

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-01-270

WASTE DISCHARGE REQUIREMENTS
FOR
EAST BAY MUNICIPAL UTILITY DISTRICT
PARDEE RESERVOIR RECREATION AREA
AMADOR 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 10 July 2001, for the Pardee Reservoir Recreation Area wastewater treatment facility. Supplemental information was received on 19 September 2001.
2. The wastewater treatment facility (WWTF) is owned and operated by the Discharger, and is at the north end of the Pardee Reservoir approximately four miles east of the town of Valley Springs, in Section 15, T5N, R10E, MDB&M, as shown on Attachment A, which is attached hereto and made part of the Order by reference.
3. The WWTF treats domestic wastewater generated from EBMUD's Pardee Recreation Area, which serves maintenance crews, a number of semi-permanent residential units, 100 campsites, and 12 recreational vehicle (RV) connections. The recreation area is closed during months of November, December and January, with the exception of a caretaker and maintenance crews. The average peak flow for the treatment system is approximately 38,100 gallons per day (gpd), which occurs during the summer and holidays.
4. Regional Board staff inspected the wastewater treatment facility 20 October 1999 and found that seepage and surfacing of wastewater was occurring downgradient of the lagoons. The Discharger subsequently received a Notice of Violation requiring the submittal of a workplan to address the violations. The system also had capacity problems, as wastewater overflowed to surface water from approximately 17 February through 4 March 2000.
5. Waste Discharge Requirements (WDRs) Order No. 5-00-092, adopted by the Board on 28 April 2000, required the Discharger to evaluate its system and make the physical improvements necessary to comply with its WDRs. The Discharger has since constructed lined lagoons, and now plans to dispose of wastewater to a spray field. WDRs Order No. 5-00-092 needs to be updated to allow the Discharger to operate the spray field.

Wastewater Treatment System

6. The current wastewater treatment system consists of a sanitary sewer collection system and two lined aeration lagoons. Each lagoon is lined with 4 to 8 inches of reinforced concrete. The combined capacity of both ponds is approximately 4.5 million gallons. The wastewater treatment and storage lagoons are operated in series; wastewater is discharged into aerated Lagoon #1 (East Lagoon) and flows then through a set weir into Lagoon #2 (West Lagoon).

7. Three lysimeters have been installed around the perimeter of the lagoons, at depths ranging from five to 15 feet below ground surface, to provide early detection of any potential leakage through the concrete liner system.
8. With the exception of wastewater generated at the Pardee Recreation Area Marina, wastewater is gravity fed through the collection system to the treatment lagoons. Wastewater generated at the marina is pumped to the treatment lagoons via a lift station located in the marina parking lot.
9. The lift station is not equipped with adequate safeguards to prevent potential spills from entering Pardee Reservoir, which is a drinking water supply. The lift station is located approximately 20 feet from the Reservoir.
10. As described in the RWD and recent monthly monitoring reports, wastewater is characterized as follows:

<u>Constituent</u>	<u>Results</u>
Dissolved Oxygen	4.6 to 10.5 mg/l
BODs	3.0 to 21 mg/l
Total Suspended Solids	<6.0 to 59 mg/l
Phenol	<0.2 mg/l
Ammonia	<0.3 to 14.8 mg/l
Nitrate-N	0.67 mg/l
Total Coliform Organisms	23 to > 30,000 MPN/100ml
Formaldehyde	<10 to 56 ug/l
Zinc	11.1 to 36.8 ug/l

Sanitary Sewer System

11. In November 2000, the Discharger completed repairs to the sanitary sewer collection system to reduce infiltration and inflow (I & I). Repairs made to the collection system included grouting sewer joints and/or slip lining all or parts of the 4,300 feet of eight inch vitrified clay piping. The Discharger anticipates that improvements made to the collection system will reduce the I & I by approximately 50 to 75 percent.
12. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs this raw sewage to the WWTP. 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 WWTP. 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.
13. Sanitary sewer overflows consist of varying mixtures of domestic sewage, industrial wastewater, and commercial wastewater; this mixture depends on the pattern of land use in the sewage collection system tributary to the overflow. 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.

14. 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.
15. The Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system. This Order requires the Discharger to prepare and implement a Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan.

Future Wastewater Disposal System

16. The lagoons were lined in late 2000, and are now filling with wastewater. The RWD states that the wastewater system has enough storage capacity to provide about two years of storage without the need for disposal.
17. The Discharger proposes to construct and utilize a six acre spray irrigation disposal field located west of the wastewater treatment lagoons as shown in Attachment B, which is attached hereto and made part of this Order by reference. When the lagoons are filled and disposal is necessary, effluent will be pumped from Lagoon #2 (West Lagoon), disinfected, and applied to the irrigation field. The Discharger plans on utilizing and operating the spray irrigation field between April and October of each year. A tailwater return system will be installed at the base of the spray field to collect any potential runoff that may occur. The system will utilize the existing surface water diversion structure along the north side of Lagoon #2 (West Lagoon). Any wastewater runoff entering the tailwater return system will be captured in a sump and pumped back to the treatment ponds. During wet weather months, storm water entering the return ditch will be discharged to the surface drainage course north of Lagoon # 2 (West Lagoon).
18. Prior to beginning disposal of wastewater on the spray field, the Discharger will construct and operate an effluent disinfection system. The disinfection system consists of a 15 cubic yard chlorine contact chamber, which will provide a contact time sufficient to meet this Order's criteria for removal of coliform bacteria.
19. In September 2001, the Discharger installed an Ultrasonic level meter and readout for a wet well located within the gravity line into the pond. The purpose was to allow for the collection of influent flow data; however, the Discharger has verbally told staff that the wastewater flume is not sized correctly, and that flow readings may not be accurate based on pond volumes measured by the staff gauge. This Order requires the installation of a flow meter capable of accurately measuring and recording influent flows.

20. The previous WDRs contained an influent flow limit of 38,000 gpd. However, the water balance submitted with the RWD shows that the treatment, storage, and disposal system can only accommodate a monthly average dry weather flow of 11,500 gpd, and therefore this Order contains a monthly average dry weather flow limitation of 11,500 gpd. Monitoring reports submitted by the Discharger for the first half of 2001 shows that maximum flows were approximately 7,000 gpd.

Site Specific Conditions

21. The average annual precipitation for this area is approximately 21.64 inches, which is based on rainfall data from the Department of Water Resources (DWR) Camp Pardee Weather Station (DWR Station #B20 1428 00).
22. All portions of the WWTF are outside the 100-year flood zone.
23. The facility lies within the Middle Sierra Hydrologic Unit Area No. 532.40, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

Groundwater Degradation

24. State Water Resources Control Board (SWRCB) Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation Policy") requires the 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 Board's policies (e.g., quality that exceeds water quality objectives).
25. The Board finds that some degradation of groundwater beneath the wastewater treatment lagoons (excluding the effluent disposal areas) is consistent with Resolution 68-16 provided that:
 - a. The degradation is confined to a specified area;
 - 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.
26. 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).

