

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0097

WASTE DISCHARGE REQUIREMENTS
FOR
AMADOR WATER AGENCY
MACE MEADOW GOLF AND COUNTRY CLUB, INC.
BUCKHORN WATER TREATMENT PLANT AND REUSE SITE
AMADOR COUNTY

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

1. The Amador Water Agency (AWA) and Mace Meadow Golf and Country Club, Inc. jointly submitted a Report of Waste Discharge (RWD), dated 14 November 2003, for obtaining Waste Discharge Requirements (WDRs) for the proposed new Buckhorn Water Treatment Plant (WTP) and backwash water storage and reuse site. Supplemental information was received on 6 October and 2 December 2004.
2. The Buckhorn WTP has not previously been regulated under WDRs. The existing WTP is located on a parcel that is adjacent to the parcel on which a new WTP has been built. Once the new WTP comes on line, the existing WTP will be no longer used.
3. The WTP, wastewater storage ponds, and reuse areas are located approximately two miles east of the community of Pioneer, in Section 22, T7N, R13E, MDB&M and Section 16, T7N, R13E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. The AWA owns and operates the Buckhorn WTP and a backwash wastewater conveyance line. Wastewater (filter backwash) will be stored in two ponds (Pond Nos. 7 and 8) and reused via irrigation on the Mace Meadow Golf Course. The golf course is owned and operated by Mace Meadow Golf and Country Club, Inc. The facility layout is shown on Attachment B, which is attached hereto and made part of this Order by reference. A list of the parcels and their use is presented below:

<u>Assessor</u>		
<u>Parcel Number</u>	<u>Land Use</u>	<u>Land Owner</u>
33-160-008	Water Treatment Plant	Amador Water Agency
33-350-015	Backwash conveyance pipe	Amador Water Agency
33-110-089	Reuse areas (golf course) and storage ponds	Mace Meadow Golf and County Club

5. Each entity shall hereafter be referred to individually (“Amador Water Agency” or “Mace Meadow Golf and Country Club, Inc.”) or jointly as “Discharger”. The AWA and Mace Meadow Golf and Country Club, Inc. shall be responsible for compliance with these WDRs as it applies (a) to each entity’s own parcel of land as noted in Finding No. 4 and as described in Findings Nos. 6 and 7, and (b) as required in the two separate “Hereby Ordered” portions of this Order.

6. The Amador Water Agency shall be responsible for the operation and maintenance of the WTP and wastewater conveyance system.
7. Mace Meadow Golf and Country Club, Inc. shall be responsible for the operation and maintenance of the wastewater storage ponds and the golf course irrigation system, and for the disposal of wastewater to the golf course.

Water Treatment Plant and Wastewater Conveyance System

8. The existing Buckhorn WTP treats raw water from the North Fork Mokelumne and Bear River watersheds for distribution as treated potable water to ten water districts in east central Amador County. The facility is being replaced and upgraded. A new WTP is being constructed and sized with a 2 million gallon per day (mgd) peak capacity, expandable to a 5 mgd capacity in the future. This Order only addresses the discharge from the 2 mgd plant.
9. The new WTP will include two 250,000 gallon above ground potable water storage tanks, an 80,000 gallon above ground reclaimed water equalization tank, a surge control/break tank, and a 9,360 ft² treatment plant building. The building and piping will be sized for a 5 mgd facility, but all water treatment and processing equipment will be initially sized for the 2 mgd production. The Discharger anticipates that the new WTP will be online by April/May 2005, while Mace Meadow Golf Course anticipates that it will first receive wastewater from the new WTP for use in irrigation in the spring of 2005.
10. Water treatment at the new WTP consists of a membrane micro-filtration system (Microza™). Water purification is dependent on the process of small pore filtration and will not require treatment aids such as polymers due to the high quality of the raw water. Monthly, or as needed, the membranes will be cleaned by a two step clean-in-place process that will include caustic/chlorine and citric acid. Clean-in-place waste will not be part of the wastewater conveyed to the golf course for irrigation. Clean-in-place waste will be stored in a 10,000 gallon below ground tank and trucked to a County operated landfill for disposal on an as-needed basis.
11. Additional and more frequent membrane cleaning will be accomplished by backwashing membranes up to two to three times per hour depending on trans-membrane pressure differentials. Membranes will be backwashed with potable water. Based on pilot testing, the new WTP is predicted to be approximately 96 percent efficient; wastewater production will be approximately four percent, or 80,000 gallons per day at 2 mgd peak day production.
12. Wastewater from the WTP will be conveyed to the golf course via approximately 1,500 feet of six inch steel pipe, 1,350 feet of three inch PVC pipe, and 2,000 feet of four-inch PVC pipe. The RWD indicates that the Discharger will install a new six-inch pipeline to extend the four-inch PVC pipe to the wastewater storage pond (Pond No. 7). Additional piping will be installed between both storage ponds (Ponds Nos. 7 and 8).

Wastewater Characteristics

13. The Discharger collected and analyzed samples of raw water delivered to the existing WTP on 16 October 2003. Results are provided in the table below.

