CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0182

WASTE DISCHARGE REQUIREMENTS
FOR
AMADOR WATER AGENCY
GAYLA MANOR WASTEWATER TREATMENT FACILITY
AMADOR COUNTY

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

1. The Amador Water Agency (hereafter Discharger) submitted a Report of Waste Discharge (RWD), dated 26 June 2002 for updating Waste Discharge Requirements (WDRs) for the Gayla Manor wastewater treatment facility. Supplemental information was received on 7 July 2003.

2. For the purposes of this Order, the term "wastewater treatment facility" (WWTF) shall mean the sewage collection and transport system, the wastewater treatment system, the effluent storage reservoir, and the effluent disposal system.

3. WDRs Order No. 89-128, adopted by the Regional Board on 11 August 1989, prescribes requirements for the Discharger's WWTF. This Order is neither adequate nor consistent with the current plans and policies of the Regional Board.

4. The Gayla Manor WWTF is on Assessors Parcel Number 38-620-057 and is owned and operated by the Discharger. The facility is adjacent to the Gayla Manor subdivision and is off of Highway 88 approximately four miles west of the town of Pioneer, in Section 2, T6N, R12E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference.

5. The WWTF serves the rural community of Gayla Manor, which consists of 56 single family residences and six four-plexes (i.e. 24 attached residences). According to the RWD, as of the year 2002, 75 equivalent dwelling units (EDUs) were connected to the WWTF; full build-out of the community is 82 EDUs.

Wastewater Treatment System

6. The WWTF consists of a septic tank at each residential parcel, a gravity and force main sewer collection system, two recirculating fine gravel filters, a recirculating tank, an effluent disinfection system which utilizes liquid chlorine, leachfields, a storage reservoir, and spray disposal areas. Attachment B, which is attached hereto and made part of this Order by reference, depicts the treatment plant, storage reservoir, and disposal areas.

7. According to information presented in the RWD, the WWTF currently treats a monthly average flow of 9,800 gallons per day (gpd), which is based on flow data for the years of 2000 through 2002. Peak influent flows, which occurred in the year 2002, were as high as 15,600 gpd. The treatment plant portion of the WWTF is designed to treat up to 22,000 gpd. Flow measurements

are taken from a flow meter located between the recirculating gravel filters and the disinfection system.

8. Each residential parcel has a 1,200-gallon septic tank and sewer line owned by the parcel owner; from the curb, wastewater is conveyed to the WWTF in an effluent collection system, which is owned by the Discharger.

9. Each septic tank has two chambers. Both chambers capture and store solids while they undergo anaerobic decomposition. The heavier solids settle and form sludge at the bottom. The lighter solids, including fats and greases, rise to the surface and form a scum layer. The scum and sludge undergo decomposition and digestion, which both liquefies some solids (which are then discharged) and also produces carbon dioxide and methane gas, which are volatilized from the tank. Both the liquefaction and gasification processes reduce the solids volume in the tank and therefore reduce the frequency of septic tank cleaning.

10. The septic tanks have two basic functions, waste treatment and solids storage, but it is essential to the long-term function of the WWTF that particulate (i.e., non-liquefied sludge) solids and scum be kept from exiting the tank. For this reason, the exit of the second chamber draws from the tank below the scum and above the sludge, and it is imperative that regular inspections and cleanings assure that neither the sludge layer nor the scum layer increases to the extent that particulates are scoured and discharged from the tanks. As an added safety measure, each tank effluent port is fitted with a 1/8 inch polyethylene screen to capture errant solids.

11. The Discharger inspects the septic tanks periodically (generally annually). If a septic tank requires cleaning, maintenance, or replacement, the Discharger notifies the property owner that the property owner must do the necessary work. However, if the property owner does not complete the work, the Discharger arranges for the work to be done and bills the property owner.

12. Secondary treatment of septic tank effluent is via two recirculating fine gravel filters followed by disinfection. The WWTF has two identical 3,000 square foot recirculating gravel filters. Each filter has three 1,000 square foot cells. The filter media is 2.5 feet deep and consists of 2 to 3 mm rounded gravel. Each filter is lined with 30 mil PVC. If a power failure were to occur, the gravel filters have an underdrain system which can store approximately 31,000 gallons of wastewater.

13. Wastewater is pumped to each filter cell from a 10,000 gallon recirculation tank. The recirculation tank pumps can be set to direct all flow to one or more cells within the filter. Effluent from the filter flows by gravity back to the recirculation tank via a flat valve that diverts filter effluent not needed to keep the recirculation tank full. Diverted effluent flows by gravity to the pump tank which meters effluent through the disinfection system. Under design flows of 22,000 gpd, wastewater should flow through the gravel filter about four times before being diverted for disinfection.

14. Effluent disinfection is achieved by dosing with sodium hypochlorite. The chlorine dosing pump operates when the effluent pump tank operates. Having both pumps operating together allows the chlorine dosing rate to be set at a constant rate which helps ensure the reliability of effluent

quality. The design set point chlorine dose is approximately 10 mg/L, but the actual dosing capacity can be in excess of 20 mg/L, if needed. The 2,000 gallon chlorine contact basin is designed to provide 30 minutes of theoretical contact time at pump tank effluent pumping rates. With typical daily average and peak flows, the actual chlorine contact times are most likely around 140 to 270 minutes.

15. Monitoring results submitted by the Discharger shows that effluent entering the storage reservoir and/or leachfields has the following characteristics. It is noted that the Discharger did not provide the time frame in which the effluent quality data was collected.