27. 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 lagoons, provided that the terms of the Basin Plan are met.
28. These WDRs do not allow degradation of groundwater beneath the land application areas. The Discharger is required to monitor the groundwater under the land application areas and if the monitoring data indicate that the discharge of waste to the land application areas is causing groundwater to contain waste constituents in concentrations statistically greater than background water quality, then the Discharger may be required to submit a report to indicate how such degradation will comply with Resolution 68-16. Upon review of such report, the Board may revise this Order, including the groundwater limitations.

Treatment and Control Practices

29. This WWTF provides treatment and control of the discharge that incorporates:
 - a. Technology for secondary treatment of domestic wastewater;
 - b. A lined, aerated treatment lagoon;
 - c. A lined storage lagoon;
 - d. Land application of wastewater at agronomic rates;
 - e. Proper operation and maintenance as described in a manual; and
 - f. Staffing to assure proper operation and maintenance.
30. The Discharger has recently made improvements to its collection and treatment system. Repairs made to the collection system included grouting sewer joints and/or slip lining all or parts of the 4,300 feet of eight inch vitrified clay piping. The aerated lagoons have been lined with 4 to 8 inches of concrete. Three lysimeters have been installed adjacent to the aerated lagoons. The Discharger plans to utilize a spray irrigation field to dispose of the effluent. This Order requires wastewater application to land at agronomic rates.
31. This Order establishes 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 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 Water Resources Control Board. These requirements implement the Basin Plan.
33. Surface water drainage from the WWTF is to Carson Creek, a tributary to Jackson Creek; Jackson Creek is a tributary Dry Creek, thence to the Cosumnes River. The beneficial uses of the Cosumnes River are domestic and municipal supply; irrigation and stock watering; contact and non-contact recreation, warm and cold water habitat; warm and cold water migration; warm and cold water spawning; and wildlife habitat.
34. The beneficial uses of underlying groundwaters are municipal, industrial, and agricultural 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 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 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 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 and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in plants or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that 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 Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the 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 Water Resources Control 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. Storm water runoff from the land around the wastewater treatment and storage lagoons is diverted into a storm water ditch and discharged into a nearby surface water drainage. Because there is 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. In May of 2000 and May of 2001, the EBMUD completed Notices of Exemption for the lagoon construction and sprayfield system. The Discharger has determined that the facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with Title 14, California Code of Regulations (CCR), Section 15301, due to construction of new small facilities, and repair/maintenance of existing facilities.
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."
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 Discharger 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 wastewater treatment facility is exempt from Title 27, the data analysis methods of Title 27 are 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 20380 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. The Board considered all the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, in establishing the following conditions of discharge.
49. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
50. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. 5-00-092 is rescinded and the 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 thereunder, 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. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
3. Bypass or overflow of untreated or partially treated waste is prohibited.
4. Discharge of sewage from a sanitary sewer system at any point upstream of the WWTF is prohibited.
5. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 2 or 'designated', as defined in Section 13173 of California Water Code is prohibited.
6. The discharge of effluent from the wastewater lagoons other than to the designated disposal area identified in Finding No. 17 is prohibited.
7. Use of the land application area as grazing pasture is prohibited.
8. Discharge to the spray irrigation disposal field is prohibited until the Executive Officer approves the reports required by Provision No. G.1.c.

B. Discharge Specifications:

1. The monthly average dry weather inflow for the months of May through September shall not exceed 11,500 gallons per day (gpd).
2. 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.
3. Objectionable odor originating at the facility shall not be perceivable beyond the limits of the property owned by the Discharger.
4. As a means of discerning compliance with Discharge Specification No.3, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/l.
5. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.
6. All treatment, storage, and land application areas shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

7. The facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary I & I 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.
8. The freeboard in both lagoons shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.
9. On or about **15 October** each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. 7 and No. 8.
10. Wastewater lagoons 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. Treated effluent discharged from the storage lagoon to the land application area shall not exceed the following limits.

<u>Constituent</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Daily Maximum</u>
BOD ¹	mg/L	40	80
Total Settleable Solids	ml/L	0.2	0.5
Total Coliform Organisms	MPN/100ml	23	240

¹BOD denotes 5-day biochemical oxygen demand at 20°C.

2. Effluent discharged to the spray irrigation field shall not have a pH of less than 6.5 or greater than 9.0.

D. General Solids Disposal Specifications:

Sludge 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 facility. Biosolids refers to sludge that has undergone sufficient treatment and

testing to qualify for reuse pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation.

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 shall be confined to the treatment facility 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 facility 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 operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
5. Use and disposal of biosolids should comply with the self-implementing federal regulations of 40 CFR 503, which are subject to enforcement by the U.S. EPA, not the Board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, then the Board may also initiate enforcement where appropriate.

E. Land Application Area Specifications:

1. Wastewater shall only be applied to the land application area from April through October each year.
2. Public contact with wastewater shall be controlled through use of fences and cautionary signs, and/or other appropriate means. Perimeter warning signs indicating that recycled water is in use shall be posted at least every 500 feet along the property boundary and at each access road entrance to the properties.
3. Wastewater controllers, valves, and similar appurtenances shall be affixed with water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering. Quick couplers and sprinkler heads, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibbs that the public could use shall be eliminated.
4. Any connection between the wastewater conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source shall be equipped with an appropriate backflow prevention device.

5. Direct or windblown spray shall be confined to the designated land application area and shall be prevented from contacting outdoor eating areas, drinking water facilities, homes, or surface watercourses.
6. Spray irrigation with wastewater is prohibited when wind velocities exceed 30 mph.
7. Irrigation with wastewater shall not be performed within 24 hours before, during, or within 24 hours after any precipitation event, nor shall it be performed when the ground is saturated.
8. A 100 foot buffer zone shall be maintained between any watercourse and the wetted area produced during spray disposal of effluent.
9. A 100 foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during spray disposal of effluent.
10. A 50 foot buffer zone shall be maintained between effluent disposal areas and all property boundaries.
11. Application rates for wastewater shall not exceed agronomic rates considering the crop, soil, climate, and irrigation management system.
12. The land application area shall be managed to prevent breeding of mosquitoes. In particular:
 - a. There shall be no standing water on the irrigation parcel areas 24 hours after effluent application to a parcel ceases;
 - b. 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 or storage system component (i.e., lagoons) associated with the WWTF 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 background quality, whichever is greater:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.6
Chloride	mg/L	142
Iron	mg/L	0.3

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 ml	Nondetect
Total Dissolved Solids ¹	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
Bromoform	µg/L	4
Bromodichloromethane	µg/L	0.27
Chloroform	µg/L	1.1
Dibromochloromethane	µg/L	0.37

¹ 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.
2. For the land disposal areas:
- a. Release of waste constituents from any land disposal area associated with the WWTF shall not cause groundwater under and beyond the land disposal area to contain waste constituents in concentration statistically greater than background water quality.
 - b. If groundwater monitoring shows that waste constituents are present in concentrations greater than background, then upon request of the Executive Officer, the Discharger shall complete the report described in Provision G.3.

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.4.
 - a. By **1 February 2002**, the Discharger shall submit a report describing (a) how it has installed and calibrated an accurate influent flow meter, (b) the safeguards and alarms implemented to the existing marina lift station to protect and divert spills or overflows from

entering Pardee Reservoir, and (c) the details and time table for the implementation of planned improvements for the marina lift station.