<u>Constituent</u>	<u>Units</u>	<u>Results</u>
Settleable Solids	ml/l	<0.1
Total Suspended Solids	mg/l	<5.0
Chloride	mg/l	1.5
Manganese	mg/l	0.03
Total Nitrogen	mg/l	0.11
Sodium	mg/l	2.0
Sulfate	mg/l	1.1
Total Dissolved Solids	mg/l	14
Zinc	mg/l	0.04
Turbidity	NTU	0.38
Arsenic	ug/l	<2.0
Cadmium	ug/l	<1.0
Mercury	ug/l	<1.0
Nickel	ug/l	<3.0
Specific Conductance	umho/cm	42
pH	Standard units	7.0
Fecal Coliform	MPN/100ml	4
Total Coliform	MPN/100ml	4

14. The RWD does not contain analytical data describing the expected quality of filter backwash wastewater that will be conveyed to the golf course for storage and reuse. However, the Discharger states that the chemical quality of wastewater is expected to be similar to that of raw influent water for several water quality parameters. Other water quality parameters will show marked changes. Micro membrane filtering and backwash processes will concentrate suspended solids, settleable matter, and bacteria by a factor of approximately 25. The number of viable bacteria will probably not increase because chlorine will be added to reverse filtration backwash water at sufficient doses to control microbial growth on the membranes and will therefore kill most of the bacteria. Chemical constituents should remain the same or approximately the same, as micro-filtration does not remove dissolved constituents or concentrate them in the waste stream and no brine is produced.
15. Due to the high quality of the raw water being treated at the WTP, the constituents contained in backwash water are not expected to degrade groundwater above established water quality objectives. Therefore, this Order does not require groundwater monitoring. However, if the Effluent Limitations are exceeded, then the Discharger must evaluate the potential impact on the underlying groundwater and assess whether groundwater monitoring wells should be installed.

Wastewater Storage and Disposal

16. The RWD indicates that the WTP is expected to be 95-96 percent efficient. The Discharger estimates that approximately 55 acre-feet of filter backwash wastewater will be generated on an

annual basis when the WTP operates at 2.0 mgd capacity. The RWD indicates that based on projected growth rates within the county (approximately two percent annually) that the 2.0 mgd capacity would be reached by the year 2023. The following table provides the anticipated volumes of wastewater that will be generated monthly from the WTP based on a 2.0 mgd capacity.

<u>Month</u>	<u>Projected WTP backwash generated (acre feet)</u>	<u>Projected WTP backwash generated (gallons per day)</u>
January	3.3	34,687
February	3.0	34,912
March	3.4	35,738
April	3.4	36,929
May	5.0	52,556
June	5.8	62,997
July	6.7	70,425
August	6.8	73,859
September	5.3	57,567
October	5.2	54,658
November	3.6	39,102
<u>December</u>	<u>3.6</u>	<u>37,840</u>
Total Annual	55.1	17,954,390

17. Wastewater will be stored in Pond Nos. 7 and 8, which are located near fairways 14 and 15. Pond No. 7 currently has a capacity of 16 acre feet based on two feet of freeboard below the existing spillway. With minor modifications to raise the spillway of Pond No. 7, the storage capacity could be increased to approximately 21 acre feet of storage. Pond No. 8, with a storage capacity of 4 acre feet based on two feet of freeboard, will be used when the storage capacity has been exceeded in Pond No. 7, or during summer maintenance of Pond No. 7. Storage capacity for both ponds would be approximately 25 acre-feet once modifications are made to Pond No. 7.

18. The water balance provided in the RWD indicates that Pond Nos. 7 and 8 will provide adequate storage capacity based on average annual rainfall conditions and the amount of wastewater generated from the 2.0 mgd WTP. However, the water balance prepared for 100-year annual rainfall conditions indicate that Pond Nos. 7 and 8 will not have sufficient storage capacity for all wastewater generated from the 2.0 mgd WTP. The following table provides the anticipated storage requirements for the years 2005 through 2015. Storage requirements are based on anticipated wastewater flow, 100-year annual rainfall conditions, irrigation needs for the golf course, and disposal via evaporation and percolation from the storage ponds.

<u>Year</u>	<u>Maximum Cumulative Storage Needed (acre feet) ¹</u>
2005	25.60
2006	26.11
2007	26.63
2008	27.17
2009	27.71
2010	28.26

<u>Year</u>	<u>Maximum Cumulative Storage Needed (acre feet) ¹</u>
2011	28.83
2012	29.41
2013	29.99
2014	30.59
2015	31.20

¹ Wastewater storage ponds 7 and 8 have a current storage capacity of approximately 20 acre-feet. Once minor modifications are made to Pond No. 7 the storage capacity of both ponds would be approximately 25 acre feet.

19. Based on the information provided in the RWD, an additional 11-acre feet of winter storage would be needed to have sufficient storage capacity based on 100-year annual rainfall conditions and the amount of wastewater generated from the 2.0 mgd WTP. In the 6 October 2004 and 5 February 2005 supplemental information to the RWD, the Discharger proposed to utilize the Fairway Pines and Mace Meadow Community Leachfield Systems (CLS) for disposal of filter backwash water when the storage capacity was exceeded in the wastewater storage ponds. Because WDRs Order No. R5-2003-0054 for Fairway Pines/Mace Meadow CLS does not specify that filter backwash wastewater can be disposed of to the CLS, filter backwash water from the WTP cannot be discharged into the Fairway Pines/Mace Meadow CLS. In addition, the CLS's were not sized to accept this additional waste stream.
20. This Order allows the discharge of wastewater generated from a 2.0 mgd WTP. Based on the information provided in the RWD, the Discharger must provide approximately 31 acre-feet of winter storage capacity. Therefore, this Order provides a timeline for the Discharger to construct additional winter storage capacity to meet 100-year annual rainfall conditions, and submit an engineering report documenting that the facility has sufficient winter storage capacity. In addition, this Order requires the Discharger to prepare a Contingency Plan that describes the measures that will be implemented to ensure that two feet of freeboard is maintained within the storage ponds. The Contingency Plan must be implemented when wastewater in the storage ponds encroaches within two feet of freeboard.
21. The RWD states that some surface water runoff from the upslope and limited residential areas south of Pond No. 7 flows into the pond, and that the Discharger will install a surface water diversion feature to redirect surface water runoff away from the Pond No. 7 to Pioneer Creek.
22. On 21 January 2004, staff conducted an inspection of the golf course and ponds that will be used to store wastewater generated from the Buckhorn WTP. During the inspection staff noted the presence of a surface water drainage culvert, which captures surface water runoff from the upslope areas north of Pond No. 8, and discharges into Pond No. 8. To ensure that Pond 8 has sufficient storage capacity, the Discharger must redirect the surface drainage culvert to divert surface water flows from entering Pond 8.
23. The RWD indicates that the Discharger has historically diverted up to 21 acre feet of water from Pioneer Creek into the Pond No.7, for use as irrigation water during the summer months. The Discharger has indicated that it will continue to make this diversion, provided that sufficient

storage capacity is available. This Order requires the Discharger to submit a Surface Water Diversion Operations Plan to explain how it will ensure that the wastewater ponds will have sufficient wastewater storage capacity in the event that surface water is diverted into the wastewater storage ponds.

