. The package plant consists of a grinder at the plant headworks and a large tank containing a 3,100 gallon extended aeration basin and a 750-gallon clarifier. The RWD states that a licensed septic hauler periodically removes and disposes of accumulated sludge and solids from the package plant, secondary clarifier, and pump station sump on an as-needed basis.

8. Discharge of wastewater from the treatment plant flows via gravity, first to a 1,000 gallon-underground tank serving as a secondary clarifier, and then to the pump station, which consists of a 2,900 gallon capacity sump and two 100 gallon per minute vertical turbine pumps. The sump is equipped with a high level float alarm and has a nearby cleanout that can be used in an emergency to install a temporary pump and hose to convey wastewater from the sump to the evaporation/percolation pond. In addition, the pump station has an electrical connection for a portable generator in case of prolonged power outages. Treated effluent is pumped through a magnetic flow meter and directed to either the evaporation/percolation pond or spray fields for disposal.
9. The evaporation/percolation pond is an unlined pond that is approximately 0.5 acres in size and has a storage capacity of approximately 1.4 acre feet (allowing for two feet of freeboard). The pond has historically been used to store and dispose of wastewater when the spray field could not be utilized due to precipitation and/or saturation. The evaporation/percolation pond has a high water level overflow pipe that is located on the west side of the pond. This overflow pipe drains into a drainage swale that flows northward and discharges into Mexican Gulch below the South Pardee Dam Spillway. Because this Order prohibits discharges into surface drainage courses and surface waters, the Discharger has recently permanently blocked the overflow pipe.
10. The spray disposal field is approximately 1.6 acres in size and has historically been used to dispose of wastewater during the dry months of the year (April through October). Treated effluent is pumped to the spray field by one of two 100-gallon per minute pumps. There are eight spray head risers within the spray field. Each riser is approximately 120 feet apart. All of the spray heads are operated when the high level float switch in the sump activates a pump unit. The wastewater in the sump is pumped down in approximately 20 minutes. At the current dry weather flows, spray disposal activities occur every two to three days. Several of the spray heads are located within or adjacent to surface drainage courses. This Order requires minimum setback distances from spray irrigation areas to surface drainage and watercourses.
11. The application of undisinfected wastewater to sprayfields may result in the discharge of viruses and pathogens in stormwater that is allowed to flow off the disposal area. To address this concern, the RWD states that the Discharger will not use the sprayfield until it has either installed a wastewater disinfection system or has constructed a tailwater return system such that all tailwater and stormwater falling on the field can be collected and returned to the pond. However, the water balance described below shows that the pond system has little storage capacity. If the Discharger elected to collect all stormwater running off the sprayfield, it would need to construct a larger pond, necessitating the submittal of another RWD. Therefore, this Order allows the Discharger to use the sprayfield only upon installation of a wastewater disinfection system.

12. The previous WDRs contained an influent flow limit of 3,000 gpd. However, the revised water balance submitted in June 2003 shows that the treatment, storage, and disposal system can only accommodate a monthly average flow of 2,000 gpd, and therefore this Order contains a monthly average flow limitation of 2,000 gpd (the 2,000 flow limit is based on the use of the evaporation/percolation pond only, and does not include disposal to the spray field). According to information presented in the RWD, average daily flows for the months of January 2000 through September 2002 ranged from approximately 700 to 1,800 gpd with one spike of 2,600 gpd. Wastewater flow rates are not expected to increase in the future as no further development of the area is planned. The Discharger is required to prepare a contingency plan in the event that flows exceed a monthly average of 2,000 gpd.
13. Monitoring and Reporting Program No. 88-165 required that the Discharger monitor the effluent for Biochemical Oxygen Demand (BOD), total suspended solids (TSS), and pH. The Discharger has compiled this data for the years 2000-2002, and in addition, collected an effluent grab sample on 10 October 2002. The results are as follows:

<u>Parameter</u>	<u>Units</u>	<u>Results<sup>1</sup></u>	<u>Results<sup>2</sup></u>
Biochemical Oxygen Demand	mg/l	3.1	4
Total Dissolved Solids	mg/l	--	510
Ammonia Nitrogen	mg/l	--	1.4
Total Nitrogen	mg/l	--	6.3
Total Kjeldahl Nitrogen			2.8
Organic Nitrogen	mg/l	--	1.4
Total Suspended Solids	mg/l	10.5	4
Volatile Suspended Solids	mg/l	--	4
pH	pH units	7 to 7.5	--

<sup>1</sup> Average concentrations based on data collected for the years of 2000, 2001, and 2002

<sup>2</sup> Results of 10 October 2002 sampling event

### **Sanitary Sewer Collection System**

14. The Pardee Center wastewater collection system utilizes gravity to direct wastewater to the package treatment plant. There is an estimated 2,150 feet of collection system piping, including 1,500 feet of main line and 650 feet of lateral lines. There are nine manholes and nine cleanouts for access. The main line consists of six inch diameter PVC except for an approximate 92-foot section of ductile iron pipe that begins at manhole #3 and extends down a steep slope towards manhole #2. The Discharger plans to assess the condition of the collection system by video inspection as part of EBMUD's Upcountry Wastewater Collection System Condition Assessment that is scheduled for completion at the end of 2003. The Discharger expects that infiltration and inflow will be substantially reduced as a result of correcting deficiencies found during the assessment. There are no lift stations within the Pardee Center collection system.
15. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines,

etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities.