- b. By 1 February 2002, the Discharger shall submit a *Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan* (SSS Plan) that describes the actions designed to prevent, or minimize the potential for sanitary sewer overflows. The Discharger shall maintain the SSS Plan in an up-to-date condition and shall amend the SSS Plan whenever there is a change (e.g. in the design, construction, operation, or maintenance of the sanitary sewer system or sewer facilities) that materially affects the potential for sanitary sewer overflows, or whenever there is a sanitary sewer overflow. The Discharger shall ensure that the up-to-date SSS Plan is readily available to sewer system personnel at all times and that sewer system personnel are familiar with it.
 - i. At a minimum, the Operation and Maintenance portion of the plan shall contain or describe the following:
 1. Detailed maps of the sanitary sewer system, identifying sewer mains, manholes, and lift stations;
 2. A detailed listing of elements to be inspected, a description of inspection procedures and inspection frequency, and sample inspection forms;
 3. A schedule for routine inspection and testing of all pipelines, lift stations, valves, and other key system components. The inspection/testing program shall be designed to reveal problems that might lead to accidental spills and ensure that preventive maintenance is completed;
 4. Provisions for repair or replacement of old, worn out, or defective equipment;
 5. Provisions to minimize the need for manual operation of critical systems and provide spill alarms or other "fail safe" mechanisms;
 6. The ability to properly manage, operate and maintain, at all times, all parts of the collection system that the Discharger owns or over which the Discharger has operational control;
 7. The ability to provide adequate capacity to convey base flows and peak flows for all parts of the collection system the Discharger owns or over which the Discharger has operational control; and
 8. How the Discharger will take all feasible steps to stop and mitigate the impact of sanitary sewer overflows in portions of the collection system the Discharger owns or over which the Discharger has operational control.

- ii. At a minimum, the Overflow Prevention and Response portion of the Plan shall contain or describe the following:
 1. Identification of areas of the collection system that historically have overflowed and an evaluation of the cause of the overflow;
 2. Maintenance activities that can be implemented to address the cause of the overflow and means to prevent future overflows. Maintenance activities may include pretreatment of wastewater from industrial dischargers who discharge high concentrations of oil and grease in their wastewater;
 3. Procedures for responding to sanitary sewer overflows designed to minimize the volume of sewer overflow that enters surface waters, and minimize the adverse effects of sewer overflows on water quality and beneficial uses;
 4. Steps to be taken when an overflow or spill occurs, and procedures that will be implemented to ensure that all overflows and spills are properly identified, responded to and reported; and
 5. A public notification plan, in which any posting of areas contaminated with sewage is performed at the direction of the Amador County Health Department. All parties with a reasonable potential for exposure to an overflow event shall be notified.
- c. By **1 May 2002**, the Discharger shall submit a report describing and certifying that (a) the wastewater disinfection system has been constructed, is capable of meeting effluent limits, and is fully operational, and (b) that the spray irrigation disposal field has been constructed to meet all aspects of this Order. The first section of the report shall provide a detailed description of the wastewater disinfection system, while the second section of the report shall address the total acreage of the constructed sprayfield, the number and location of lines and sprinkler heads, the tailwater collection system, setbacks, location of the sprayfield pump house, and specifications for the sprayfield pumps. In addition, the report shall describe how irrigation flow rates shall be measured.
- d. By **1 June 2002**, the Discharger shall submit an Operation and Maintenance (O&M) Plan for the WWTF and land application area. The O&M Plan shall instruct field personnel on how to manage the day-to-day discharge operations to comply with the terms and conditions of this Order and how to make field adjustments, as necessary, to preclude nuisance conditions (e.g., standing water and objectionable odors from ponded wastewater). The O&M Plan shall include a nuisance condition troubleshooting flowchart and a description of notification requirements. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel. Key personnel shall be familiar with its contents.
- e. By **7 December 2002**, the Discharger shall submit a nitrogen loading report, which describes annual and long term nitrogen loading rates to the land application area,

anticipated nitrogen reduction from plants utilized on the sprayfield, anticipated nitrogen return rates to the soil from unremoved plants, and projected nitrogen accumulation in the soil. In addition, the report shall provide time projections for which plant material should be harvesting and removed from the spray field to ensure nitrogen loading to the sprayfield does not degrade groundwater. The report shall also describe how the spray field will be operated, maintained, and managed to prevent groundwater degradation from nitrogen. The report shall be prepared by a Certified Crop Advisor, Certified Agronomist, or other individual with expertise in soil-pant-water relationships.

- f. By **1 March 2003**, the Discharger shall submit a workplan for characterization of groundwater quality at the disposal field. The workplan shall describe the installation of a sufficient number of monitoring wells to allow an evaluation of the groundwater quality upgradient and downgradient of the application 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.*"
- g. By **30 July 2003**, 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.
- h. By **30 December 2004**, the Discharger shall submit a spray disposal field *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.
- i. By **30 December 2004**, 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.

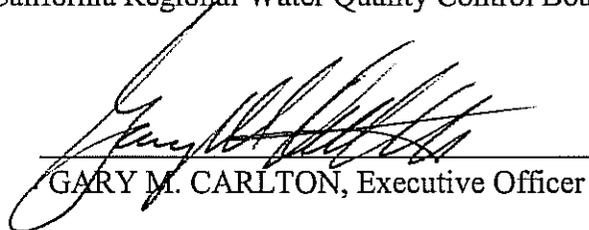
- j. By **30 January 2006**, the Discharger shall submit a *BPTC Evaluation Report and Implementation Workplan*. The report shall include a comprehensive evaluation of the BPTC measures studied, a discussion of BPTC measures proposed for implementation (i.e., recommendations for WWTF modifications), estimated concentration or mass loading reductions for each BPTC measure, specific methods the Discharger proposes to monitor and assure continuous optimal performance of BPTC measures, the source of funding, and proposed schedule for modifications. The schedule for full implementation shall be as short as practicable, and in no case shall it exceed four years past the Executive Officer's approval of the workplan unless specifically approved by the Board. The component evaluation, recommended improvements, and implementation schedule are subject to the Executive Officer's approval.
- k. By **30 January 2008**, the Discharger shall submit a technical report that proposes specific numeric groundwater limitations that reflect full implementation of BPTC measures, and describe how these were determined considering actual data from compliance monitoring wells, impact reductions through full implementation of BPTC, reasonable growth, etc. The Discharger should submit results of a validated groundwater model to support its proposal. In addition, the technical report shall describe the overall status of compliance with implementation of BPTC measures and compliance with all groundwater limitations.
- l. **At least 180 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. Upon completion of tasks set forth in Provision G.1, the Board shall consider the evidence provided and make a determination regarding whether the Discharger has justified BPTC and the appropriate final numeric groundwater limitations that comply with Resolution 68-16.
3. If groundwater monitoring results show that the discharge of waste to the land application areas 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 report showing that degradation of the groundwater complies with SWRCB Resolution No. 68-16, i.e., that it is (a) in the best interest of the people of the state, (b) that best practical treatment and control measures have been implemented to reduce the amount of degradation, (c) that the groundwater degradation will not exceed applicable water quality objectives, and (d) that the degradation is confined to a specified area.
4. 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 work plans for, 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 contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.