24. Wastewater stored in Ponds Nos. 7 and 8 will be used to irrigate the Mace Meadow Golf Course during the dry months of the year (typically May through October). According to information presented in the RWD, the total wastewater reuse area will consist of approximately 65 acres. The golf course's irrigation system includes approximately 700 sprinkler heads in 28 irrigation zones. Tailwater runoff will be controlled by applying wastewater when evapotranspiration needs exceed available rainfall, and then only at rates which do not exceed infiltration into soil. Because wastewater alone cannot meet the golf course's irrigation demand, wastewater will be applied intermittently, and will be supplemented with groundwater obtained from potable water wells at the golf course.
25. During staff's 21 January 2004 inspection of the golf course, it was determined that irrigation can overspray into several on-site ponds, surface drainage courses, and the headwaters to Pioneer Creek. Because this Order prohibits discharge into surface waters and surface drainage courses, the Discharger must make improvements to the irrigation system to prevent overspray and discharge into surface waters, and surface water drainage courses.

Site-Specific Conditions

26. The average annual precipitation for this area is approximately 37 inches, based on rainfall data from the National Weather Service West Point weather station. The annual 100-year rainfall for the area is approximately 67 inches.
27. Pan evaporation for the area is approximately 49 inches per year based on University of California Cooperative Extension data.
28. The WTP and wastewater reuse areas are within the Middle Sierra Hydrologic Area No. 532.40, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.
29. Surrounding land uses are predominantly residential and undeveloped properties.
30. According to the RWD, soils at the Mace Meadow Golf Course are composed of site loams, and silty and gravelly clays which overlay decomposed slates and schists. The depth of the weathered bedrock zone varies from three to four feet. Estimated permeability rates range from 0.2 to 0.8 inches per hour.
31. Based on on-site percolation test conducted in October 2003, the steady state percolation rates for Pond Nos. 7 and 8 are estimated to be 0.25 inches per day.
32. The storage ponds are outside the 100 year floodplain of Pioneer Creek.

Basin Plan, Beneficial Uses, and Regulatory Considerations

33. 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.
34. Surface water drainage from the wastewater storage and reuse areas is to Pioneer Creek, a tributary to Sutter Creek, which is in turn tributary to Dry Creek, and then the Calaveras River. The beneficial uses of Calaveras River are municipal and domestic supply; agricultural supply; hydropower; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.
35. The beneficial uses of underlying groundwaters are municipal and domestic water supply, agricultural supply, and industrial service and process supply.
36. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water. The Basin Plan requires that the Regional Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.
37. The Basin Plan includes a water quality objective for Chemical Constituents that, at a minimum, requires waters designated as domestic or municipal supply to 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, Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449, and 64449-B (Secondary Maximum Contaminant Levels-Ranges) 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 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.
38. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater 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. The Chemical Constituents 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 taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses". Chapter IV,

Implementation, of the Basin Plan contains the “Policy for Application of Water Quality Objectives”. This Policy specifies, in part, that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.

39. CWC Section 13241 requires the Regional Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. CWC 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. The interim groundwater limitations implement adopted water quality objectives in the manner prescribed by the Basin Plan. No additional analysis of Section 13241 factors is required.

Groundwater Degradation

40. State Water Resources Control Board (SWRCB) Resolution No. 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution 68-16) requires a regional board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) 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 as described in plans and policies. The discharge is required to meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and highest water quality consistent with maximum benefit to the people will be maintained.
41. Some degradation of groundwater in the wastewater storage and reuse areas is consistent with Resolution 68-16 provided that degradation:
 - a. is confined to a reasonable area;
 - b. is minimized by means of full implementation, regular maintenance, and optimal operation of best practicable treatment and control (BPTC) measures;
 - c. is limited to waste constituents typically encountered in water treatment filter backwash water; and
 - d. does not result in water quality less than that prescribed in the applicable basin plan.

Antidegradation Analysis

42. Some degradation of groundwater by some of the typical waste constituents released with discharge from a water treatment plant 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 domestic water wells, and the impact on the water resource 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 treat ability).

43. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore sufficient reason exists to accommodate growth and groundwater degradation around the WTP and reuse areas, provided that the terms of the Basin Plan are met.

Treatment and Control Practices

44. This WTP and wastewater reuse areas provides treatment and control of the discharge that incorporates:
 - a. Technology for treatment to drinking water standards; and
 - b. Wastewater reuse using agronomic application rates.
45. The design of the WTP and the wastewater reuse program incorporate several BPTC measures, including the fact that chemical additions such as polymers will not be used and clean-in-place waste will be collected and disposed of off-site. In order to determine compliance with Resolution No. 68-16, this Order sets effluent limits. If the discharge exceeds these limits, then the Discharger must evaluate the potential impact on the underlying groundwater and assess whether groundwater monitoring wells should be installed. If groundwater has been degraded, then the Discharger will be required to evaluate and implement BPTC measures for each treatment, storage, and disposal component of the system. Completion of these tasks will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.
46. This Order establishes interim groundwater limitations for the wastewater storage and reclamation areas that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16. Based on the results of the scheduled tasks, the Regional Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

Other

47. 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. All of the WTP facilities will be located within an enclosed building. Therefore, 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.