16. At this site, sanitary sewer overflows consist of domestic sewage. The chief causes of sanitary sewer overflows include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and contractor caused blockages.
17. Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause temporary exceedences of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.
18. The Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system. In October 2002, the Discharger submitted a Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan and an Operation and Maintenance Plan for the Upcountry Wastewater Treatment Systems. This Order requires that the Discharger implement these Plans.

#### **Site Specific Conditions**

19. The average annual precipitation for this area is approximately 21.66 inches, which is based on rainfall data from the Department of Water Resources Camp Pardee weather station (DWR Station #B20 1428 00). The 100 year return rainfall is approximately 41.39 inches.
20. The average annual pan evaporation at the Camp Pardee weather station is approximately 60.76 inches.
21. The facility lies within the Upper Mokelumne Hydrologic Unit Area No. 532.60, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
22. The area surrounding Pardee Center is sparsely populated with rural and recreational uses. The nearby land use is cattle grazing.
23. The RWD states that the soils and geology near the WWTF consist of 1 to 2 feet of organic soil, underlain by clay to a depth of 4 to 5 feet below ground surface (bgs). The top of weathered bedrock is approximately 4 to 5 feet bgs and extends to 8 to 9 feet bgs.
24. No information currently exists regarding the shallow groundwater underlying the evaporation/percolation pond and spray disposal areas. In order to determine compliance with the Groundwater Limitations section of this Order, the Discharger is required to install and sample groundwater monitoring wells. The wells shall be installed in the wastewater percolation/evaporation pond area, and shall be installed in the spray disposal field area only if the Discharger resumes disposal to the spray fields.

### **Groundwater Degradation**

25. State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16 or the “Antidegradation Policy”) requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board’s policies (e.g., quality that exceeds water quality objectives).
26. The Regional Board finds that some degradation of groundwater beneath the wastewater evaporation/percolation pond and the spray field is consistent with Resolution 68-16 provided that:
  - a. The degradation is confined within a specified boundary;
  - b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;
  - c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and
  - d. The degradation does not result in water quality less than that prescribed in the Basin Plan.
27. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon many factors (i.e., background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, and waste constituent treatability).
28. Economic prosperity of local communities and associated industry is of maximum benefit to the people of California, and therefore sufficient reason exists to accommodate growth and groundwater degradation around the wastewater evaporation/percolation pond and spray field, provided that the terms of the Basin Plan are met.

### **Treatment and Control Practices**

29. This WWTF provides treatment and control of the discharge that incorporates:
  - a. Technology for secondary treatment of municipal wastewater;
  - b. Appropriate sludge disposal practices;

- c. A Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan; and
  - d. Certified operators to assure proper operation and maintenance.
30. The WWTF design incorporate some BPTC measures, however it has not been demonstrated that the use of the evaporation/percolation pond for wastewater disposal results in compliance with the Groundwater Limitations of this Order. In order to determine compliance with Resolution No. 68-16, it is appropriate to establish a schedule for installation and sampling of groundwater monitoring wells and formally determine background groundwater concentrations for selected constituents. If groundwater is degraded or there is evidence that the discharge may cause degradation, then the Discharger will be required to evaluate and implement additional BPTC measures for each conveyance, treatment, storage, and disposal component of the system. Completion of these tasks will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved.
31. This Order establishes interim groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16. Based on the results of the scheduled tasks, the Regional Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

### **Basin Plan, Beneficial Uses and Regulatory Considerations**

32. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
33. Surface water drainage from the WWTF is to Mexican Gulch, a surface drainage course that flows to the Mokelumne River upstream of Camanche Reservoir. The beneficial uses of the Mokelumne River upstream of Camanche Reservoir are agricultural supply; water contact and noncontact recreation; warm and cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.
34. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, and industrial service and process supply.
35. The Basin Plan establishes numerical and narrative water quality objectives for surface and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Regional Board's adoption of waste discharge requirements and

enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Regional Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.

36. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
37. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
38. Section 13241 of the Water Code requires the Regional Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. Water Code Section 13263 requires the Regional Board to address the factors in Section 13241 in adopting waste discharge requirements. The State Board, however, has held that a Regional Board need not specifically address the Section 13241 factors when implementing existing water quality objectives in waste discharge requirements because the factors were already considered in adopting water quality objectives. These waste discharge requirements implement adopted water quality objectives. Therefore, no additional analysis of Section 13241 factors is required.
39. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.
40. The Regional Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.
41. The State Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities,

and requiring submittal of a Notice of Intent by all affected industrial dischargers. The wastewater treatment plant facilities are located indoors, and because there will be no storm water discharge from the industrial portion of the facility, the Discharger is not required to obtain coverage under General Permit No. CAS000001.

42. The action to update WDRs for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance Title 14, California Code of Regulations (CCR), Section 15301.
43. Section 13267(b) of the California Water Code provides that: “In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

The technical reports required by this Order and the attached “Monitoring and Reporting Program No. R5-2003-0119” are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the wastes subject to this Order.

44. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC Section 13801, apply to all monitoring wells.
45. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
46. The discharge authorized herein and the treatment and storage facilities associated with the discharge, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), Section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following:
  - a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and



c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

47. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

### **Public Notice**

48. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

49. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

50. In a public meeting, all comments pertaining to the discharge were heard and considered.

**IT IS HEREBY ORDERED** that Order No. 88-165 is rescinded and, pursuant to Sections 13263 and 13267 of the California Water Code, East Bay Municipal Utility District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

*[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]*

#### **A. Discharge Prohibitions:**

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated or partially treated waste is prohibited.
3. Discharge of sewage from a sanitary sewer system at any point upstream of the WWTF is prohibited. Discharge of treated wastewater downstream of the treatment plant, other than at the approved evaporation/percolation pond or spray disposal field, is prohibited.
4. Discharge of effluent to the spray disposal field is prohibited until the Executive Officer approves the report required by Provision No. G.1.e.
5. Discharge of waste classified as 'hazardous', as defined in Sections 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or 'designated' as defined in Section 13173 of the California Water Code, is prohibited.

6. Surfacing of wastewater outside or downgradient of the evaporation/percolation pond is prohibited.
7. The discharge of any wastewater other than that from domestic sources or domestic equivalent is prohibited.

**B. Discharge Specifications:**

1. The monthly average inflow to the WWTP shall not exceed 2,000 gpd.
2. Disposal of effluent shall be confined to the designated evaporation/percolation pond and spray disposal area as defined in this Order.
3. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.
4. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
5. Objectionable odor originating at the facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
6. As a means of discerning compliance with Discharge Specification No.5, the dissolved oxygen content in the upper zone (1 foot) of the evaporation/percolation pond shall not be less than 1.0 mg/l.
7. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.
8. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
9. The wastewater treatment, storage, and disposal system shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
10. The facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary infiltration and inflow during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
11. The freeboard in the evaporation/percolation pond shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.

12. On or about **1 November** each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. 10 and No. 11.
13. The wastewater pond shall be managed to prevent the breeding of mosquitoes. In particular,
  - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the waste surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, and/or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

**C. Effluent Limitations**

1. Effluent discharged to the evaporation/percolation pond shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD <sup>1</sup>	mg/L	20	40
Total Settleable Solids	ml/L	0.5	1.0

<sup>1</sup> BOD denotes 5-day biochemical oxygen demand at 20° C.

2. Effluent discharged to the spray disposal fields shall not exceed a monthly median of 23 and a daily maximum of 240 MPN/100ml for Total Coliform Organisms.
3. Effluent discharged to the evaporation/percolation pond shall not have a pH of less than 6.5 or greater than 8.5.

**D. General Solids Disposal Specifications:**

Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal plant operation.

2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
3. Any storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, WWTPs, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. In most cases, this will mean the General Biosolids Order (State Water Resources Control Board Water Quality Order No. 2000-10-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*). For a biosolids use project to be covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.
6. Use and disposal of biosolids shall comply with the self-implementing federal regulations of Title 40, Code of Federal Regulations (CFR), Part 503, which are subject to enforcement by the U.S. EPA, not the Regional Board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, then the Regional Board may also initiate enforcement where appropriate.

#### **E. Land Disposal Specifications**

1. Public contact with wastewater shall be controlled through use of fences and cautionary signs, and/or other appropriate means.
2. Application of effluent shall comply with the following setback requirements:

<u>Setback Definition</u> <sup>1</sup>	<u>Minimum Irrigation Setback (feet)</u>
Edge of spray disposal area to property boundary	50
Edge of spray disposal area to public road	50
Edge of spray disposal area to irrigation well	100
Edge of spray disposal area to domestic well	100

<u>Setback Definition</u> <sup>1</sup>	<u>Minimum Irrigation Setback (feet)</u>
Edge of spray disposal area to manmade or natural surface water drainage course <sup>2</sup>	50

<sup>1</sup> As defined by the wetted area produced during irrigation.

<sup>2</sup> Excluding ditches used exclusively for tailwater return.

3. Irrigation runoff (i.e., tailwater) shall be completely contained within the designated spray disposal area and shall not enter any surface water drainage course.
4. Irrigation of effluent shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, or when the ground is saturated.
5. The spray disposal area shall be managed to prevent breeding of mosquitoes. In particular:
  - a. There shall be no standing water 48 hours after irrigation;
  - b. Tailwater ditches must be maintained essentially free of emergent, marginal, and floating vegetation, and;
  - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store effluent

**F. Groundwater Limitations:**

1. Release of waste constituents from any wastewater treatment storage and disposal system component associated with the WWTP shall not cause groundwater under and beyond that system component, as determined by an approved well monitoring network, to:
  - a. Contain any of the following constituents in concentration greater than as listed or greater than ambient background quality, whichever is greater:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 ml	Nondetect
Total Dissolved Solids <sup>1</sup>	mg/L	450
Total Nitrogen	mg/L	10
Nitrite (as N)	mg/L	1
Nitrate (as N)	mg/L	10
Ammonia (as N)	mg/L	0.5

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Bromoform	ug/L	4
Bromodichloromethane	ug/L	0.27
Chloroform	ug/L	1.1
Dibromochloromethane	ug/L	0.37

<sup>1</sup> A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

- b. Contain any constituent not identified in Groundwater Limitation F.1.a in concentrations greater than background quality (whether chemical, physical, biological, bacteriological, radiological, or some other property or characteristic).
- c. Exhibit a pH of less than 6.5 or greater than 8.5 pH units.
- d. Impart taste, odor, or color that creates nuisance or impairs any beneficial use.