5. The Discharger shall comply with the Monitoring and Reporting Program No. 5-01-270, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.
6. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
7. 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.
8. As described in the Standard Provisions, the Discharger shall report promptly to the 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 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 means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

12. The Discharger shall submit to the 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 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. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving the disposal or reclamation areas, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
15. 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.
16. 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.
17. The Board will review this Order periodically and may revise requirements when necessary.

I, GARY M. CARLTON, 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 7 December 2001.


GARY M. CARLTON, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 5-01-270

FOR
EAST BAY MUNICIPAL UTILITY DISTRICT
PARDEE RESERVOIR RECREATION AREA
AMADOR COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring wastewater treatment and storage lagoons, treated effluent, and land application areas. 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. Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities. All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

INFLUENT MONITORING

Influent monitoring shall be performed at the manhole closest to the wastewater treatment and storage lagoons. 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 ¹	gpd	Meter	Continuously	Monthly
20°C BOD	mg/l	Grab	Quarterly	Quarterly

¹ Beginning 1 February 2002

LAGOON MONITORING

Samples shall be collected from an established sampling station located in an area that will provide a sample representative of the water in treatment and storage lagoons. Freeboard will be measured vertically from the surface of the pond water to the lowest elevation of the surrounding berm and shall be measured to the nearest 0.25 feet. Monitoring of each lagoon shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Dissolved Oxygen ¹	mg/l	Grab	Weekly	Monthly
pH	Standard units	Grab	Weekly	Monthly
Freeboard	0.25 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly

¹ 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.

EFFLUENT MONITORING

Effluent samples shall be collected between from April through October, before discharge to the land application areas. Samples shall 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. Effluent monitoring shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency⁴</u>	<u>Reporting Frequency</u>
BOD ¹	mg/l	Grab	Weekly	Monthly
Total Coliform Organisms	MPN ² /100 ml	Grab	Weekly	Monthly
Settleable Solids	ml/l	Grab	Weekly	Monthly
Total Dissolved Solids	mg/l	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/l	Grab	Monthly	Monthly
Total Kjeldahl Nitrogen	mg/l	Grab	Monthly	Monthly
pH	Standard units	Grab	Monthly	Monthly
Formaldehyde	mg/l	Grab	Monthly, May-September	Monthly, May-September
Zinc	mg/l	Grab	Monthly, May-September	Monthly, May-September
Phenol	mg/l	Grab	Monthly, May-September	Monthly, May-September
Standard Minerals ³	mg/l	Grab	Annually	Annually

¹ 5-day Biochemical Oxygen Demand

² Using a minimum of 15 tubes or three dilutions

³ Standard Minerals shall include, at a minimum, the following elements/compounds: Barium, Calcium, Magnesium, Sodium, Potassium, Chloride, Sulfate, Total Alkalinity (including alkalinity series), and Hardness.

⁴ Samples shall be collected between the months of April and October, unless described otherwise

LAND APPLICATION AREA MONITORING

Monitoring of the land application area shall be conducted daily when wastewater is applied (April through October), and the results shall be included in the monthly monitoring report. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. The tailwater collection ditch and valves shall be checked for leaks and overflows. Effluent monitoring

results shall be used in calculations to ascertain loading rates at the application area. Monitoring of the land application fields 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	Measurement	Daily	Monthly
Acreage Applied ¹	Acres	Calculated	Daily	Monthly
Application Rate ²	gal/acre•day	Calculated	Daily	Monthly
BOD Loading	lbs/acre•day	Calculated	Monthly	Monthly
Total Nitrogen ² Loading Rate	lbs/ac/month	Calculated	Monthly	Monthly
Total Dissolved Solids ² Loading Rate	lbs/ac/month	Calculated	Monthly	Monthly

¹ Disposal fields shall be identified

² For each disposal field

LYSIMETER MONITORING

Each lysimeter shall be sampled provided that there is sufficient liquid present to collect a sample. Sample collection and analysis shall follow standard EPA protocol. Presence or non-presence of water in each lysimeter shall be recorded. Sample analysis shall include:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Presence of water in lysimeters	--	Observation	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Nitrate-N	mg/l	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/l	Grab	Quarterly	Quarterly
Standard Minerals ¹	mg/l	Grab	Annually	Annually

¹ Standard Minerals shall include, at a minimum, the following elements/compounds: Barium, Calcium, Magnesium, Sodium, Potassium, Chloride, Nitrate, Sulfate, Total Alkalinity (including alkalinity series), and Hardness.

GROUNDWATER MONITORING

The following shall constitute the groundwater monitoring program to begin the Third Quarter of 2003. Groundwater samples shall be collected from each groundwater monitoring well in accordance with an approved groundwater monitoring workplan. Prior to sampling or purging, equilibrated groundwater elevations shall be measured to the nearest 0.01 feet. The wells shall then be purged of at least three wetted well volumes until pH and electrical conductivity have stabilized. Sample collection and analysis shall follow standard EPA procedures. Each groundwater monitoring well shall be monitored at least for the following:

<u>Constituents</u>	<u>Units</u>	<u>Sample Type</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH ¹	pH units	Grab	Quarterly	Quarterly
Boron	mg/L	Grab	Quarterly	Quarterly
Chloride	mg/L	Grab	Quarterly	Quarterly
Iron	mg/L	Grab	Quarterly	Quarterly
Manganese	mg/L	Grab	Quarterly	Quarterly
Sodium	mg/L	Grab	Quarterly	Quarterly
Total Coliform Organisms	MPN/100 mL	Grab	Quarterly	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl Nitrogen	mg/l	Grab	Quarterly	Quarterly
Total Trihalomethanes	µg/L	Grab	Quarterly	Quarterly
Zinc	mg/L	Grab	Quarterly	Quarterly
Total Phenols	mg/L	Grab	Quarterly	Quarterly
Formaldehyde	mg/L	Grab	Quarterly	Quarterly
Elevation	ρ 0.01 feet	Measured	Quarterly	Quarterly
Depth to Water	ρ 0.01 feet	Measured	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly	Quarterly

¹ Hand held field meter may be used

SLUDGE MONITORING

A composite sample of sludge shall be collected when removed from the lagoons in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the following metals:

Cadmium
 Chromium

Copper
 Lead

Nickel
 Zinc

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

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:

<u>Constituents</u>	<u>Units</u>	<u>Sampling Frequency</u>
Electrical Conductivity ¹	µmhos/cm	Annually
pH	pH units	Annually
Standard Minerals	mg/l	Annually

¹ If the source water is from more than one well, the EC shall be reported as a weighted average and include copies of supporting calculations.

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 MRP shall be reported to the Regional Board.