Parameter	Units	Observed Range	Average
Biochemical Oxygen Demand	mg/l	2.4 to 11	5.3
Nitrate as nitrogen	mg/l	18 to 32	25.6
Settable Solids	mg/l	<0.1	<0.1
Total Suspended Solids	mg/l	5 to 20	7.4
Total Coliform Organisms	MPN/100ml	<2 to 2	<2
PH	Standard units	5.8 to 7.0	6.4
Dissolved Oxygen	mg/l	3.9 to 10	7.4

16. The Discharger has not been required to monitor the effluent for total dissolved solids (TDS). However, the RWD states the potable water source for the subdivision is the Mokelumne River; the Discharger's annual consumer confidence reports for the drinking water supply show that the TDS of the potable water averaged 36 mg/L between 2001 and 2002. According to literature, the typical TDS increase from domestic water use can range from 150 to 380 mg/L. Therefore, the RWD states that the estimated TDS concentration for the Gayla Manor wastewater is 190 to 420 mg/L. The RWD also states that since the potable water is of such high quality, there should be little use of water softeners and the actual TDS value should be at the middle to lower end of the projected range.

Wastewater Disposal System

17. The effluent disposal system consists of a storage reservoir, two leachfields, and spray disposal areas.

18. The effluent storage reservoir is unlined and has a volume of approximately 11.2 acre feet (AF) at the spillway, and 9.4 AF with two feet of freeboard. The storage reservoir has a staff gauge to facilitate the monitoring of the amount of water in storage. The reservoir was constructed in a small drainage course. There is a stormwater diversion system constructed around the reservoir to prevent surface water runoff from entering the reservoir. However, the RWD states that subsurface stormwater may flow into the reservoir.

19. Disinfected effluent is pumped from the storage reservoir to either the leachfields or sprayfields for disposal. The pump station is equipped with two 62 gallon per minute (89,000 gpd) pumps

that can operate individually or together, and has a flow meter to monitor the flows being discharged to the leachfields and sprayfields.

20. The leachfields were installed in 1990 as part of the initial phase of development for the Gayla Manor subdivision. In 2002, the Discharger rehabilitated the leachfields and began using them again as a means of disposal The leachfields consist of twelve pressure dose leaching trenches, each roughly 100 feet long. The trenches are two feet wide and one foot deep below the bottom of the dosing pipe. The leachfields provide an absorption surface area of roughly 4,800 square feet, and contains risers to monitor the level of wastewater in each trench. The leachfields are primarily used during periods of rain when the spray disposal fields cannot be used.

21. The original design and the as-built diagrams estimate the percolative disposal potential of the leachfields to be approximately 2,800 gpd. However, the water balance supplied with the RWD shows that 12,000 gpd of wastewater will be discharged to the leachfields from April through November of each year. In addition, the Discharger verbally stated that 12,000 gpd will be applied to the leachfields for 40 days per year. It is appropriate to restrict the volume of waste discharged to the leachfields to that for which they were designed.

22. The RWD states that about one-half of the wastewater disposed of in the leachfields percolates via subsurface flow into the effluent storage reservoir.

23. The spray irrigation area is adjacent to, and below, the effluent storage reservoir. The sprayfield is on steeply sloping land which is bisected by a surface water drainage course. The system consists of five separate, valved, irrigation areas spread over 4.75 acres of natural vegetation on shallow soils.

24. The water balance provided in the RWD shows that the spray irrigation system is currently used throughout the wet season; however, the 100 year water balance shows that it won't be used from October through April each year. According to the RWD, percolation from about 40 percent of the spray irrigation area may return to the effluent storage reservoir via subsurface flow. It is unknown whether subsurface flows from the remainder of the sprayfield enter the surface water drainage course.

25. The sprinkler heads at the spray irrigation areas were installed 50 feet from property boundaries and therefore do not meet the setback requirements of this Order. In addition, a 50 foot setback does not exist between the spray irrigation areas and the surface drainage course or from the stormwater diversion courses that run through the facility. To prevent off-property discharges or discharges to surface waters, this Order requires minimum setback distances from spray irrigation areas to property boundaries, as well as to surface water drainages.

26. The Discharger has provided calculations for annual mass loading rates (based on average flows) to the 4.75 acres of sprayfields and leachfields for BOD, nitrogen, and total dissolved solids. The Discharger assumes an average flow of 5 million gallons for 75 EDUs and 5.4 million gallons for 82 EDUs. The results, which are provided in the table below, suggest that the WWTF has sufficient disposal capacity for BOD, but that nitrogen and TDS loading rates may be excessive.

		Mass Loading (lbs/acre/year)		Mass Loading (lbs/acre/day)	
Constituent	Average Concentration	75 EDUs	82 EDUs	75 EDUs	82 EDUs
BOD	5.7 mg/L	50	55	0.20	0.22
Nitrate-nitrogen	25 mg/L	220	240	0.88	0.96
TDS	190-420 mg/L	1,670-3,690	1,800-3,980	6.7-14.8	7.2-15.9

Problems and Concerns

27. As part of the RWD, the Discharger submitted a water balance to show whether the WWTF has sufficient treatment, storage, and disposal capacity to accommodate wastewater flows, seasonal precipitation, and ancillary infiltration and inflow in a 100 year precipitation event. The water balance assumes that the monthly average inflow to the treatment plant will be 10,700 gpd, based on full build-out (82 EDUs) and a flow of 130 gpd per EDU. Although lower than that normally used, the Discharger justifies this value based on potable water use and influent flow measurements.

28. The water balance shows that the WWTF does not have sufficient capacity to accommodate all flows during a 100 year precipitation event. At the current flows from 75 EDUs, the facility requires 10.1 million gallons (mg) of effluent storage, while at full build-out, 10.5 mg of storage is required. The current effluent storage reservoir can only store 3.4 mg of wastewater.

29. The Discharger states that the WWTF has sufficient storage for an average precipitation year. However, the Discharger's assumption that 12,000 gpd of wastewater can be disposed of to the leachfield for eight months each year is in error. The leachfield was only designed for 2,800 gpd, and it is unclear whether the WWTF would still have sufficient capacity under average year conditions if the more appropriate value was used.

30. There is sufficient storage capacity for an average annual precipitation year. However, when the number of EDUs were half the current amount, during the 100 year return frequency storm events of the mid 1990s and subsequent years, there were specific violations of the WDRs, including reservoir freeboard violations and spray irrigation activities during rain events to prevent spills from the reservoir.