## G. Provisions

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described by Provision G.3.
  - a. By **1 October 2003**, the Discharger shall submit a Contingency Plan describing the steps it will take if average monthly wastewater flows exceed 2,000 gpd or if the wastewater in the pond encroaches within two feet of freeboard. The plan shall consider any and all steps necessary to prevent wastewater overflows including restricting water usage, hauling wastewater to another facility, and shutting down portions of the facility. This Contingency Plan shall be implemented whenever average monthly flows exceed 2,000 gpd or wastewater levels encroach within the two feet of freeboard in any pond.
  - b. By **1 November 2003**, the Discharger shall submit a workplan for characterization of groundwater quality. The workplan shall describe the installation of sufficient monitoring wells to allow evaluation of the groundwater quality upgradient and down gradient of the effluent evaporation/percolation pond. Every monitoring well shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment C, *“Items to be Included in a Monitoring Well Installation Workplan and a Monitoring Well Installation Report of Results.”*
  - c. By **1 July 2004**, the Discharger shall submit a groundwater well installation report that is consistent with, and includes the items listed in, the second section of Attachment C. The report shall describe the installation and development of the monitoring wells around the evaporation/percolation pond and explain any deviation from the approved workplan.

- d. By **30 August 2005**, the Discharger shall submit a *Background Groundwater Quality Study Report*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with: 1) the calculated background concentration, and 2) the interim numeric limitations set forth in Groundwater Limitation F.1.a. Where background concentrations are statistically greater than the interim limitations specified in Groundwater Limitation F.1.a, the report shall recommend final groundwater limitations for waste constituents listed therein. Subsequent use of a concentration as a final groundwater limitation will be subject to the discretion of the Executive Officer.
  - e. **At least 90 days prior** to using the spray disposal fields, the Discharger shall submit a report describing and certifying that (a) a wastewater disinfection system has been constructed, is capable of meeting effluent limits prescribed by this Order, and is fully operational, and (b) all of the setback requirements prescribed in Land Disposal Specification E.2 have been met. In addition, the Discharger shall submit a groundwater well installation workplan for characterization of groundwater quality at the spray disposal fields. The workplan shall describe the installation of sufficient monitoring wells to allow evaluation of the groundwater quality upgradient and down gradient of the spray disposal areas. Every monitoring well shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment C, "*Items to be Included in a Monitoring Well Installation Workplan and a Monitoring Well Installation Report of Results.*"
  - f. **Within 90 days** of staff's approval of the spray disposal field groundwater quality characterization workplan, the Discharger shall submit a groundwater monitoring well installation report that is consistent with, and includes the items listed in, the second section of Attachment C. The report shall describe the installation and development of the spray disposal field monitoring wells and explain any deviation from the approved workplan.
  - g. **At least 90 days prior** to any biosolids removal and disposal, the Discharger shall submit a *Biosolids Cleanout Plan*. The plan shall include a detailed program and schedule for periodic pond cleanout and disposal of biosolids removed during pond cleanout, including at least the items listed in Attachment D of this Order.
2. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain waste constituents in concentrations statistically greater than background water quality then, within **120 days** of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent

listed in the Groundwater Limitation F.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.

3. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall the professional's signature and/or stamp of the seal.
4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2003-0119, which is part of this Order, and any revisions thereto as ordered by the Executive Officer
5. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.
7. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23 of the California Code of Regulations, Division 3, Chapter 26
8. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.
9. Upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow, the Discharger shall take any necessary remedial action to (a) control or limit the volume of sewage discharged, (b) terminate the sewage discharge as rapidly as possible, and (c) recover as much as possible of the sewage discharged (including wash down water) for proper disposal. The Discharger shall implement all applicable remedial actions including, but not limited to, the following:
  - a. Interception and rerouting of sewage flows around the sewage line failure;
  - b. Vacuum truck recovery of sanitary sewer overflows and wash down water;
  - c. Use of portable aerators where complete recovery of the sanitary sewer overflows are not practicable and where severe oxygen depletion is expected in surface waters; and
  - d. Cleanup of sewage-related debris at the overflow site.



10. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
11. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater includes rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
12. The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board in writing when it returns to compliance with the time schedule.
13. In the event of any change in control or ownership of land or waste discharge facilities escribed herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.
14. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
15. A copy of this Order shall be kept at the operations facility for the wastewater treatment facility (i.e. Pardee Center). Key operating personnel shall be familiar with its contents.
16. The Regional Board will review this Order periodically and may revise requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 July 2003.

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THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0119

FOR

EAST BAY MUNICIPAL UTILITY DISTRICT  
PARDEE CENTER WASTEWATER TREATMENT FACILITY  
CALAVERAS COUNTY

This Monitoring and Reporting Program (MRP) presents requirements for monitoring of the wastewater influent, effluent, evaporation/percolation pond, spray disposal areas groundwater, sludge, and water supply. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. Specific sample station locations shall be approved by Regional Board staff prior to implementation of sampling activities.

All wastewater samples should be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. All samples shall be collected and preserved in accordance with EPA and analytical methodology.

Field testing instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The testing instruments shall be calibrated and serviced in accordance with manufacturer's recommendations; and
3. Field calibration reports are provided with the appropriate monitoring report.