A. Monthly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in monthly monitoring reports. Monthly reports shall be submitted to the Regional Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. Results of influent, lagoon, effluent, and land application area monitoring;
2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format; and

3. If requested by staff, copies of laboratory analytical report(s).

B. Quarterly Monitoring Reports

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

1. Results of groundwater monitoring;
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for lysimeter and 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 the casing volume; and total volume of water purged;
3. Calculation of groundwater elevations, an assessment of the groundwater flow direction and gradient on the date of measurement, comparison to previous flow direction and gradient data, and discussion of seasonal trends, if any;
4. A narrative discussion of the analytical results for all media and locations monitored, including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. Results of lysimeter monitoring;
6. Summary data tables of historical and current groundwater table elevations and analytical results;
7. Summary data tables of historical and current lysimeter monitoring and analytical results.
8. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements; and
9. Copies of laboratory analytical report(s) for groundwater and lysimeter 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:

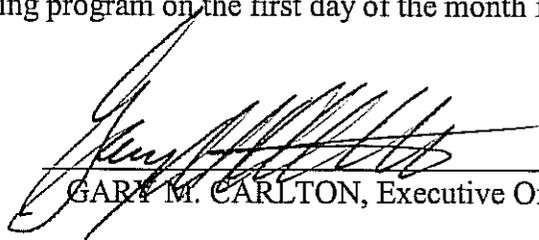
1. The contents of the regular lysimeter and groundwater monitoring report for the last sampling event of the year;

2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. 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;
4. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;
5. 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.
6. Summary of information on the disposal of sludge and/or solid waste;
7. The results from annual monitoring of the water supply; and
8. The results from any sludge monitoring required by the disposal facility.

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.

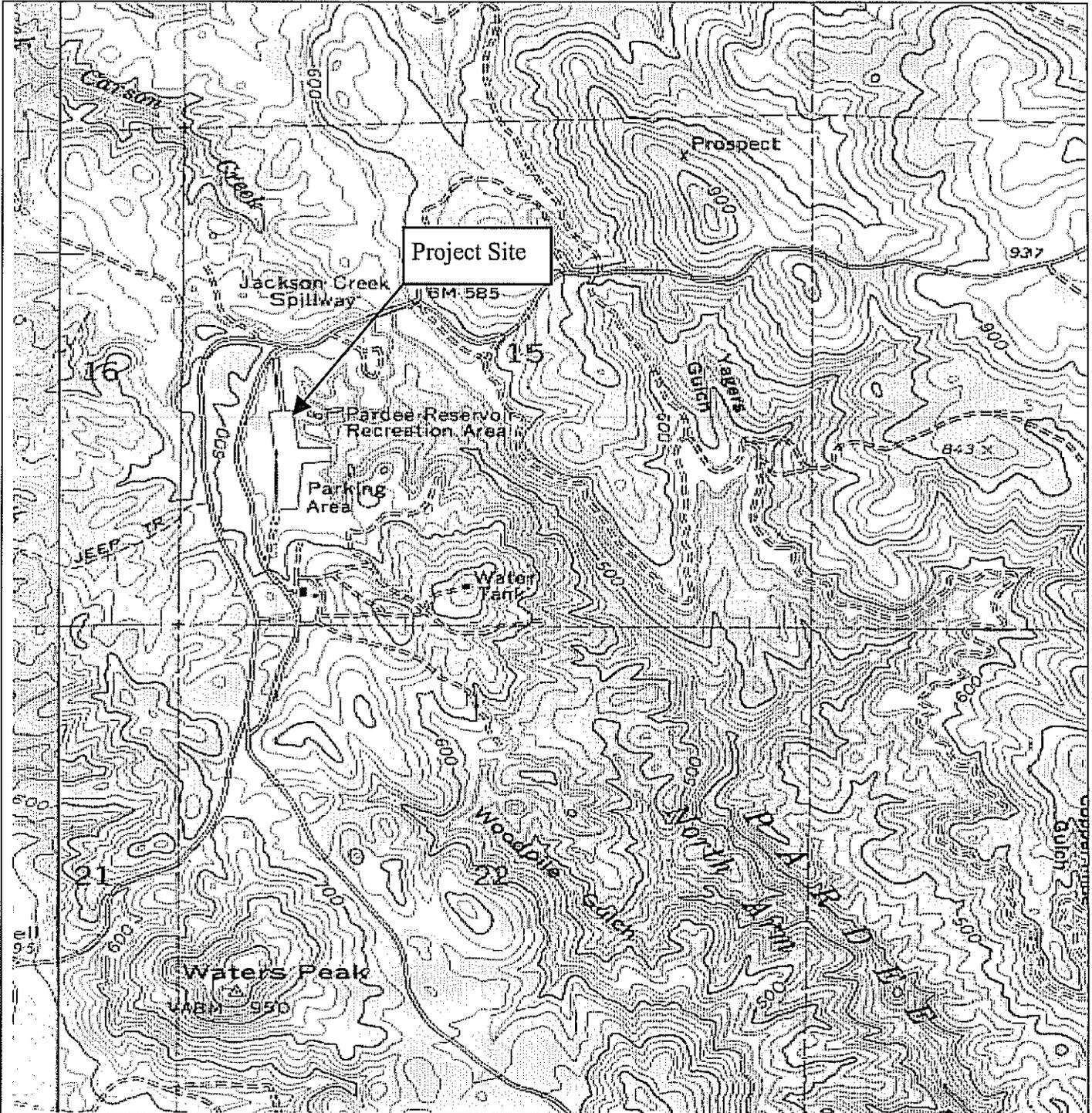
Ordered by:



GARY M. CARLTON, Executive Officer

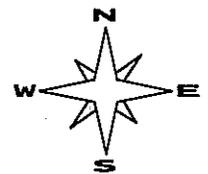
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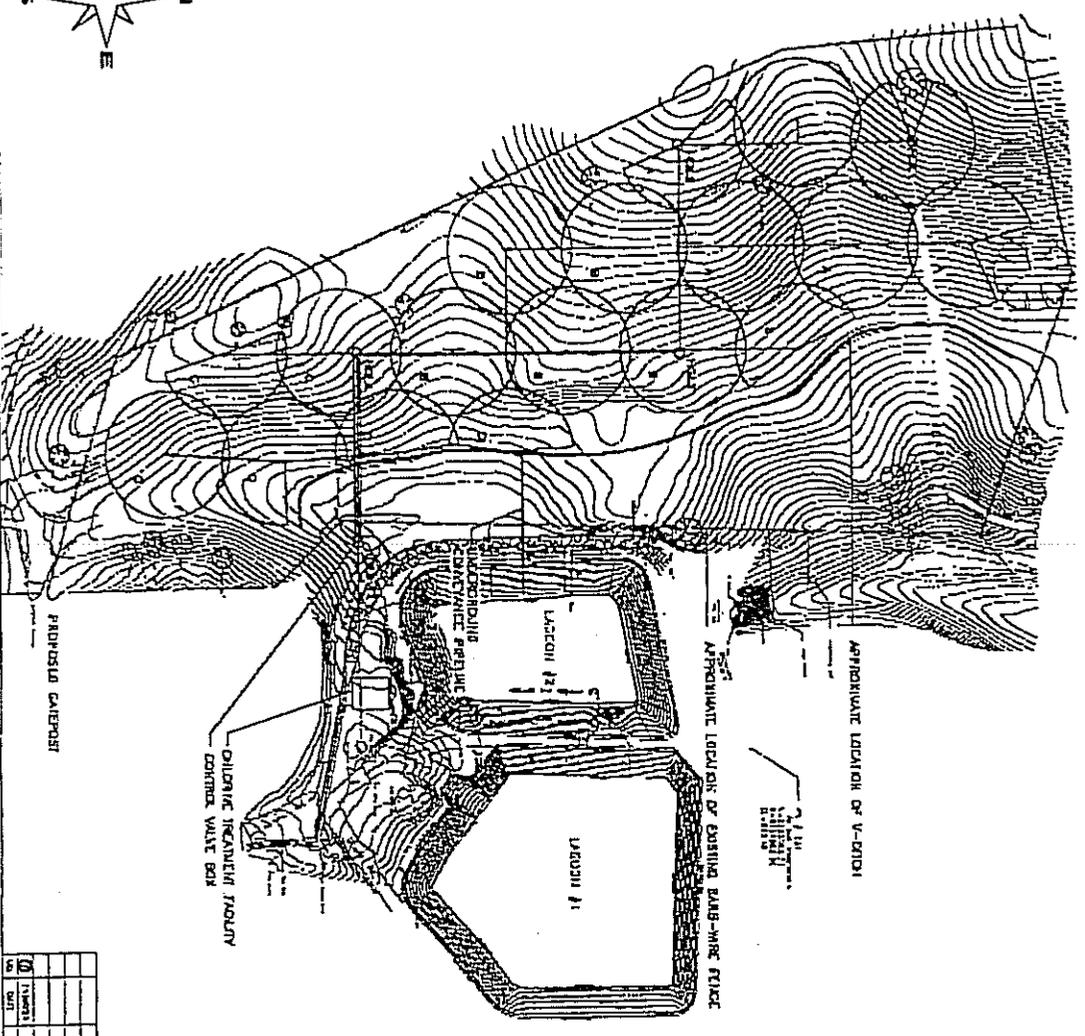


Drawing Reference:
title
U.S.G.S TOPOGRAPHIC MAP
7.5 MINUTE QUADRANGLE
Photo revised 19XX

SITE LOCATION MAP
East Bay Municipal Utility District
Pardee Recreation Area WWTF
AMADOR COUNTY



approx. scale
1 in. = 2,400 ft.



- LEGEND:**
- AREA OF SPRINKLER SPRAY
 - PVC PIPE LINE (BURIED)
 - ELEVATION CONTOUR
 - |-|- NEW FENCING
 - |-|- EXISTING FENCING
 - APPROXIMATE LOCATION OF V-DITCH

- NOTE:**
1. CONTOUR INTERVAL = 1 FOOT
 2. THREE SPRAY FIELD NETWORKS (A, B, & C) CONSISTING OF 8 SPRINKLERS EACH. ONE IRRIGATION SPRAY FIELD WILL BE OPERATED AT A TIME. CONTROL VALVE BOX WILL ISOLATE SPRAY FIELD NETWORKS.
 3. LETTER INSIDE AREA OF SPRINKLER SPRAY DENOTES IN WHICH SPRAY NETWORK THE SPRINKLER OPERATES.

NO.	DESCRIPTION	DATE	BY
01	DESIGN		
02	CONSTRUCTION		

EAST BAY MUNICIPAL UTILITY DISTRICT OFFICE OF THE DISTRICT MANAGER 1000 W. 10TH AVENUE DENVER, CO 80202	
DISINFECTED WASTEWATER IRRIGATION SYSTEM (PARK DESIGN) LANDSCAPE ARCHITECT	
PROJECT NO. 101-30-C-020 SHEET NO. 11 OF 21	DATE PLOTTED: 11/11/01

Drawing Reference:
 East Bay Municipal Utility District
 Disinfection Wastewater Irrigation System
 (90% design)

Approximate Scale
 1 in = 120 feet

SITE PLAN
 EAST BAY MUNICIPAL UTILITY DISTRICT
 PARDEE RECREATION AREA
 AMADOR, COUNTY

ORDER NO. 5-01-270
EAST BAY MUNICIPAL UTILITY DISTRICT
PARDEE RECREATION AREA
AMADOR COUNTY

ATTACHMENT C

ITEMS TO BE INCLUDED IN A
MONITORING WELL INSTALLATION WORKPLAN AND A
MONITORING WELL INSTALLATION REPORT OF RESULTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing the minimum listed information. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. All workplans and reports must be signed by a registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California.

Monitoring Well Installation Workplan

A. General Information:

- Monitoring well locations and rationale
- Survey details
- Equipment decontamination procedures
- Health and safety plan
- Topographic map showing any existing monitoring wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details: describe drilling and logging methods

C. Monitoring Well Design:

- Casing diameter
- Borehole diameter
- Depth of surface seal
- Well construction materials
- Diagram of well construction
- Type of well cap
- Size of perforations and rationale
- Grain size of sand pack and rationale
- Thickness and position of bentonite seal and sand pack
- Depth of well, length and position of perforated interval

D. Well Development:

- Method of development to be used
- Method of determining when development is complete
- Method of development water disposal

- E. Surveying Details: discuss how each well will be surveyed to a common reference point
- F. Soil Sampling (if applicable):
 - Cuttings disposal method
 - Analyses to be run and methods
 - Sample collection and preservation method
 - Intervals at which soil samples are to be collected
 - Number of soil samples to be analyzed and rationale
 - Location of soil samples and rationale
 - QA/QC procedures
- G. Well Sampling:
 - Minimum time after development before sampling (48 hours)
 - Well purging method and amount of purge water
 - Sample collection and preservation method
 - QA/QC procedures
- H. Water Level Measurement:
 - The elevation reference point at each monitoring well shall be within 0.01 foot.
 - Ground surface elevation at each monitoring well shall be within 0.1 foot.
 - Method and time of water level measurement shall be specified.
- I. Proposed time schedule for work.

Monitoring Well Installation Report of Results

- A. Well Construction:
 - Number and depth of wells drilled
 - Date(s) wells drilled
 - Description of drilling and construction
 - Approximate locations relative to facility site(s)
 - A well construction diagram for each well must be included in the report, and should contain the following details:
 - Total depth drilled
 - Depth of open hole (same as total depth drilled if no caving occurs)
 - Footage of hole collapsed
 - Length of slotted casing installed
 - Depth of bottom of casing
 - Depth to top of sand pack
 - Thickness of sand pack
 - Depth to top of bentonite seal
 - Thickness of bentonite seal

Thickness of concrete grout
Boring diameter
Casing diameter
Casing material
Size of perforations
Number of bags of sand
Well elevation at top of casing
Depth to ground water
Date of water level measurement
Monitoring well number
Date drilled
Location

B. Well Development:

Date(s) of development of each well
Method of development
Volume of water purged from well
How well development completion was determined
Method of effluent disposal
Field notes from well development should be included in report.