31. The Discharger has indicated that several factors have contributed to the lack of storage at the WWTF, including excessive inflow and infiltration (I&I) from rain falling onto the recirculating gravel filter beds and from subsurface flows into the storage reservoir from the leachfields, sprayfields, and area tributary to the reservoir.

32. There has been a history of spills and overflows from the collection system located between the lift station and four-plexes. According to the Discharger, the septic tanks and collection system that serve the multi-family residential units were not properly installed during construction and

seem to be undersized. The owner of the four-plexes is responsible for maintaining the septic tanks, while the Discharger is responsible for operating and maintaining the portion of the collection system after the septic tanks. The Order requires the Discharger to take all necessary steps to prevent spills from the collection system. These steps may include inspecting and requiring pumping of the multi-family septic tanks at more frequent intervals than for the rest of the subdivision.

33. According to the RWD, influent flows above the average 130 gpd per EDU represent the influence of I&I. These higher flows may not be due to the collection system, but to direct precipitation on the recirculation gravel filter beds, as influent flows are measured after treatment through the filter beds. Assumptions made in the water balance indicate that I&I flows into the collection system tend to increase as precipitation increases, with the maximum I&I occurring during the wettest months of the year (December through February). As the seasonal precipitation decreases during the spring, the I&I begins to decrease. The Discharger may elect to evaluate the I/I impacts of the collection system as part of its overall facility evaluation.

34. Information presented in the RWD indicates that the effluent storage reservoir was built within a natural drainage course and constructed into or near the interface of the soil and underlying bedrock. Therefore, the reservoir can intercept subsurface flows originating from an area over six acres in size, including the area upslope and tributary to the reservoir and a portion of the spray disposal fields. The RWD also stated that percolation from about 40 percent of the spray irrigation areas may return to the effluent storage reservoir via subsurface flows.

35. The water balance submitted with the 26 June 2002 RWD did not evaluate contributions of subsurface flows from the area tributary to the effluent storage reservoir in the overall water balance for the system. The RWD did also not assess whether waste from sprayfields downslope of the storage reservoir is being transported and subsequently discharged into the surface water drainage course via subsurface flows. .

36. On 25 June 2003, the Discharger submitted a letter indicating that there was some minor seepage occurring around the downstream dam face of the storage reservoir. The seepage was occurring approximately ¼ of the way down the dam face, and once the pond volume dropped below that point, the seepage ceased. Any dam seepage will enter the surface water drainage course. This issue should be addressed during the facility evaluation required by the Cease and Desist Order.

37. According to the RWD, the Discharger is currently studying various alternatives to correct the lack of storage and disposal capacity during 100 year precipitation events, including: pursuing a wintertime NPDES permit, reducing collection system and septic tank I&I, reducing the amount of subsurface flows entering the effluent storage reservoir, increasing the amount of winter storage capacity of the reservoir, and constructing a new leachfield.

38. The Discharger has indicated that there may be problems with the effluent quality with respect to nitrate and pH. Average nitrate effluent concentrations of 25.5 mg/L are typical for a recirculating gravel filter treatment system. However, the average nitrate effluent concentration is greater than the water quality objective of 10 mg/L, and therefore, there is a potential for the

facility to degrade the underlying groundwater. The pH of the effluent is typically in the low sixes as a result of three factors: the potable water supply is of very high quality and has very little alkalinity; the recirculating filters are very effective at nitrifying the wastewater and the nitrification process uses the limited available alkalinity in the wastewater; and the chlorination process adds acid which causes the effluent pH to decrease. It is reasonable to require the Discharger to complete a one-time groundwater monitoring event to determine whether the discharge of waste at the current facility is in compliance with the Groundwater Limitations of this Order. It is anticipated that groundwater monitoring wells will be required once the Discharger has designed/installed the final facility improvements.

39. Due to the numerous issues at this facility, and the fact that the Discharger will be unable to immediately comply with this Order, on 5 December 2003, the Regional Board adopted Cease and Desist (C&D) Order No. R5-2003-0169 as a companion document to these WDRs. The C&D provides a timeline for the Discharger to complete studies and propose improvements such that the WWTF will comply with the conditions of this Order.

Sanitary Sewer Collection System

40. At the Gayla Manor subdivision, the sanitary sewer collection system consists of a combination of small diameter (two inch) PVC gravity and force main sewers and a pump station. The pump station, which serves 13 lots and six four-plexes, has two pumps, each capable of pumping the design flow (i.e., one pump is an automatically activated redundant unit). The pump station has a high water alarm with auto dialer, a 4,000-gallon overflow tank to receive wastewater during brief power failures, and facilities to allow hookup of a portable generator set in the event of a protracted power failure. The remainder of the collection system gravity flows to the WWTF.

41. A “sanitary sewer overflow” is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities.

42. At this site, sanitary sewer overflows consist of domestic sewage. The chief causes of sanitary sewer overflows could 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.

43. 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.

44. The Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system. As part of the RWD, the Discharger submitted an Operation and Maintenance plan which includes operation and maintenance procedures for the collection system. This Order requires that the Discharger implement this Plan.

Site Specific Conditions

45. The average annual precipitation for this area is approximately 46.6 inches. The 100 year return rainfall is approximately 84.4 inches. Precipitation data is based on data collected from the Tiger Creek Power Station No. 048928.

46. The average annual pan evaporation is approximately 68.04 inches.

47. The facility lies within the Sutter Creek Hydrologic Unit Area No. 532.40, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

48. According to information presented in the RWD, the soils and geology underlying the WWTF are loamy and underlain by bedrock. The depth to bedrock ranges from approximately 3 to 15 feet below ground surface.

49. No information currently exists regarding the shallow groundwater underlying the WWTF. However, according to the RWD, first recoverable groundwater is expected to flow seasonally downgradient on the upper surface of bedrock. In wet winters, the saturated soil depth over the bedrock is expected to be several inches or more throughout the area.