**INFLUENT MONITORING**

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent. Influent monitoring shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow <sup>1</sup>	gpd	Continuous Meter	Daily	Monthly
BOD <sub>5</sub> <sup>2</sup>	mg/L	Grab	Monthly	Monthly

<sup>1</sup> Flow may be monitored from the pump station that conveys effluent into evaporation/percolation pond and/or the spray disposal areas.

<sup>2</sup> 5-day biochemical oxygen demand.

### EFFLUENT MONITORING

Samples of effluent shall be collected from the pump station downstream of the wastewater treatment plant prior to discharge to the evaporation/percolation pond and/or the spray disposal fields. At a minimum, effluent monitoring shall consist of the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Total Coliform Organisms <sup>1</sup>	MPN/100 ml <sup>2</sup>	Grab	Weekly	Monthly
pH	Standard	Grab	Monthly	Monthly
BOD <sub>5</sub>	mg/L	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Sodium	mg/L	Grab	Quarterly	Quarterly
Chloride	mg/L	Grab	Quarterly	Quarterly
Nitrate as Nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly	Quarterly
Standard Minerals <sup>3</sup>	mg/L	Grab	Annually	Annually

<sup>1</sup> Monitoring for Total Coliform Organisms shall occur when discharge to the spray disposal field occurs.

<sup>2</sup> Most probable number per 100 ml.

<sup>3</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

### POND MONITORING

The evaporation/percolation pond shall be monitored as follows. If the pond is empty on the scheduled monitoring date, the Discharger may report the freeboard monitoring result as “dry”.

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Dissolved Oxygen <sup>1</sup>	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Levee condition <sup>2</sup>	--	Observation	Weekly	Monthly

<sup>1</sup> If the pond depth exceeds one foot, samples shall be collected at a depth of one foot from each pond in use, opposite the inlet. Samples shall be collected between 0700 and 0900 hours

<sup>2</sup> Containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing water is found, then a sample shall be collected and tested for total coliform organisms and total dissolved solids.

### SPRAY DISPOSAL AREA MONITORING

Monitoring of the spray disposal area shall be conducted weekly when the disposal area is used, and the results shall be included in the monthly monitoring report. Evidence of erosion, saturation, irrigation runoff, or the presence of nuisance conditions shall be noted in the report. Effluent monitoring results shall be used in calculations to ascertain loading rates at the spray disposal areas. Monitoring of the water reclamation area shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow	Gallons	Continuous	Daily	Monthly
Rainfall	Inches	Observation	Daily	Monthly
Acreage Applied <sup>1</sup>	Acres	Calculated	Daily	Monthly
Water Application Rate <sup>2</sup>	gal/acre/day	Calculated	Daily	Monthly

<sup>1</sup> Land application areas shall be identified.

<sup>2</sup> For each land application area.

At least once per month when the spray disposal areas are being used, the entire sprayfield area shall be inspected on the morning following an irrigation event to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the Waste Discharge Requirements. A daily log of these inspections shall be kept at the facility and made available for review upon request.

### GROUNDWATER MONITORING

Prior to construction and/or sampling of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged at least three well volumes until temperature, pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u> <sup>4</sup>
Depth to Groundwater	0.01 feet	Measurement	Quarterly
Groundwater Elevation <sup>1</sup>	0.01 feet	Calculated	Quarterly
Gradient	feet/feet	Calculated	Quarterly
Gradient Direction	degrees	Calculated	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u> <sup>4</sup>
Nitrate as Nitrogen	mg/L	Grab	Quarterly
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly
pH	pH units	Grab	Quarterly
Trihalomethanes <sup>2</sup>	µg/l	Grab	Quarterly
Boron	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Iron	mg/L	Grab	Quarterly
Manganese	mg/L	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Standard Minerals <sup>3</sup>	mg/L	Grab	Annually

<sup>1</sup> Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

<sup>2</sup> Analysis shall be performed by EPA Method 8020 or equivalent. Samples shall be collected only from spray disposal field wells.

<sup>3</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

<sup>4</sup> Beginning with the second quarter of 2004

### SOLID WASTE AND SLUDGE MONITORING

A log shall be kept of solid waste (grits and screenings) and sludge quantities generated and of handling and disposal activities, and shall be submitted as part of the monthly monitoring reports

### WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following for each water source used during the previous year:

<u>Constituents</u>	<u>Units</u>	<u>Sampling Frequency</u>
Total Dissolved Solids	mg/L	Annually
pH	pH units	Annually
Standard Minerals <sup>1</sup>	mg/L	Annually

<sup>1</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, magnesium, sodium, potassium, chloride, nitrogen, sulfate, total alkalinity (including alkalinity series), and hardness.

## REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional.

### A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board by the **1<sup>st</sup> day of the second month** following the end of the reporting period (i.e. the January monthly report is due by 1 March). At a minimum, the reports shall include:

1. Results of the influent, effluent, pond, solid wastes and sludge, and spray disposal area monitoring;
2. A comparison of the monitoring data to the discharge specifications and an explanation of any violation of those requirements;
3. If requested by staff, copies of laboratory analytical report(s);
4. A calibration log verifying calibration of all monitoring instruments and devices used to fulfill the prescribed monitoring program; and
5. Whether wastewater was discharged to the spray disposal field during that month.