C. Well Surveying: provide reference elevations for each well and surveyor's notes

D. Water Sampling:

Date(s) of sampling
How well was purged
How many well volumes purged
Levels of temperature, EC, and pH at stabilization
Sample collection, handling, and preservation methods
Sample identification
Analytical methods used
Laboratory analytical data sheets
Water level elevation(s)
Groundwater contour map

E. Soil Sampling (if applicable):

Date(s) of sampling
Sample collection, handling, and preservation method
Sample identification
Analytical methods used
Laboratory analytical data sheets

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ATTACHMENT D

INFORMATION NEEDS FOR SLUDGE MANAGEMENT PLAN

- A. Treatment Pond Cleaning
 - 1. Provide the measurements for the sludge level in each treatment pond.
 - 2. Describe the method for removing the sludge from each treatment pond.
 - 3. Provide a time schedule for the sludge removal from each treatment ponds.
- B. Sludge Production
 - 1. Provide a schematic diagram showing solids flow and sludge handling operations; include, where applicable, supernatant flow and handling operations.
 - 2. Specify annual biosolids production in dry metric tons and how this will be quantified.
 - 3. For sludge handling facilities with sludge drying beds:
 - a. Describe number and size of sludge drying beds.
 - b. Describe sludge drying bed construction (e.g., liner, leachate collection system).
 - c. If sludge drying beds are not lined, thoroughly describe measures taken to ensure that groundwater is not adversely affected by sludge drying operations.
 - d. Indicate the frequency with which sludge is wasted and applied on sludge drying beds.
- C. Biosolids Storage
 - 1. If on-site biosolids storage is used,
 - a. Describe:
 - i. Size of biosolids storage area
 - ii. How frequently it will be used (emergency basis only or routine use)
 - iii. Typical storage duration
 - iv. Leachate controls
 - v. Erosion controls
 - vi. Run-on/runoff controls

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- b. Indicate measures that will be taken to ensure that area groundwater is not adversely affected by the biosolids storage facility.
 - c. For biosolids storage facilities that contain biosolids between 15 October and 15 May, describe how facilities are designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- D. Method of Disposal
 1. Describe and provide the following information related to the method of biosolids disposal. If more than one method is used, include the percentage of annual biosolids production disposed of by each method.
 - a. Landfill Disposal
 - i. Name(s) and location(s) of landfill(s).
 - ii. Name and telephone number of the contact person at the landfill(s).
 2. Incineration
 - a. Name(s) and location(s) of incineration site(s).
 - b. Method of disposal of ash from the incineration site(s).
 - c. Names and locations of facilities receiving ash from the incineration site(s), if applicable.
 - d. Name and telephone number of the contact person at the incineration site(s).
 3. Composting
 - a. Name(s) and location(s) of composting site(s).
 - b. Name and telephone number of the contact person at the composting site(s).
 4. Land Application Off-site
 - a. Ownership of the site(s) where biosolids are applied.
 - b. Name and telephone number of the contact person responsible for application of the biosolids.
- E. Disposal by Land Application On-Site
 1. Provide the information required in the Notice of Intent for the Statewide General Order for the Discharge of Biosolids (Water Quality Order No. 2000-10-DWQ) (or any subsequent document which replaces Order No. 2000-10-DWQ).
- F. Grit and screenings management:

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1. How much (tons or cubic yards) is generated per year.
 2. How it is collected and stored prior to disposal.
 3. What physical features of the plant or handling practices (if any) prevent spillage and potential contact with stormwater runoff or with surface water.
 4. How it will be disposed of. Describe how this disposal method will not adversely affect water quality.
 5. How frequently disposal occurs.
 6. Name any contractors are involved (including transporters and disposal sites).
- G. Sludge Management Funding
1. Submit an evaluation of the financial programs and revenue sources to implement the sludge management program. The evaluation shall determine whether additional revenue sources are required to implement the sludge management program.

INFORMATION SHEET

ORDER NO. 5-01-270
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PARDEE RESERVOIR AND RECREATION AREA
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General Site Information

The East Bay Municipal Utility District (Discharger) owns and operates the Pardee Reservoir Recreation Area wastewater system. The wastewater treatment system is at the north end of the Pardee Reservoir approximately four miles east of the town of Valley Springs.

The wastewater treatment facility (WWTF) treats domestic wastewater from the Pardee Reservoir and Recreation Area. The recreation area is closed during the months of November, December and January, with the exception of a caretaker and maintenance crews. The recreation area contains 100 campsites and 12 Recreational Vehicle connections. The average dry weather flow is approximately 8,700 gallons per day. Peak flows for the treatment system occur during the summer and summer holidays.

The current WWTF design consists of two lined facultative lagoons. With the exception of wastewater generated at the Pardee Recreation Area marina, wastewater is gravity fed from the recreation area to the wastewater treatment lagoons. Wastewater generated at the marina is pumped the lagoons via a lift station located at the marina.

Historical records and inspections by Board staff indicate seepage and wastewater surfacing have been on-going problems for the treatment system. Additionally, information submitted by the Discharger indicates the ponds are undersized and cannot adequately contain peak wet weather flows. To correct the seepage and wastewater surfacing problems, the Discharge lined the treatment and storage lagoons in November 2000. Each lagoon was lined with 4 to 8 inches of reinforced concrete. Three lysimeters have been installed around the perimeter of the ponds, at depths ranging from 5 to 15 feet below ground surface, to provide early detection of any potential leakage through the concrete liner system.

In November 2000, the Discharger completed repairs to the sanitary sewer collection system to reduce infiltration and nflow (I&I). Repairs made to the collection system included grouting sewer joints and/or slip lining all or parts of the 4,300 feet of 8 inch vitrified clay piping. The Discharge anticipates that improvement made to the collection system will reduce the I&I approximately 50 to 75 percent.

Since construction of the lined lagoons, the lagoons have been filling up with wastewater. Once the lagoons are filled, the Discharger proposes to dispose of its wastewater to a six acre spray irrigation disposal field. Prior to disposal, the Discharger will construct and operate an effluent disinfection system

Antidegradation Policy

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 Water 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:

- ξ all waste constituents to be discharged, the background quality of the uppermost layer of the uppermost aquifer
- ξ the background quality of other waters that may be affected
- ξ the underlying hydrogeologic conditions
- ξ waste treatment and control measures
- ξ how treatment and control measures are justified as best practicable treatment and control
- ξ the extent the discharge will impact the quality of each aquifer
- ξ the expected degradation compared 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. The applicable beneficial uses (industrial, agricultural, municipal and domestic supply in this instance), procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity are set forth in the Basin Plan.