50. The Discharger submitted water quality data for the years of 2000 and 2001 for Gayla Manor's potable water supply, the Mokelumne River. Water quality results are presented below:

Constituent	Units[1]	2000	2001
Aluminum	ppb	84	43
Arsenic	ppb	--	<2
Barium	ppb	--	<100
Nitrate +Nitrite as N	ppb	<50	<50
Sulfate	ppb	1,200	1,200
Iron	ppb	76	76
Manganese	ppb	<30	<20
Silver	ppb	<10	
Zinc	ppb	--	<20
TDS	ppm	28	44
Chloride	ppm	2.2	3.0
Sodium	ppm	3.1	1.37

[1] ppb= parts per billion and ppm= part per million

Groundwater Degradation

51. State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation Policy") requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the State Board and Regional Board policies (e.g., quality that exceeds water quality objectives).

52. The Regional Board finds that some degradation of groundwater beneath the wastewater storage reservoir, leachfields, and spray disposal fields is consistent with Resolution 68-16 provided that:

    a. The degradation is confined within a specified boundary;

    b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;

    c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and

    d. The degradation does not result in water quality less than that prescribed in the Basin Plan.

53. 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).

54. Economic prosperity of local communities and associated industry is of benefit to the people of California, and therefore sufficient reason exists to accommodate growth and some groundwater degradation around the WWTF, provided that the terms of the Basin Plan are met.

Treatment and Control Practices

55. This WWTF provides treatment and control of the discharge that incorporates:

    a. Technology for secondary disinfected treatment of municipal wastewater;

    b. Alarm and automatic flow diversion systems to prevent system bypass or overflow;

    c. An Operation and Maintenance Plan; and

    d. Certified operators to assure proper operation and maintenance.

56. This Order is designed to serve as interim WDRs while the Discharger evaluates its WWTF and designs upgrades such that the final WWTF complies with all aspects of this Order. The current WWTF design incorporates some BPTC measures, however it has not been demonstrated that the use of the storage reservoir and disposal areas results in compliance with the Groundwater Limitations of this Order. In order to determine compliance with Resolution No. 68-16, it is appropriate to require that the Discharger complete a one-time groundwater monitoring event and to use those results in designing the final facility improvements. It is anticipated that the final facility design will incorporate the BPTC measures necessary to comply with the Groundwater Limitations of this Order and with Resolution No. 68-16.

57. This Order establishes interim groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16. .

Basin Plan, Beneficial Uses and Regulatory Considerations

58. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.

59. Surface water drainage from the WWTF is to Grass Valley Creek, a tributary to Sutter Creek, which is in turn tributary to Dry Creek, and then the Sacramento-San Joaquin Delta.

60. The beneficial uses of Sacramento-San Joaquin Delta are municipal and domestic supply; agricultural supply; industrial process and service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration for aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.

61. The beneficial uses of underlying groundwater are municipal and domestic water supply, agricultural supply, and industrial service and process supply.

62. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Regional Board's adoption of waste discharge requirements and enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Regional Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.

63. The Basin Plan water quality objective for chemical constituents requires that, at a minimum, waters designated as domestic or municipal supply. must meet 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 Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaiminant Levels-Rangers) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

64. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants animals, or aquatic life. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

65. 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.

66. 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.

67. The Regional Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.

68. Federal regulations for stormwater discharges promulgated by the EPA (40 CFR Parts 122, 123, and 124) require specific categories of facilities which discharge stormwater to obtain NPDES permits. This facility is within the specific categories described by the US EPA, and it is therefore appropriate to require that the Discharger submit a Notice of Non-Applicability, apply for a No Exposure Certification, or obtain coverage for its processing facility under the State Board's Water Quality Order No. 97-03-DWQ to comply with these regulations.

69. Amador County adopted a Negative Delaration for the Gayla Manor subdivision in November 1988, in accordance with the California Environmental Quality Act (CEQA), (Public Resources Code Section 21000, et seq.), and the State Guidelines.

70. The action to update WDRs for this existing facility is exempt from the provisions of the CEQA, in accordance Title 14, California Code of Regulations (CCR), Section 15301.

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

72. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2003-0182" are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the wastes subject to this Order.

73. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to CWC Section 13801, apply to all monitoring wells.

74. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

75. The discharge authorized herein and the treatment and storage facilities associated with the discharge, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), Section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;

    b. The waste discharge requirements are consistent with water quality objectives; and

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

76. 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

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

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

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

IT IS HEREBY ORDERED that Order No. 89-128 is rescinded and, pursuant to Sections 13263 and 13267 of the California Water Code, Amador Water Agency, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

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

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses (including stormwater diversion features) is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of sewage from a sanitary sewer system at any point upstream of the WWTF is prohibited. Discharge of treated wastewater downstream of the WWTF, other than at the approved leachfields and spray disposal areas, is prohibited.

4. Discharge of waste classified as 'hazardous', as defined in Sections 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or 'designated' as defined in Section 13173 of the California Water Code, is prohibited.

5. Public contact with reclaimed water is prohibited.

6. Surfacing of wastewater outside or downgradient of the effluent storage reservoir is prohibited.

7. Surfacing of wastewater within or downgradient of the leachfields or sprayfields is prohibited.

8. The presence of leachate within one foot of the lowest finished field grade along a leachline is prohibited.

B. Discharge Specifications:

1. The monthly average dry weather inflow to the WWTP shall not exceed 12,000 gpd.

2. The monthly average discharge of treated effluent to the leachfields shall not exceed 2,800 gpd.

3. Disposal of effluent shall be confined to the effluent storage reservoir, leachfields, and spray disposal areas as defined in this Order.

4. 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.

5. Neither the treatment nor the discharge shall cause a condition of pollution or nuisance as defined by the California Water Code, Section 13050.

6. Objectionable odor originating at the facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

7. As a means of discerning compliance with Discharge Specification No. 6, the dissolved oxygen content in the upper zone (one foot) of the effluent storage reservoir shall not be less than 1.0 mg/l.

8. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or acceptable alternatives.