48. On 24 January 2002, the Amador Water Agency adopted a Mitigated Negative Declaration for the construction of a new Buckhorn WTP and upgrades to several pump stations. The Mitigated Negative Declaration was prepared in accordance with the California Environmental Quality Act (CEQA; CCR, Title 14, Section 15261 et. seq.), and State CEQA guidelines.
49. 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 having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report 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”
50. The technical reports required by this Order and the attached “Monitoring and Reporting Program No. R5-2005-0097” are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.
51. The California Department of Water Resources set 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.
52. 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 WTP and wastewater storage and reuse areas are 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.
53. 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 Section 20090(b) of Title 27, is based on the following:
 - a. The Board is issuing waste discharge requirements;
 - b. The discharge complies with the Basin Plan; and
 - c. The wastewater does not need to be managed according to Title 22, CCR, Division 4.5, and Chapter 11, as a hazardous waste.

54. 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

55. 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.
56. The Discharger and interested agencies and persons were notified of the Board's intent to prescribe waste discharge requirements for this discharge, and have been provided with an opportunity for a public hearing and an opportunity to submit written views and recommendations.
57. In a public meeting, all comments pertaining to the discharge were heard and considered.

IT IS HEREBY ORDERED that pursuant to Sections 13263 and 13267 of the California Water Code, the 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 is prohibited.
2. Bypass or overflow of the wastewater conveyance system is prohibited.
3. Discharge of wastewater downstream of the WTP, other than at the approved wastewater storage ponds (Pond No. 7 and 8) and the wastewater reuse areas (golf course) 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. The use of wastewater for the purposes other than irrigation of the golf course is prohibited.

B. Discharge Specifications:

1. The discharge of filter backwash wastewater from a 2 mgd water treatment plant is allowed; wastewater flows into the wastewater storage ponds shall not exceed 55 acre feet per calendar year. If the capacity of the treatment plant is increased beyond 2 mgd, then

the Discharger shall submit a RWD for a revised Order at least **180 days** before such an increase.

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. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
4. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the water treatment plant site boundaries.
5. The Amador Water Agency shall operate all systems and equipment to maximize treatment of raw water and optimize the quality of the discharge.

C. Effluent Limitations:

1. Wastewater conveyed to the golf course storage ponds shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>30-Day Average</u>
Total Dissolved Solids	mg/l	450
Total Coliform Organisms	MPN/100 ml	Less than 2.2
Total Nitrogen	mg/l	10

2. Wastewater conveyed to the golf course storage ponds shall not have a pH of less than 6.5 or greater than 8.4.

D. Groundwater Limitations

1. Release of waste constituents from the WTP, storage ponds, and wastewater reuse areas shall not cause groundwater under and beyond the system components, to:
 - a. Contain any of the following constituents in concentration greater than as listed or greater than ambient background quality, whichever is greater.

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 mL	Less than 2.2

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
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 NH ₄)	mg/L	1.5
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. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
- c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

E. 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 E.3.
 - a. By **1 October 2005**, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a *Contingency Plan* describing the steps it will take if the wastewater in the storage ponds encroaches within two foot of freeboard. The plan shall consider any and all steps necessary to prevent wastewater overflows including restricting water usage, hauling wastewater to another permitted facility, and shutting down portions of the facility. This Contingency Plan shall be implemented whenever wastewater levels encroach within two foot of freeboard in the wastewater storage ponds.
 - b. By **30 October 2005**, the Amador Water Agency shall submit a report certifying that the installation and upgrade of piping described in Finding Number 12 has been completed.
 - c. By **15 November 2005**, Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a report showing and certifying that storm water diversion features have been installed around Pond Nos. 7 and 8 to redirect previously uncontrolled surface water runoff away from Pond Nos. 7 and 8.
 - d. By **15 November 2005**, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a *Surface Water Diversion Operations Plan*. The plan shall describe 1) how and when storm water will be diverted into the wastewater storage

ponds, 2) operations and procedures used to ensure that the wastewater ponds will have sufficient storage to comply with Discharge Specifications G.7 while diverting stormwater, and 3) a written agreement between the Amador Water Agency and Mace Meadow Golf Course, Inc. as to the responsibility of each entity.

- e. By **1 October 2007**, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a report showing and certifying that additional winter storage capacity (based on wastewater generated from the 2.0 mgd WTP) has been added to comply with Wastewater Reuse Specification G.7 and G.8 of these WDRs. The report shall describe what improvements/upgrades to existing storage facilities have been made such that a total of 31.2 acre-feet of wastewater may be stored.
2. If any constituent concentration in the wastewater discharge exceeds the applicable Effluent Limitation for two or more months, then the Discharger shall immediately notify Board staff. Within 120 days of notification, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a report describing the potential impact of the discharge on the underlying groundwater and assessing whether groundwater monitoring wells should be installed. The report shall contain a characterization of the quality of the groundwater underlying the wastewater storage ponds. Samples may be collected using one-time drilling techniques or from permanent monitoring wells.
3. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
4. If the Regional Board requires groundwater monitoring to be conducted, and groundwater monitoring results show that the discharge of waste to the storage ponds and reclamation 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 *BPTC Evaluation Workplan* that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the system's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitations D.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the wastewater recycling 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.

5. The Amador Water Agency shall comply with the Monitoring and Reporting Program No. R5-2005-0097, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
6. The Amador Water Agency 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)."
7. The Amador Water Agency shall use the best practicable treatment and control, including proper operation and maintenance, to comply with this order.
8. The Amador Water Agency shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.
9. The Amador Water Agency 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 Amador Water Agency 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 Discharger 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.
11. In the event of any change in control or ownership of land or waste discharge facilities described 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.
12. The Amador Water Agency 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 recession of this Order.
13. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
14. The Board will review this Order periodically and will revise requirements when necessary.

IT IS HEREBY ORDERED that pursuant to Sections 13263 and 13267 of the California Water Code, Mace Meadow Golf and Country Club, Inc., 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.

F. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated or partially treated waste is prohibited.
3. Discharge of wastewater outside of the approved wastewater storage ponds (Pond Nos. 7 and 8) and reuse areas (golf course) is prohibited.
4. Application of wastewater to areas different than those described in Finding No. 24 is prohibited.
5. Discharge of waste classified as hazardous, as defined in Sections 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.
6. The use of wastewater for the purposes other than irrigation of the golf course is prohibited.

G. Water Reuse Specifications:

1. 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.
2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater reuse areas.
3. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
4. As a means of discerning compliance with Water Reuse Specifications G.2 and 3, the dissolved oxygen content in the upper one foot of the wastewater storage ponds shall not be less than 1.0 mg/l

5. Mace Meadow Golf and Country Club, Inc. shall operate all systems and equipment to maximize treatment of wastewater and optimize the quality of the discharge.
6. Portions of the golf course which are within the 100-year flood plain shall not be irrigated with wastewater during periods of flooding or imminent flooding.
7. The wastewater storage ponds (Pond Nos. 7 and 8) and reuse areas shall have sufficient storage, and disposal capacity to accommodate allowable wastewater flow (wastewater generated from a 2.0 mgd capacity WTP), design seasonal precipitation, and ancillary inflow and infiltration. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with the historical rainfall patterns.
8. The freeboard in wastewater storage ponds shall never be less than two feet as measured 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 Water Reuse Specifications No. G.7 and G.8.
10. Public contact with stored wastewater at the golf course shall be controlled through the use of fences and cautionary signs, and/or appropriate means. Perimeter warning signs indicating that wastewater is in use shall be posted at adequate signage along the property boundary and at each access road entrance to the irrigation area, including cart paths.
11. Application of wastewater to land shall not be performed within 24 hours before a forecasted storm, during precipitation, or within 24 hours after any precipitation event, nor when the ground is saturated. A forecasted storm is here designated as a storm with a National Weather Service defined probability of occurrence of 50 percent or greater.
12. Spray irrigation with wastewater is prohibited when wind velocities exceed 30 mph.
13. The wastewater storage ponds and areas irrigated with wastewater shall be managed to prevent breeding of mosquitoes. More specifically:
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water 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.
 - d. All applied irrigation water must infiltrate completely within 24 hours.
 - e. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.

- f. Low-pressure and un-pressurized pipelines and ditches which are accessible to mosquitoes shall not be used to store reclaimed water.
- 14. Irrigation of wastewater shall be managed, using BPTC methods, to minimize runoff and movement of aerosols from the designated golf course irrigation areas.
- 15. A 10-foot buffer zone shall be maintained between any watercourse and the wetted area produced during irrigation of wastewater.
- 16. A 50-foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during land application of effluent.
- 17. Application rates of wastewater shall not exceed agronomic rates considering the crop, soil, climate, and irrigation management system. The nutrient loading of the reuse areas, including nutritive value or organic and chemical fertilizers and of the reclaimed water, shall not exceed the crop demand.

H. Groundwater Limitations

- 1. Release of waste constituents from wastewater storage and disposal components associated with the golf course shall not cause groundwater under and beyond the system components, to:
 - a. Contain any of the following constituents in concentration greater than as listed or greater than ambient background quality, whichever is greater.

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 mL	Less than 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
Ammonia (as NH ₄)	mg/L	1.5
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. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.
- c. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

I. 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 I.3.
 - a. By **1 October 2005**, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a *Contingency Plan* describing the steps it will take if the wastewater in the storage ponds encroaches within two foot of freeboard. The plan shall consider any and all steps necessary to prevent wastewater overflows including restricting water usage, hauling wastewater to another permitted facility, and shutting down portions of the facility. This plan shall be implemented whenever wastewater levels encroach within two foot of freeboard in the wastewater storage ponds.
 - b. By **15 November 2005**, Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a report showing and certifying that storm water diversion features have been installed around Pond Nos. 7 and 8 to redirect previously uncontrolled surface water runoff away from Pond Nos. 7 and 8.
 - c. By **15 November 2005**, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a *Surface Water Diversion Operations Plan*. The plan shall describe 1) how and when storm water will be diverted into the wastewater storage ponds, 2) operations and procedures used to ensure that the wastewater ponds will have sufficient storage to comply with Discharge Specifications G.7 while diverting stormwater, and 3) a written agreement between the Amador Water Agency and Mace Meadow Golf Course, Inc. as to the responsibility of each entity.
 - d. By **1 May 2006**, Mace Meadow Golf and Country Club shall submit an *Irrigation System Improvement Report* which describes the measures that have been implemented to ensure overspray and tailwater runoff from irrigation of the reclamation areas does not enter surface drainage courses or surface water bodies (i.e., creeks, golf course ponds, etc.). If reconfiguration of the irrigation system was necessary to comply with Discharge Prohibition F.1, then the report shall include a map showing those portions of the irrigation system that have been reconfigured, including locations of sprinkler heads- that have been removed or capped, relocation of sprinkler heads, and/or replacement of sprinkler heads (i.e., full heads to half heads). If drainage culverts are installed within surface drainages, then the report shall show the locations where culverts were installed, and describe the type of culvert(s) that have been installed.
 - e. By **1 October 2007**, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a report certifying that additional winter storage capacity

(based on wastewater generated from the 2.0 mgd WTP) has been added to comply with Wastewater Reuse Specification G.7 and G.8 of these WDRs. The report shall describe what improvements/upgrades to existing storage facilities have been made such that a total of 31.2 acre-feet of wastewater may be stored.