This discharge has been occurring for years. Previous WDRs have not addressed the Antidegradation Policy. However, 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 valley 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 data at this site is insufficient to establish the most appropriate receiving water limits. In addition, as explained elsewhere in this information sheet, certain aspects of waste treatment and control practices have not been and are unlikely to be justified as representative of BPTC. Reasonable time is necessary to gather specific information about the facility and the site to make informed, appropriate, long-term decisions. This Order, therefore, establishes interim receiving water limitations to assure protection of the beneficial uses of waters of the State pending the completion of certain tasks and provides time schedules to complete the outlined 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 interim conditions 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 interim groundwater quality limit established in the WDR 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	0.5	MUN ¹	Taste and Odor ²
Boron	mg/L	0.5	AGR ³	Class I irrigation water (Basin Plan)
		0.7	AGR ³	Boron sensitivity on certain crops ⁴
		2	AGR ³	Class II irrigation water (Basin Plan)
Chloride	mg/L	106	AGR ³	Chloride sensitivity on certain crops irrigated via sprinklers ⁴
		142	AGR ³	Chloride sensitivity on certain crops ⁴
		175	AGR ³	Class I irrigation water (Basin Plan)
		250	MUN ¹	Recommended Secondary MCL ⁵
		350	AGR ³	Class II irrigation water (Basin Plan)
		500	MUN ¹	Upper Secondary MCL ⁵
Conductivity (EC)	µmhos/cm	750	AGR ³	Salt sensitivity ⁴
		900	MUN ¹	Recommended Secondary MCL ⁵
		1,000	AGR ³	Class I irrigation water (Basin Plan)
		1,600	MUN ¹	Upper Secondary MCL ⁵
		3,000	AGR ³	Class II irrigation water (Basin Plan)

EAST BAY MUNICIPAL UTILITY DISTRICT
 PARDEE RESERVOIR AND RECREATION AREA
 AMADOR COUNTY

<u>Constituent</u>	<u>Units</u>	<u>Value</u>	<u>Beneficial Use</u>	<u>Criteria or Justification</u>
Iron	mg/L	0.3	MUN ¹	Secondary MCL ⁶
Manganese	mg/L	0.05	MUN ¹	Secondary MCL ⁶
Nitrate as N	mg/L	10	MUN ¹	Primary MCL ⁷
Nitrite as N	mg/L	1	MUN ¹	Primary MCL ⁷
pH	pH Units	6.5 to 8.5	MUN	Secondary MCL ⁸
Sodium	mg/L	69	AGR ³	Sodium sensitivity on certain crops irrigated via sprinklers ⁴
		207	AGR ³	Sodium sensitivity on certain crops ⁴
Total Coliform Organisms	MPN / 100 mL	2.2	MUN ¹	Basin Plan
Total Dissolved Solids	mg/L	450	AGR ³	Salt sensitivity ⁴
		500	MUN ¹	Recommended Secondary MCL ⁵
		700	AGR ³	Class I irrigation water (Basin Plan)
		1,000	MUN ¹	Recommended Upper MCL ⁵
		2,000	AGR ³	Class II irrigation water (Basin Plan)
Total Trihalomethanes	µg/L	100	MUN	MCL ⁹
Chloroform	µg/L	1.1	MUN ¹	Narrative Toxicity Criteria ¹⁰
Bromodichloromethan	µg/L	0.27	MUN ¹	Narrative Toxicity Criteria ¹⁰
Dibromochloromethan	µg/L	0.37	MUN ¹	Narrative Toxicity Criteria ¹⁰
Bromoform	µg/L	4.3	MUN ¹	Narrative Toxicity Criteria ¹⁰

¹ Municipal and domestic supply

² Council of the European Union, On the Quality of Water Intended for Human Consumption, Council Directive 98/83/EC (3 November 1998).

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 United States Environmental Protection Agency

⁹ Title 22, CCR, section 64439

¹⁰ California Environmental Protection Agency, Office of Environmental Health Hazard Assessment Cancer Potency Factor as a Drinking Water Level, *California Environmental Protection Agency Toxicity Criteria Database*

Municipal wastewater contains numerous dissolved inorganic waste constituents (i.e., salts, minerals) that together comprise total dissolved solids (TDS). The concentration of each component constituent of TDS is not necessarily critical to a beneficial use. Specific constituents that are critical 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. Most dissolved inorganic substances in water are in the ionized form and so contribute to a solution's ability to carry an electrical current, or its "electrical conductivity" (EC). EC varies both with the number and type of ions the solution contains and is strongly temperature dependent. It is standard practice to report a solution's EC at 25° Celsius (this value is technically called "specific conductance"). Only ions can carry a current, however. Un-ionized species of weak acids or bases will not carry a current, nor will uncharged soluble organic materials, such as ethyl alcohol and glucose, even though these constituents comprise a portion of TDS. Although EC is affected by the nature of the various ions, their relative concentrations, and ionic strength of the water, EC measurements can provide a quick and inexpensive practical estimate of a solution's dissolved mineral content once the relationship is established for the solution. An empirical factor representing the relationship may be developed from simultaneous sampling and measurements of TDS and EC.

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. Total coliform organisms, the indicator parameter for pathogenic organisms, should not be found in groundwater in a well-designed, well-operated facility. Hence, the interim groundwater limit proposed for this constituent is nondetect, which is less than the water quality objective.

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. The proposed limitation is based on the water quality objective for human consumption.

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 an appropriate secondary treatment system (e.g., oxidation ditch), 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 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 affects 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). 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. This 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 that, if met, assure groundwater quality will be controlled to an acceptable level.

Other indicator constituents for monitoring for groundwater degradation due to recharged effluent include total coliform bacteria, ammonia, total nitrogen, and total trihalomethanes (when the effluent is chlorinated). Total trihalomethanes (TTHMs) are chlorinated organic materials that are toxic at low concentrations. Common TTHMs include bromoform, bromodichloromethane, dibromochloromethane, and chloroform. While the State drinking water regulations (i.e., Title 22, CCR, section 64439) establish a maximum contaminant level for TTHMs of 100 µg/L, the actual concentrations at which TTHMs components are considered "toxic" to humans are much lower (e.g., chloroform's human health toxicity limit is 1.1 µg/L). The Basin Plan states that groundwaters "shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses." As indicated in the above table, groundwater limitations necessary to enforce the Basin Plan's narrative toxicity objective are significantly lower than that necessary to meet the maximum contaminant level for TTHMs in drinking water.

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). As various crops sensitive to boron, however, it has an individual interim limit intended to protect agricultural use.

Still 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 interim 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 and

does not constitute BPTC as used in Resolution 68-16. Dissolved iron and manganese, along with elevated alkalinity, hardness and nitrogen concentrations, are useful indicators to determine whether components of the WWTF with high-strength waste constituents, such as sludge handling facilities, are effectively containing waste. Iron and manganese increases and changes in pH in groundwater are avoidable and limitations should reflect background. However, during this interim investigative period, interim limits are set at the water quality objective for iron, manganese, and pH.

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 WWRP 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 WWRP) 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 the Order are intended to assure this and must all be evaluated along with other aspects of BPTC.

Reopener

The conditions of discharge in this 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 Order contains interim limitations. Additional

information must be developed and documented by the Discharger as required by schedules set forth in the Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible may 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 regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

Several other more likely reasons for reconsidering terms of the Order exist, and the Order may be opened for this purpose at the Board's discretion. For example, Board procedures require periodic review of the effectiveness of requirements at a frequency proportional to the threat the discharge has to water quality with update as appropriate. The Order will definitely be reopened for consideration of BPTC and establishing final numeric groundwater limitations. It is also conceivable that monitoring of compliance may identify a waste constituent, possibly a toxic waste constituent, that violates or threatens to violate groundwater limitations, establishing a need to consider an appropriate numeric effluent limit for that waste constituent.

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