9. The Discharger shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.

10. The wastewater treatment, storage, and disposal system shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

11. The WWTF shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary infiltration and inflow during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

12. The freeboard in the effluent storage reservoir shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.

13. By **1 November** each year, available reservoir storage capacity shall at least equal the volume necessary to comply with Discharge Specifications No. 11 and No. 12.

14. The Discharger shall implement the items described in the its May 2003 draft Operation and Maintenance Plan, or future revisions to that Plan.

15. The effluent storage reservoir shall be managed to prevent the breeding of mosquitoes. In particular,

    a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the waste surface.

    b. Weeds shall be minimized through control of water depth, harvesting, and/or herbicides.

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

C. Effluent Limitations

1. Effluent discharged from the chlorine contact chamber shall not exceed the following limits:

Constituent	Units	Monthly Average	Daily Maximum
BOD [1]	mg/L	20	40
Total Settleable Solids	ml/L	0.5	1.0
Total Coliform Organisms	MPN/100ml	23[2]	240

[1] BOD denotes 5-day biochemical oxygen demand at 20° C.
[2] Measured as a monthly median.

2. Effluent discharged to the effluent storage reservoir and/or leachfield shall not have a pH of less than 6.5 or greater than 8.4.

D. Spray Disposal Area Specifications

1. Public contact with wastewater shall be controlled through use of fences and cautionary signs, and/or other appropriate means.

2. Application of effluent shall comply with the following setback requirements:

Setback Definition[1]	Minimum Irrigation Setback (feet)
Edge of spray disposal area to property boundary	50

Setback Definition[1]	Minimum Irrigation Setback (feet)
Edge of spray disposal area to public road	50
Edge of spray disposal area to irrigation well	100
Edge of spray disposal area to domestic well	100
Edge of spray disposal area to manmade or natural surface water drainage course [2]	50

[1] As defined by the wetted area produced during irrigation.
[2] Excluding ditches used exclusively for tailwater return.

3. Irrigation runoff (i.e., tailwater) shall be completely contained within the designated spray disposal area and shall not enter any surface water drainage course.

4. Irrigation of effluent shall not be performed within 24 hours of a forecasted storm, during a storm, within 24 hours after any measurable precipitation event, or when the ground is saturated.

5. Spray irrigation of effluent is prohibited when wind velocities exceed 30 mph.

6. The spray disposal area shall be managed to prevent breeding of mosquitoes. In particular:

   a. There shall be no standing water 48 hours after irrigation ceases;

   b. Tailwater ditches must be maintained essentially free of emergent, marginal, and floating vegetation, and;

   c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store effluent

E. Leachfield and Septic Tank Specifications

The Discharger shall complete the following actions regarding the septic tanks and leachfield:

1. Inspect each septic tank at least annually.

2. Cut vegetation in the leachfield area as needed to prevent threat of root intrusion into the leachlines and drainage rocks, and remove the vegetative litter.

3. Annually inspect, and if necessary, clean the leachfield's distribution piping.

4. Properly maintain the septic tanks, including requiring a homeowner to pump a tank when any one of the following conditions exist, or can be reasonably projected to occur before the next inspection of a tank:

   a. The combined thickness of sludge and scum exceeds one-third of the tank depth of the first compartment,

b. The scum layer is within three inches of the outlet device; or,

c. The sludge layer is within eight inches of the outlet device.

5. Require septic tanks that are cracked or otherwise damaged be promptly repaired or replaced.

6. Require homeowners to clean septic tank filters on a regular basis.

7. Inform homeowners, through a public education program, about the chemicals and action which have the potential to impair the proper and sustained functioning of the WWTF, including the leachfield. Chemicals of concern include self-regenerating water softeners, acid and organic chemical solvent septic system additives, and kitchen greases and oils. Actions of concern include the excessive use of garbage disposal systems, connecting rainfall drainage controls to the collection system, and draining swimming pools into the collection system.

F. General Solids Disposal Specifications:

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

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

2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

3. Any storage of residual sludge, solid waste, and biosolids at the WWTF shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at disposal sites (i.e., landfills, WWTFs, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. In most cases, this will mean the General

Biosolids Order (State Water Resources Control Board Water Quality Order No. 2000-10-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*). For a biosolids use project to be covered by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

6. Use and disposal of biosolids shall comply with the self-implementing federal regulations of Title 40, Code of Federal Regulations (CFR), Part 503, which are subject to enforcement by the U.S. EPA, not the Regional Board. If during the life of this Order, the State accepts primacy for implementation of 40 CFR 503, then the Regional Board may also initiate enforcement where appropriate.

G. Groundwater Limitations:

1. Release of waste constituents from any wastewater treatment, storage, or disposal system component 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 ambient background quality, whichever is greater:

Constituent	Units	Limitation
Ammonia (as NH_4)	mg/l	1.5
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 mL	<2.2
Total Dissolved Solids [1]	mg/L	450
Total Nitrogen	mg/L	10
Nitrite (as N)	mg/L	1
Nitrate (as N)	mg/L	10
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. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.

c. Impart taste, odor, or color that creates nuisance or could impair any beneficial use.

H. Provisions

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described by Provision H.2.

   a. By **1 March 2004**, the Discharger shall submit either a Notice of Non-Applicability, an application for a No Exposure Certification, or a Notice of Intent to comply with State Board Water Quality Order No. 97-03-DWQ for discharges of stormwater from the facility.

   b. **At least 90 days prior** to any sludge removal or disposal from the treatment facility, the Discharger shall submit a *Sludge Cleanout Plan.* The plan shall include a detailed program and schedule for periodic tank and/or reservoir cleanout and disposal of sludge, provide a description on how sludge will be stored and handled on-site, and provide a description of where the sludge will be disposed of.

2. In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall the professional's signature and/or stamp of the seal.

3. The Discharger shall comply with Monitoring and Reporting Program No. R5-2003-0182, which is part of this Order, and any revisions thereto as ordered by the Executive Officer

4. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

5. 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.

6. The Discharger shall provide certified wastewater treatment plant operators in accordance with Title 23 of the California Code of Regulations, Division 3, Chapter 26

7. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.