2. If any constituent concentration in the wastewater discharge exceeds the applicable Effluent Limitation for two or more months, then the Discharger shall immediately notify Board staff. Within 120 days of notification, the Amador Water Agency and/or Mace Meadow Golf and Country Club shall submit a report describing the potential impact of the discharge on the underlying groundwater and assessing whether groundwater monitoring wells should be installed. The report shall contain a characterization of the quality of the groundwater underlying the wastewater storage ponds. Samples may be collected using one-time drilling techniques or from permanent monitoring wells.
3. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
4. If the Regional Board requires groundwater monitoring to be conducted, and groundwater monitoring results show that the discharge of waste to the storage ponds and reclamation 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 *BPTC Evaluation Workplan* that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the system's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitations H.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the wastewater recycling 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.
5. Mace Meadow Golf and Country Club, Inc. shall comply with the Monitoring and Reporting Program No. R5-2005-0097, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
6. Mace Meadow Golf and Country Club, Inc. 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)."

7. Mace Meadow Golf and Country Club, Inc. shall use the best practicable treatment and control, including application of recycled wastewater at agronomic rates, and proper operation and maintenance of the irrigation system, to comply with this order.
8. Mace Meadow Golf and Country Club, Inc. shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.
9. Mace Meadow Golf and Country Club, Inc. 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.
10. In the event of any change in control or ownership of land or waste discharge facilities described herein, Mace Meadow Golf and Country Club, Inc. 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.
11. Mace Meadow Golf and Country Club, Inc. 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 recession of this Order.
12. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
13. The 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 24 June 2005.

THOMAS R. PINKOS, Executive Officer

Attachments

JSK: 24 June 2005

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0097
FOR
AMADOR WATER AGENCY
MACE MEADOW GOLF AND COUNTRY CLUB, INC.
BUCKHORN WATER TREATMENT PLANT AND REUSE SITE
AMADOR COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the water treatment plant, backwash water (wastewater), wastewater storage ponds, and wastewater reuse 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. Amador Water Agency and Mace Meadow Golf and Country Club, Inc. are jointly responsible for implementing this MRP, and shall submit joint monitoring reports.

All samples shall 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. Field test instruments (such as those used to measure 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 calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated per the manufacturer's recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

WASTEWATER MONITORING

Wastewater samples shall be collected before discharge to wastewater storage ponds and shall be representative of the volume and nature of the discharge. Wastewater 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	mgd	Continuous	Daily	Monthly
Total Coliform Organisms ²	MPN/100 ml ³	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Sodium	mg/L	Grab	Monthly	Monthly
Chloride	mg/L	Grab	Monthly	Monthly
Nitrate as Nitrogen	mg/L	Grab	Monthly	Monthly
pH	Standard	Grab	Monthly	Monthly
Dissolved Metals ^{5,6}	ug/L	Grab	Annually	Annually
Standard Minerals ⁴	mg/L	Grab	Annually	Annually

- 1 Wastewater flows discharged into the storage ponds shall be monitored
- 2 Using a minimum of 10 tubes or two dilutions.
- 3 Most probable number per 100 ml.
- 4 Standard Minerals shall include, at a minimum, the following elements/compounds: boron, calcium, iron, magnesium, potassium, sulfate, total alkalinity (including alkalinity series), and hardness.

- 5 At a minimum, the following metals shall be included in: aluminum, antimony, arsenic, total chromium, hexavalent chromium, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.
- 6 Samples shall be filtered through a 0.45micron filter prior to preservation.

STORAGE POND MONITORING

Each storage pond shall be sampled for the parameters specified below. In addition, the monthly monitoring report shall provide a statement as to whether surface water runoff was diverted into the storage pond(s), and if so, the timeframe and volume of diversion.

<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	pH units	Grab	Weekly	Monthly
Freeboard ²	0.1 feet	Observation	Weekly	Monthly
Berm Seepage ^{3, 4}	NA	Observation	Weekly	Monthly
Odors ⁴	--	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.
- 2 If the reservoir is empty on the scheduled monitoring date, the Discharger may report the freeboard monitoring result as "dry".
- 3 Pond containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees and dam. If surfacing water is found, then a sample shall be collected and tested for pH and total dissolved solids.
- 4 Inspection field logs are acceptable as the monthly monitoring report.

GOLF COURSE MONITORING

Monitoring of the wastewater reuse site (golf course) shall be conducted **daily** when irrigating with wastewater 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. Wastewater monitoring results shall be used in calculations to ascertain loading rates at the application area. Monitoring of the golf course 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	mgd	Continuous	Daily	Monthly
Rainfall	Inches	Observation	Daily	Monthly
Application Rate ²	gal/acre/day	Calculated	Daily	Monthly
Total Dissolved Solids Loading Rate ²	lbs/ac/month	Calculated	Monthly	Monthly

- 1 Flow measurement shall be provided for effluent being supplied to the golf course.
- 2 For each land application area.

The entire irrigated area shall be inspected at least **weekly** during or immediately following an irrigation event to identify any equipment malfunction or other circumstances that might allow irrigation runoff to leave the irrigation area and/or create ponding conditions that violate the Waste Discharge

Requirements. A daily log of these inspections shall be kept at the facility and made available for review upon request.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., wastewater, storage pond, reuse areas, 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 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 wastewater, storage pond, and golf course 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;
3. If requested by staff, copies of laboratory analytical report(s); and
4. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

B. Annual Report

An 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 monthly monitoring report for the last sampling event of the year;
2. Total annual wastewater flows into the wastewater storage ponds;
3. If requested by staff, tabular and graphical summaries of all data collected during the year;
4. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
5. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;

6. A statement regarding whether the flow meter was calibrated during the year; and
7. A statement regarding the anticipated wastewater flows for the next year.

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

24 June 2005

(Date)

INFORMATION SHEET

ORDER NO. R5-2005-0097
AMADOR WATER AGENCY
MACE MEADOWS GOLF AND COUNTRY CLUB, INC.
BUCKHORN WATER TREATMENT PLANT AND REUSE SITE
AMADOR COUNTY

Background

The Amador Water Agency (AWA) owns and operates the Buckhorn WTP and backwash wastewater conveyance line. Backwash water (i.e., wastewater) will be stored and reused via irrigation on the Mace Meadows Golf Course. The golf course is owned and operated by Mace Meadows Golf and Country Club, Inc.