### B. Quarterly Monitoring Reports

Beginning with the second quarter of 2004, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1<sup>st</sup>) and may be combined with the monthly report. The Quarterly Report shall include the following:

1. Results of the quarterly effluent monitoring;
2. Results of groundwater monitoring;
3. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDR, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

4. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
5. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
6. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
7. Summary data tables of historical and current water table elevations and analytical results;
8. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
9. Copies of laboratory analytical report(s) for groundwater monitoring.

### **C. Annual Report**

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular groundwater monitoring report for the last sampling event of the year;
2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. An evaluation of the groundwater quality beneath the wastewater treatment facility and spray disposal area;
4. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
5. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
6. A copy of the certification for each certified wastewater treatment plant operator working at the facility and a statement about whether the Discharger is in compliance with Title 23, CCR, Division 3, Chapter 26.

7. The results from annual monitoring of the groundwater wells and water supply;
8. The results from any sludge monitoring required by the disposal facility;
9. Equipment maintenance and calibration records, as described in Standard Provision No. C.4;
10. A forecast of influent flows, as described in Standard Provision No. E.4; and
11. The results to date of the Upcountry Wastewater Collection System Condition Assessment.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory.

The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: \_\_\_\_\_  
THOMAS R. PINKOS, Executive Officer

\_\_\_\_\_  
11 July 2003  
(Date)



## INFORMATION SHEET

ORDER NO. R5-2003-0119  
EAST BAY MUNICIPAL UTILITY DISTRICT  
PARDEE CENTER WASTEWATER TREATMENT FACILITY  
CALAVERAS COUNTY

### **Facilities and Discharge**

East Bay Municipal Utility District (EBMUD) owns, operates, maintains, and monitors a wastewater treatment facility (WWTF) that includes collection, treatment, storage, and disposal facilities. The WWTF serves the Pardee Center's administrative offices, maintenance buildings, McLean Hall, and a lodge. There are three permanent residences, 47 employees, and up to 29 overnight guests that can be accommodated at Pardee Center. There may be 15 to 20 visitors and/or EBMUD Oakland office employees at Pardee Center on any given day. The number can peak to 150 people for special events. As a result of the fluctuation in day use at Pardee Center, wastewater flows to the WWTF varies daily, as well as throughout the year

The wastewater treatment system consists of a gravity sanitary sewer collection system, an extended aeration activated sludge package plant, a secondary clarifier, a pump station, an evaporation/percolation pond, and spray disposal fields. Wastewater is not currently disinfected. Due to concerns about the potential for pathogens and viruses to flow off the spray disposal field during storm events, the Discharger has proposed to direct all flows to the evaporation/percolation pond for disposal until either a disinfection system is installed at the wastewater treatment plant, or a tailwater return system has been installed at the spray disposal fields. However, the tailwater return system will need to collect all stormwater as well as tailwater, and the water balance shows that the evaporation/percolation pond is not large enough to accommodate this flow. Therefore, the WDRs allow the Discharger to use the sprayfield only if a wastewater disinfection system has been installed. If the Discharger wishes to collect all tailwater and stormwater, then it will need to submit a RWD describing a proposal for a larger pond.

The previous WDRs contained an influent flow limit of 3,000 gallons per day (gpd). However, the revised water balance submitted as part of the RWD shows that the treatment, storage, and disposal system can only accommodate a monthly average flow of 2,000 gpd, and therefore this Order contains a flow limitation of 2,000 gpd. According to information presented in the RWD, average daily flows for the months of January 2000 through September 2002 ranged from approximately 700 to 1,800 gpd with one spike of 2,600 gpd. Wastewater flow rates are not expected to increase in the future as no further development of the area is planned. The Discharger is required to prepare a contingency plan in the event that flows exceed a monthly average of 2,000 gpd.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

Surface water drainage from the WWTF is to Mexican Gulch, a surface drainage course that flows to the Mokelumne River upstream of Camanche Reservoir. The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water

body. For example, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (industrial, agricultural, and domestic supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

### **Antidegradation**

The antidegradation directives of Section 13000 of the California Water Code require that waters of the State that are better in quality than established water quality objectives be maintained “consistent with the maximum benefit to the people of the State.” Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Board Resolution No. 68-16, “Statement of Policy With Respect to Maintaining High Quality Waters in California,” or “Antidegradation” Policy).

Resolution 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degradation to water quality objectives.

In allowing a discharge, the Board must comply with CWC section 13263 in setting appropriate conditions. The Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Certain waste constituents in municipal wastewater are not fully amenable to waste treatment and control and it is reasonable to expect some impact on groundwater. Some degradation for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, water recycling, and waste management advantages of municipal utility service to the state far outweigh the

environmental impact damage of a community that would otherwise be reliant on numerous concentrated individual wastewater systems. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore sufficient reason to accommodate increases in wastewater discharge provided terms of reasonable degradation are defined and met. The proposed Order authorizes some degradation consistent with the maximum benefit to the people of the state.

Groundwater monitoring has never been conducted at the site and therefore staff are unable to establish the most appropriate groundwater limits. In addition, certain aspects of waste treatment and control practices may not be justified as representative of best practicable treatment and control (BPTC). Reasonable time is necessary to gather specific information about the WWTF and the site to make informed, appropriate, long-term decisions. This proposed Order, therefore, establishes interim receiving water limitations to assure protection of the beneficial uses of groundwater of the State pending the completion of certain tasks and provides time schedules to complete specified tasks. The Discharger is expected to identify, implement, and adhere to, BPTC as individual practices are reviewed and upgraded in this process. During this period, degradation may occur from certain constituents, but can never exceed water quality objectives (or background water quality should it exceed objectives) or cause nuisance.