8. 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.

9. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

10. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater includes rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

11. The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharge shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board in writing when it returns to compliance with the time schedule.

12. 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.

13. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed herein or by the Executive Officer pursuant to Section 13267 of the CWC. 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.

14. A copy of this Order shall be kept at the operations facility for the wastewater treatment facility. Key operating personnel shall be familiar with its contents.

15. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 5 December 2003.

_____

THOMAS R. PINKOS, Executive Officer

Attachments
JSK: 5-Dec-03

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0182

FOR
AMADOR WATER AGENCY
GAYLA MANOR WASTEWATER TREATMENT FACILITY
AMADOR COUNTY

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

All wastewater samples should be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Field testing instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to each monitoring event;
3. Instruments are serviced and/or calibrated per manufacturer's recommendations; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

SEPTIC TANK MONITORING

The Discharger shall monitor each septic tank and report this information in the annual reports. Each septic tank shall be inspected as described below.

Parameter	Units	Type of Measurement	Minimum Inspection	Reporting Frequency
Current and projected[1,2] sludge depth and scum thickness in the first compartment of each septic tank	Feet	Staff Gauge	Annually	Annually
Current and projected[1,2] distance between bottom of scum layer and bottom of outlet device	Inches	Staff Gauge	Annually	Annually

Type of Parameter	Minimum Units	Type of Measurement	Minimum Inspection	Reporting Frequency
Current and projected[1,2] distance between top of sludge layer and bottom of outlet device	Inches	Staff Gauge	Annually	Annually

[1] Depth and distance projected to occur one year from the date of measurement based on historical patterns and professional judgement.
[2] Visual inspection for signs of damages, leakage, or deterioration

The Discharger shall retain records of each inspection, by street address, noting the date and measured readings and calculations. The Discharger will also record when cleaning is required, the date of notice to the homeowner, the condition of the tank, and the date that cleaning or repair occurred and by whom. Copies of the Liquid Waste Hauler manifests shall be retained for review as with any other record concerning documentation of compliance with the Order.

INFLUENT MONITORING

Influent 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:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow[1]	gpd	Continuous Meter	Daily	Monthly
BOD_5[2, 3]	mg/L	Grab	Monthly	Monthly

[1] The meter shall be placed after the gravel filter bed but prior to discharge to the storage reservoir or leachfield.
[2] 5-day biochemical oxygen demand.
[3] BOD influent samples shall be collected prior to discharge into the recirculating gravel beds.

EFFLUENT MONITORING

Samples of effluent shall be collected immediately downstream of the chlorine contact basin. At a minimum, effluent monitoring shall consist of the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD[1]	mg/L	Grab	Weekly	Monthly
Total Suspended Solids	mg/L	Grab	Weekly	Monthly
Total Coliform Organisms	MPN^2/100 ml	Grab	Weekly	Monthly
pH	Standard Units	Grab	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly[3]	Monthly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Sodium	mg/L	Grab	Monthly[3]	Monthly
Chloride	mg/L	Grab	Monthly[3]	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly[3]	Monthly
Total Kjeldahl Nitrogen	mg/L	Grab	Monthly[3]	Monthly
Standard Minerals [3]	mg/L	Grab	Annually	Annually

[1] 5-day Biochemical Oxygen Demand
[2] Most Probable Number
[3] Samples shall be collected monthly through December 2004. Beginning January 2005 samples shall be collected quarterly.
[4] Standard Minerals shall include, at a minimum, the following elements/compounds: barium, calcium, magnesium, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness.

STORAGE RESERVOIR MONITORING

The effluent storage reservoir shall be monitored as follows. If the reservoir is empty on the scheduled monitoring date, the Discharger shall report the freeboard monitoring result as "dry".

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Oxygen[1]	mg/L	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Levee condition[2]	--	Observation	Weekly	Monthly
Total Dissolved Solids	mg/L	Grab	Quarterly	Monthly[3]
Nitrate as Nitrogen	mg/L	Grab	Quarterly	Monthly[3]
Total Kjeldahl Nitrogen	mg/L	Grab	Quarterly	Monthly[3]

[1] Samples shall be collected at a depth of one foot, opposite the inlet. Samples shall be collected between 0700 and 0900 hours.
[2] Containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing water is found, then a sample shall be collected and tested for total dissolved solids.
[3] Results to be included in the monthly report submitted immediately after the samples were collected.

SPRAY DISPOSAL AREA MONITORING

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

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow	Gallons	Continuous	Daily	Monthly
Rainfall	Inches	Observation	Daily	Monthly
Acreage Applied [1]	Acres	Calculated	Daily	Monthly
Water Application Rate [2]	gal/acre/day	Calculated	Daily	Monthly
Total Nitrogen Loading Rate [2]	lbs/ac/month	Calculated	Monthly	Monthly
Total Dissolved Solids Loading Rate [2]	lbs/ac/month	Calculated	Monthly	Monthly

[1] Land application areas shall be identified.
[2] For each disposal field area.

At least once per week when the spray disposal areas are being used, the entire sprayfield area shall be inspected to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the Waste Discharge Requirements. A daily log of each inspection shall be kept at the facility and be submitted with the monthly monitoring reports. If the spray disposal areas are not used, then the monthly monitoring reports shall state so. If the Discharger requests, and the Executive Officer approves, smaller setback distances than specified in Spray Disposal Area Specification D.2, then the Discharger shall comply with any additional monitoring specified by the Executive Officer.

LEACHFIELD MONITORING

The Discharger shall conduct a visual inspection of the leachfields on a weekly basis. Results shall be recorded and submitted with the monthly monitoring report. Evidence of surfacing wastewater, erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the report. If surfacing water is found, then a sample shall be collected and tested for total dissolved solids. In addition to the visual inspections, monitoring of the leachfields shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Flow to leachfields	gpd	Meter	Twice weekly	Monthly
Leachline Riser Inspection[2]	Inches	Measurement	Bi-monthly (every other month)[3]	Bi-monthly (every other month)

[1] The application rate for each leachfield
[2] The Discharger shall measure the depth of any ponded wastewater in each inspection riser. The monitoring report shall indicate the depth of each disposal trench and the corresponding depth of soil remaining between the ponded wastewater and the surface.
[3] Monitoring frequency shall be at least once every two months during the majority of the year, and shall increase to once every month after the accumulation of the first five inches of rain in the winter.