The existing Buckhorn WTP, which treats raw water from the North Fork Mokelumne and Bear River watersheds for distribution as treated potable water to ten water districts in east central Amador County, is being replaced and upgraded. The new WTP is being constructed and sized with a 2 million gallon per day (mgd) peak day capacity, expandable to 5 mgd capacity in the future. This Order only addresses the 2 mgd facility.

Water treatment at the new WTP consists of a membrane micro-filtration system (Microza™). Water purification is dependent on the process of small pore filtration and will not require chemical additions such as polymers due to the high quality of the raw water. Monthly, or as needed, the membranes will be cleaned by a two-step clean-in-place process that will include caustic/chlorine and citric acid. Clean-in-place waste will not be part of the wastewater conveyed to the golf course for irrigation. Clean-in-place waste will be stored in a 10,000 gallon below ground tank and trucked to a County operated landfill for disposal on an as-needed basis. Additional and more frequent membrane cleaning will be accomplished by backwashing membranes up to two to three times per hour depending on trans-membrane pressure differentials. Membranes will be backwashed with potable water. Based on pilot testing, the new WTP is predicted to be approximately 96 percent efficient; wastewater production will be approximately 4 percent, or 80,000 gallons per day at 2 mgd peak day production. The Discharger estimates that approximately 55 acre-feet of filter backwash wastewater will be produced on an annual basis when the WTP operates at 2.0 mgd capacity.

The wastewater will be delivered to the Mace Meadows Golf Course and stored in two existing golf course storage ponds (Ponds 7 and 8). Currently, Pond Nos. 7 and 8 provide approximately 20 acre-feet of storage. Wastewater will be used to irrigate the golf course during the dry months of the year (typically May through October). The total disposal area will consist of approximately 65 acres. The golf course's irrigation system includes approximately 700 sprinkler heads in 28 irrigation zones. Tailwater runoff will be controlled by applying wastewater when evapotranspiration needs exceed available rainfall, and then only at rates which do not exceed infiltration into soil. Because wastewater alone cannot meet the golf course's irrigation demand, wastewater will be applied intermittently. Wastewater will be supplemented with groundwater obtained from potable water wells at the golf course.

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AMADOR WATER AGENCY
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BUCKHORN WATER TREATMENT PLANT AND REUSE SITE
AMADOR COUNTY

The water balance provided in the RWD indicates that Pond Nos. 7 and 8 will provide adequate storage capacity based on average annual rainfall condition and the amount of wastewater generated from the 2.0 mgd WTP. However, the water balance prepared for 100-year annual rainfall conditions indicate that Pond Nos. 7 and 8 will not have sufficient storage capacity based on wastewater generated from the 2.0 mgd WTP. An additional 11-acre feet of winter storage is needed to have sufficient winter storage capacity. This Order allows the discharge of wastewater generated from a 2.0 mgd WTP. This Order provides a timeline for the Discharger to construct additional winter storage capacity to meet 100-year annual rainfall conditions, and submit a engineering report documenting that the facility has sufficient winter storage capacity.

Basin Plan, Beneficial Uses, and Regulatory Considerations

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

Antidegradation

The antidegradation directives of Section 13000 of the California Water Code require that waters of the State that are better in quality than established water quality objectives be maintained “consistent with the maximum benefit to the people of the State.” Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State 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 Regional 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

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- The expected degree of degradation.

In allowing a discharge, the Regional Board must comply with CWC section 13263 in setting appropriate conditions. The Regional 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 Regional 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.

Some degradation of the groundwater 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 water treatment plant far outweigh the environmental impact damage of a community that would otherwise be reliant on numerous concentrated domestic wells. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore sufficient reason to accommodate this 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 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 WTP and reclamation site to make informed, appropriate, long-term decisions. This proposed Order, therefore, establishes interim receiving water limitations to assure protection of the beneficial uses of groundwater of the State pending the completion of certain tasks and provides time schedules to complete specified tasks. During this period, degradation may occur from certain constituents, but can never exceed water quality objectives (or natural background water quality should it exceed objectives) or cause nuisance.

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

<u>Constituent</u>	<u>Units</u>	<u>Value</u>	<u>Beneficial Use</u>	<u>Criteria or Justification</u>
Ammonia	mg/L	1.5	MUN 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

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<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
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	MUN ¹	Basin Plan
		2.2		
Trihalomethanes	µg/L	80	MUN ¹	Federal MCL ¹³
Bromoform	µg/L	4	MUN ¹	USEPA Cancer Risk Estimate 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. Amore and 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 nitrogen species will convert to nitrate or nitrite.
- 12 40 Code of Federal Regulations, 143.3
- 13 40 Code of Federal Regulations, 141.64

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

Not all TDS constituents pass through the treatment process and soil profile in the same manner or rate. Chloride tends to pass through both rapidly to groundwater. As chloride concentrations in most groundwaters in the region are much lower than in treated municipal wastewater, chloride is a useful indicator parameter for evaluating the extent to which effluent reaches groundwater. Boron is another TDS constituent that may occur in wastewater in concentrations greater than groundwater depending on

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the source water, to the extent residents use cleaning products containing boron, and whether any industrial dischargers utilize boron (e.g., glass production, cosmetics). Other indicator constituents for monitoring for groundwater degradation due to recharged effluent include total coliform bacteria, ammonia, total nitrogen, and Total Trihalomethanes (TTHMs), a by-product of chlorination.