Water quality objectives define the least stringent limits that could apply as water quality limitations for groundwater at this location, except where background quality unaffected by the discharge already exceeds the objective. The values below reflect water quality objectives that must be met to maintain specific beneficial uses of groundwater. Unless natural background for a constituent proves higher, the groundwater quality limit established in proposed Order is the most stringent of the values listed for the listed constituents.

<u>Constituent</u>	<u>Units</u>	<u>Value</u>	<u>Beneficial Use</u>	<u>Criteria or Justification</u>
Ammonia	mg/L	1.5	MUN <sup>1</sup>	Taste and Odor <sup>2</sup>
Boron	mg/l	0.7	AGR <sup>3</sup>	Boron Sensitivity <sup>4</sup>
Chloride	mg/L	106	AGR <sup>3</sup>	Chloride sensitivity on certain crops irrigated via sprinklers <sup>4</sup>
		142	AGR <sup>3</sup>	Chloride sensitivity on certain crops <sup>4</sup>
		250	MUN <sup>1</sup>	Recommended Secondary MCL <sup>5</sup>
		500	MUN <sup>1</sup>	Upper Secondary MCL <sup>5</sup>
Iron	mg/L	0.3	MUN <sup>1</sup>	Secondary MCL <sup>6</sup>
Manganese	mg/L	0.05	MUN <sup>1</sup>	Secondary MCL <sup>6</sup>
Nitrate as N	mg/L	10	MUN <sup>1</sup>	Primary MCL <sup>7</sup>
Nitrite as N	mg/L	1	MUN <sup>1</sup>	Primary MCL <sup>7</sup>
Total Nitrogen	mg/L	10	MUN <sup>1</sup>	Primary MCL <sup>11</sup>
Sodium	mg/L	69	AGR <sup>3</sup>	Sodium sensitivity on certain crops <sup>4</sup>
Total Dissolved Solids	mg/L	450 <sup>8</sup>	AGR <sup>3</sup>	Salt sensitivity for certain crops <sup>4</sup>
		500	MUN <sup>1</sup>	Recommended Secondary MCL <sup>5</sup>
		1,000	MUN <sup>1</sup>	Upper Secondary MCL <sup>5</sup>
Total Coliform Organisms	MPN/100 ml	Less than	MUN <sup>1</sup>	Basin Plan
		2.2		

INFORMATION SHEET  
 ORDER NO. R5-2003-0119  
 EAST BAY MUNICIPAL UTILITY DISTRICT  
 PARDEE CENTER WWTF  
 CALAVERAS COUNTY

<u>Constituent</u>	<u>Units</u>	<u>Value</u>	<u>Beneficial Use</u>	<u>Criteria or Justification</u>
		2.2		
Trihalomethanes	µg/L	100	MUN <sup>1</sup>	MCL <sup>8</sup>
Bromoform	µg/L	4	MUN <sup>1</sup>	USEPA Cancer Potency Factor <sup>9</sup>
Bromodichloromethane	µg/L	2.7	MUN <sup>1</sup>	Cal/EPA Cancer Potency Factor <sup>10</sup>
Chloroform	µg/L	1.1	MUN <sup>1</sup>	Cal/EPA Cancer Potency Factor <sup>10</sup>
Dibromochloromethane	µg/L	0.37	MUN <sup>1</sup>	Cal/EPA Cancer Potency Factor <sup>10</sup>
pH	pH Units	6.5 to 8.5	MUN <sup>1</sup>	Secondary MCL <sup>6</sup>
1	Municipal and domestic supply.			
2	J.E. Amoore and E. Hautala, <i>Odor as an Aid to Chemical Safety : Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution</i> , Journal of Applied Toxicology, Vol. 3, No. 6 (1983).			
3	Agricultural supply.			
4	Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).			
5	Title 22, California Code of Regulations (CCR), section 64449, Table 64449-B.			
6	Title 22, CCR, Section 64449, Table 64449-A.			
7	Title 22, CCR, Section 64431, Table 64431-A.			
8	Title 22, CCR, Section 64439.			
9	USEPA Integrated Risk Information System.			
10	Cal/EPA Toxicity Criteria Database (OEHHA).			
11	Assumes that, over time, all nitrate species will convert to nitrate.			

Municipal wastewater contains numerous dissolved inorganic waste constituents (i.e., salts, minerals) that together comprise total dissolved solids (TDS). Each component constituent is not individually critical to any beneficial use. Critical constituents are individually listed. The cumulative impact from these other constituents, along with the cumulative affect of the constituents that are individually listed can be effectively controlled using TDS as a generic indicator parameter.

Not all TDS constituents pass through the treatment process and soil profile in the same manner or rate. Chloride tends to pass through both rapidly to groundwater. As chloride concentrations in most groundwaters in the region are much lower than in treated municipal wastewater, chloride is a useful indicator parameter for evaluating the extent to which effluent reaches groundwater. Boron is another TDS constituent that may occur in wastewater in concentrations greater than groundwater depending on the source water, to the extent residents use cleaning products containing boron, and whether any industrial dischargers utilize boron (e.g., glass production, cosmetics). Other indicator constituents for monitoring for groundwater degradation due to recharged effluent include total coliform bacteria, ammonia, total nitrogen, and Total Trihalomethanes (TTHMs), a by-product of chlorination. Dissolved iron and manganese are useful indicators to determine whether components of the WWTF with high-strength waste constituents, such as sludge handling facilities, are ineffective in containing waste. Exceptionally high TDS and nitrogen also typifies this type of release.