SLUDGE MONITORING

Prior to the removal of sludge from any tank or the storage pond, a composite sample shall be collected in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document (August 1989) and tested for the following metals:

Cadmium	Copper	Nickel
Chromium	Lead	Zinc

Sampling records shall be retained for a minimum of five years. A log shall be kept of solid waste (grits and screenings) and 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 for each water source used during the previous year. As an alternative to annual water supply monitoring, the Discharger may submit results of the most current DHS water supply monitoring data.

Constituents	Units	Sampling Frequency	Reporting Frequency
Total Dissolved Solids	mg/L	Annually	Annually
pH	pH units	Annually	Annually
Standard Minerals [1]	mg/L	Annually	Annually

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

REPORTING

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

A. Monthly Monitoring Reports

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

1. Results of the influent, effluent, reservoir, spray disposal area, and solid wastes and sludge monitoring;

2. If quarterly effluent or reservoir samples were taken, then those results;
3. On a bi-monthly basis, the results of the leachfield monitoring;
4. Copies of inspection logs;
5. A comparison of the monitoring data to the discharge specifications and an explanation of any violation of those requirements;
6. If requested by staff, copies of laboratory analytical report(s); and
7. Date(s) on which the monitoring instruments were calibrated.

B. Annual Report

An Annual Report shall be prepared as the December monitoring report. The Annual Report will include all monitoring data required in the monthly 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 December 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. The results from annual monitoring of the effluent and water supply;

7. The results of the septic tank monitoring;

8. The results from any sludge monitoring required by the disposal facility; and
9. A forecast of influent flows, as described in Standard Provision No. E.4.

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 as of the date of this Order.

Ordered by: _____
THOMAS R.PINKOS, Executive Officer

5 December 2003
(Date)

JSK:5-Dec-03

INFORMATION SHEET

ORDER NO. R5-2003-0182
AMADOR WATER AGENCY
GAYLA MANOR WASTEWATER TREATMENT FACILITY
AMADOR COUNTY

Facility Description
The Amador Water Agency owns, operates, maintains, and monitors a wastewater treatment facility (WWTF) that includes collection, treatment, storage, and disposal facilities. The WWTF treats domestic wastewater generated from the rural community of Gayla Manor, which consists of 56 single-family residences and six four-plexes (i.e. 24 attached residences). As of the year 2002, 75 equivalent dwelling units (EDUs) were connected to the WWTF; full build out of the community is 82 EDUs.

The WWTF consists of a septic tank at each residential parcel, a gravity and force main sewer collection system, two recirculating fine gravel filters, a recirculating tank, an effluent disinfection system which utilizes liquid chlorine, a leachfield, a storage reservoir, and spray disposal areas. The WWTF currently treats a monthly average flow of 9,800 gallons per day (gpd), which is based on flow data for the years of 2000 through 2002. Peak influent flows, which occurred in the year 2002, were as high as 15,600 gpd.

Problems and Concerns
The water balance indicates that the WWTF has sufficient storage for an average precipitation year. However, staff disagree with the water balance's assumption that 12,000 gpd of wastewater can be disposed of to the leachfields for eight months each year. The leachfields were only designed for 2,800 gpd, and staff are unsure whether the WWTF would still have sufficient capacity under average year conditions if the more appropriate value was used.

The water balance shows that the WWTF does not have sufficient capacity to accommodate all flows during a 100 year precipitation event. At the current flows from 75 EDUs, the facility requires 10.1 million gallons (mg) of effluent storage, while at full build-out, 10.5 mg of storage is required. The current effluent storage reservoir can only store 3.4 mg of wastewater.

While the water balance implies that there is sufficient storage for an annual precipitation year, the case file shows otherwise. When the number of EDUs were half the current amount, during the 100 year return frequency storm events of the mid 1990s and subsequent years, there were specific violations of the WDRs, including reservoir freeboard violations and spray irrigation activities during rain events to prevent spills from the reservoir.

The Discharger has indicated that several factors have contributed to the lack of storage at the WWTF, including excessive inflow and infiltration (I&I) from inflows into the recirculating gravel filter beds and from subsurface flows into the storage reservoir (from both the sprayfield disposal and rainfall).

Information presented in the RWD indicates that the effluent storage reservoir was built within a natural drainage course and constructed into or near the interface of the soil and underlying bedrock. Therefore, the reservoir can intercept subsurface flows originating from an area over six acres in size, including the area upslope and tributary to the reservoir and a portion of the spray disposal fields. The RWD also stated that percolation from about 40 percent of the spray irrigation areas may return to the effluent storage reservoir via subsurface flows.

The water balance submitted with the 26 June 2002 RWD did not consider contributions of subsurface flows from the area tributary to the effluent storage reservoir in the overall water balance for the system. In addition, the RWD did not assess whether waste from sprayfields down slope of the storage reservoir is being transported and subsequently discharged into the surface drainage course via subsurface flows. It is appropriate to require the Discharger to address these issues.

This Order is intended as an interim permit, and is intended to be accompanied by a Cease and Desist (C&D) Order. The C&D Order provides the Discharger with a timeline to conduct studies and to then propose the improvements such that the facility will fully comply with the terms of this Order. It is anticipated that, due to the nature of the improvements, the Discharger will be required to submit a new Report of Waste Discharge.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Surface water drainage from the WWTF is to Grass Valley Creek, a tributary to Sutter Creek, which is in turn tributary to Dry Creek, and then the Sacramento-San Joaquin Delta. The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (industrial, agricultural, and domestic supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

Antidegradation

The antidegradation directives of State Board Resolution No. 68-16, the "Statement of Policy with Respect to Maintaining High Quality Waters in California", also known as the "Antidegradation Policy" requires 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.

Resolution No. 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Board to evaluate that fully characterizes:

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

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

Certain waste constituents in municipal wastewater are not fully amenable to waste treatment and control and it is reasonable to expect some impact on groundwater. Some degradation for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, water recycling, and waste management advantages of municipal utility service to the state far outweigh the environmental impact damage of a community that would otherwise be reliant on numerous concentrated individual wastewater systems. Economic prosperity of local communities is a benefit to the people of California, and is sufficient reason to accommodate increases in wastewater discharge provided terms of reasonable degradation are defined and met. The proposed Order authorizes some degradation consistent with the maximum benefit to the people of the state.

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

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

Constituent	Units	Value	Beneficial Use	Criteria or Justification
Ammonia	mg/L	1.5	MUN [1]	Taste and Odor [2]
Boron	mg/l	0.7	AGR[3]	Boron Sensitivity [4]
Chloride	mg/L	106	AGR [3]	Chloride sensitivity on certain crops irrigated via sprinklers [4]
		142	AGR [3]	Chloride sensitivity on certain crops [4]
		250	MUN [1]	Recommended Secondary MCL [5]
		500	MUN [1]	Upper Secondary MCL [5]
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]
Total Nitrogen	mg/L	10	MUN [1]	Primary MCL [11]
Sodium	mg/L	69	AGR [3]	Sodium sensitivity on certain crops [4]
Total Dissolved Solids	mg/L	450[8]	AGR [3]	Salt sensitivity for certain crops [4]
		500	MUN [1]	Recommended Secondary MCL [5]
		1,000	MUN [1]	Upper Secondary MCL [5]
Total Coliform Organisms	MPN/100 ml	Less than 2.2	MUN [1]	Basin Plan
Trihalomethanes	µg/L	100	MUN [1]	MCL [8]
Bromoform	µg/L	4	MUN [1]	USEPA Cancer Potency Factor [9]
Bromodichloromethane	µg/L	0.27	MUN [1]	Cal/EPA Cancer Potency Factor [10]
Chloroform	µg/L	1.1	MUN [1]	Cal/EPA Cancer Potency Factor [10]
Dibromochloromethane	µg/L	0.37	MUN [1]	Cal/EPA Cancer Potency Factor [10]
pH	pH Units	6.5 to 8.5	MUN [1]	USEPA Secondary MCL [12]
		6.5 to 8.4	AGR[3]	Irrigation of crops[4]

1 Municipal and domestic supply.
2 J.E. Amoore amd E. Hautala, *Odor as an Aid to Chemical Safety : Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution, Journal of Applied Toxicology*, Vol. 3, No. 6 (1983).
3 Agricultural supply.
4 Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).
5 Title 22, California Code of Regulations (CCR), section 64449, Table 64449-B.
6 Title 22, CCR, Section 64449, Table 64449-A.
7 Title 22, CCR, Section 64431, Table 64431-A.
8 Title 22, CCR, Section 64439.
9 USEPA Integrated Risk Information System.
10 Cal/EPA Toxicity Criteria Database (OEHHA).
11 Assumes that, over time, all nitrate species will convert to nitrate or nitrite.

12 40 Code of Federal Regulations 143.3

Municipal wastewater contains numerous dissolved inorganic waste constituents (i.e., salts, minerals) that together comprise total dissolved solids (TDS). Critical individual constituents are individually listed. The cumulative impact from these other constituents, along with the cumulative affect of the constituents that are individually listed can sometimes be effectively controlled using TDS as a generic indicator parameter.

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

Treatment Technology and Control

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

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

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

Waste constituents that are forms of salinity pass through the treatment process and soil profile and effective control of long-term 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). The proposed Order sets limits to implement 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 for this facility will likely contain effluent limits for salt components other than chloride that, if met, assure groundwater quality will be controlled to an acceptable level.

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

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

Title 27

Title 27, CCR, section 20005 et seq. ("Title 27"), contains regulations to address certain waste discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, requires monitoring of groundwater and the unsaturated zone for indications 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 disposal of residual sludge and solid waste generated as part of the treatment process [section 20090(a) of Title 27]. The exemption requires that the discharge not result in violation of any water quality objective in groundwater.

Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), under the condition that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. In addition, the

disposal of soild waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste is also regulated under 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 State Board Resolution 68-16 and in no case greater than water quality objectives. The conditions for sludge, solid waste, and biosolids management proposed in this Order are intended to assure this and must all be evaluated along with other aspects of BPTC.

Proposed Order Terms and Conditions

Discharge Prohibitions and Specifications

The proposed Order establishes an average monthly flow limit of 12,000 gpd. The proposed discharge specifications for BOD_5 are based on the treatment technologies employed. The proposed Order requires the Discharger to continue to disinfect effluent. The discharge specifications regarding dissolved oxygen and freeboard are consistent with Board policy for the prevention of nuisance conditions and for the protection of surface waters, and are applied to all such facilities.

In order to protect public health and safety, the proposed Order requires the Discharger to comply with applicable provisions of Title 22 and to implement best management practices with respect to effluent disposal (e.g., to dispose of effluent at reasonable rates considering the crop, soil, climate, and irrigation management plan.).

Monitoring Requirements

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

The proposed Order includes monitoring requirements for septic tanks, influent, effluent, effluent reservoir, leachfields, spray irrigation areas, sludge, and water supply.

The Title 27 zero leakage protection strategy relies heavily on groundwater monitoring to increase a discharger's awareness of, and accountability for, compliance with the prescriptive and performance standards. With a high volume, concentrated, uncontained discharge to land, monitoring takes on even greater importance. The proposed Order includes monitoring of applied waste quality, and application rates. Because this is an interim Order, it only requires the Discharger to conduct a one-time sampling

event of the groundwater. It is anticipated that the Discharger will be required to install permanent groundwater monitoring wells once it upgrades the facility to comply with the terms of this Order.

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

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