**Treatment Technology and Control**

Given the character of municipal wastewater, secondary treatment technology is generally sufficient to control degradation of groundwater from decomposable organic constituents. Adding disinfection significantly reduces populations of pathogenic organisms, and reasonable soil infiltration rates and unsaturated soils can reduce them further. Neither organics nor total coliform organisms, the indicator parameter for pathogenic organisms, should be found in groundwater in a well-designed, well-operated facility.

Chlorine disinfection of effluent causes formation of trihalomethanes, which are priority pollutants. Treatment to reduce these in wastewater generally has not been performed, and little is known at this point on the typical impact on groundwater.

Municipal wastewater typically contains nitrogen in concentrations greater than water quality objectives, which vary according to the form of nitrogen. Degradation by nitrogen can be controlled by tertiary treatment for nitrogen reduction, and agronomic reuse on harvested crops. The effectiveness varies, but generally best practicable treatment and control should be able to control nitrogen degradation at a concentration well below the water quality objectives. The proposed interim limitation reflects water quality objectives.

Waste constituents that are forms of salinity pass through the treatment process and soil profile and effective control of long-term effects relies upon effective source control and pretreatment measures. In the best of circumstances, long-term land discharge of treated municipal wastewater will degrade groundwater with salt (as measured by TDS and EC) and the individual components of salts (e.g., sodium, chloride). The proposed Order sets water quality objectives for the interim while site-specific, constituent-specific limits are developed in conjunction with a BPTC evaluation of source control and pretreatment. The next Order will likely contain effluent limits for salt components other than chloride that, if met, assure groundwater quality will be controlled to an acceptable level.

Other constituents in treated municipal waste that may pass through the treatment process and the soil profile include recalcitrant organic compounds (e.g., ethylene glycol, or antifreeze), radionuclides, and pharmaceuticals. Hazardous compounds are not usually associated with domestic wastes and when present are reduced in the discharge to inconsequential concentrations through dilution with domestic waste, treatment, and the implementation of effective pretreatment programs. It is inappropriate to allow degradation of groundwater with such constituents, so proposed limitations are nondetect.

A discharge of wastewater that overloads soils with nutrients and organics can result in anaerobic conditions in the soil profile, which in turn creates organic acids and decreases soil pH. Under conditions of low soil pH (i.e., below 5), iron and manganese compounds in the soil can solubilize and leach into groundwater. Discharge of residual sludge to land may also lead to increases in groundwater alkalinity and hardness to concentrations that impair the water's beneficial uses and contribute to an overall increase in TDS. Overloading is preventable. Though iron and manganese limits are set at the water quality objective, groundwater pH is expected to remain the same as background.

## **Title 27**

Title 27, CCR, section 20380 et seq. (“Title 27”), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27, except for residual sludge and solid waste generated as part of the treatment process [section 20090(a) of Title 27]. The condition requires that the discharge not result in violation of any water quality objective in groundwater.

Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), under the condition that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan. This means, among other things, degradation of groundwater must be consistent with Resolution 68-16 and in no case greater than water quality objectives. The conditions for sludge, solid waste, and biosolids management proposed in this Order are intended to assure this and must all be evaluated along with other aspects of BPTC.

## **Proposed Order Terms and Conditions**

### **Discharge Prohibitions and Specifications**

The proposed Order establishes an average monthly flow limit of 2,000 gpd. The proposed discharge specifications for BOD<sub>5</sub> and TSS are based on the treatment technologies employed. The proposed Order requires the Discharger to disinfect the effluent if the Discharger elects to dispose of wastewater to the spray disposal field. The discharge specifications regarding dissolved oxygen and freeboard are consistent with Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

In order to protect public health and safety, the proposed Order requires the Discharger to comply with applicable provisions of Title 22 and to implement best management practices with respect to effluent

disposal (e.g., to dispose of effluent at reasonable rates considering the crop, soil, climate, and irrigation management plan.).

### **Monitoring Requirements**

Section 13267 of the CWC authorizes the Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment civil administrative liability where appropriate.

The proposed Order includes monitoring requirements for influent, effluent, evaporation/percolation pond, spray irrigation areas, groundwater, sludge, and water supply.

The Title 27 zero leakage protection strategy relies heavily on extensive groundwater monitoring to increase a discharger's awareness of, and accountability for, compliance with the prescriptive and performance standards. With a high volume, concentrated, uncontained discharge to land, monitoring takes on even greater importance. The proposed Order includes monitoring of applied waste quality, application rates, and groundwater.

Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been in effect and successfully implemented for many years. No regulation currently specifies similar criteria more suitable for a situation where extensive infiltration into groundwater occurs. However, where, as here, such infiltration occurs, it is appropriate that the Title 27 groundwater monitoring procedures be extended and applied on a case-by-case basis under Water Code section 13267.

The Discharger must monitor groundwater for constituents present in the discharge and capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate.

### **Reopener**

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final effluent and groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by schedules set forth in the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and

INFORMATION SHEET  
ORDER NO. R5-2003-0119  
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regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

JSK: 11-Jul-03