Proposed Order Terms and Conditions

Discharge Prohibitions and Specifications

It is not practical to prescribe a monthly average flow limit for the wastewater discharged from this plant, as the amount of water treated (and therefore the amount of wastewater generated) will vary significantly throughout the year. Therefore, the proposed Order establishes a flow limit not to exceed the amount of backwash water generated from a 2 mgd water treatment plant, and wastewater flows into the wastewater storage ponds not exceed 55 acre-feet per calendar year. The water balance provided with the RWD shows that the golf course can adequately dispose of this volume of waste. However, the golf course storage ponds currently do not have sufficient winter storage capacity based on 100 year precipitation conditions. This Order provides a timeline for the Discharger to construct additional storage capacity.

The proposed Order's discharge specifications for TDS, Total Coliform, and Total Nitrogen are based on the treatment technologies employed. The discharge specifications regarding dissolved oxygen and freeboard are consistent with Regional Board policy for the prevention of nuisance conditions, and are applied to all such facilities.

Monitoring Requirements

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

The proposed Order requires influent and effluent monitoring requirements, as well as wastewater storage pond and reuse areas requirements. In order to adequately characterize its wastewater, the Discharger is required to monitor for total coliform organisms, TDS, sodium, chloride, nitrates, and pH. Monitoring of additional minerals is required on an annual basis. To ensure that disposal ponds do not create nuisance conditions, the Discharger is required to monitor freeboard available and dissolved oxygen content weekly.

In order to determine compliance with Resolution No. 68-16, this Order sets effluent limits. If the waste quality exceeds these limits, then the Discharger must evaluate the potential impact on the underlying groundwater and assess whether groundwater monitoring wells should be installed. If groundwater has been degraded, then the Discharger will be required to evaluate and implement BPTC measures for each conveyance, treatment, storage, and disposal component of the system. Completion of these tasks will

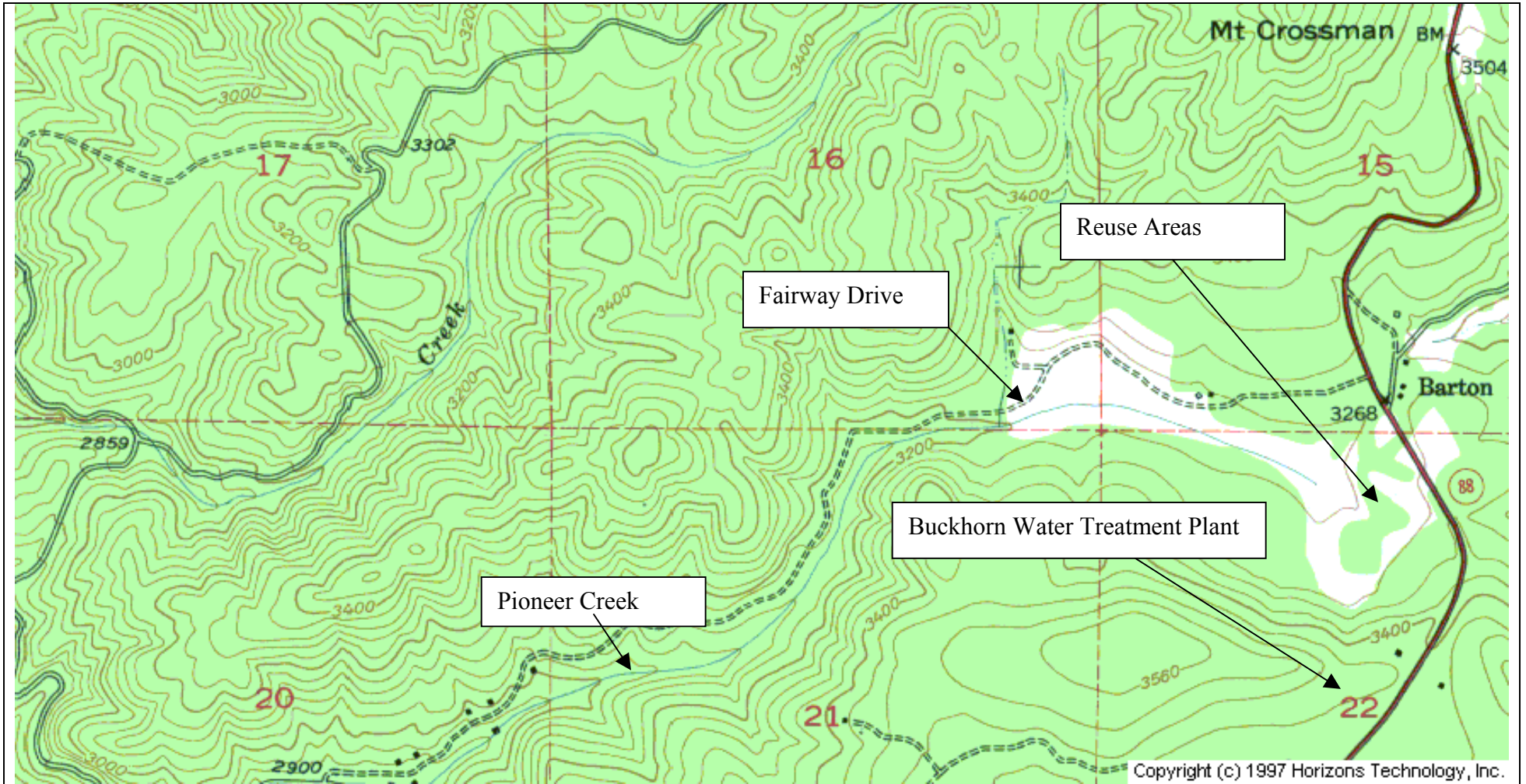
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ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

Reopener

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final effluent and groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by schedules set forth in the proposed Order. As this additional information is obtained, decisions will be made concerning the best means of assuring the highest water quality possible and that could involve substantial cost. It may be appropriate to reopen the Order if applicable laws and regulations change, but the mere possibility that such laws and regulations may change is not sufficient basis for reopening the Order. The CWC requires that waste discharge requirements implement all applicable requirements.

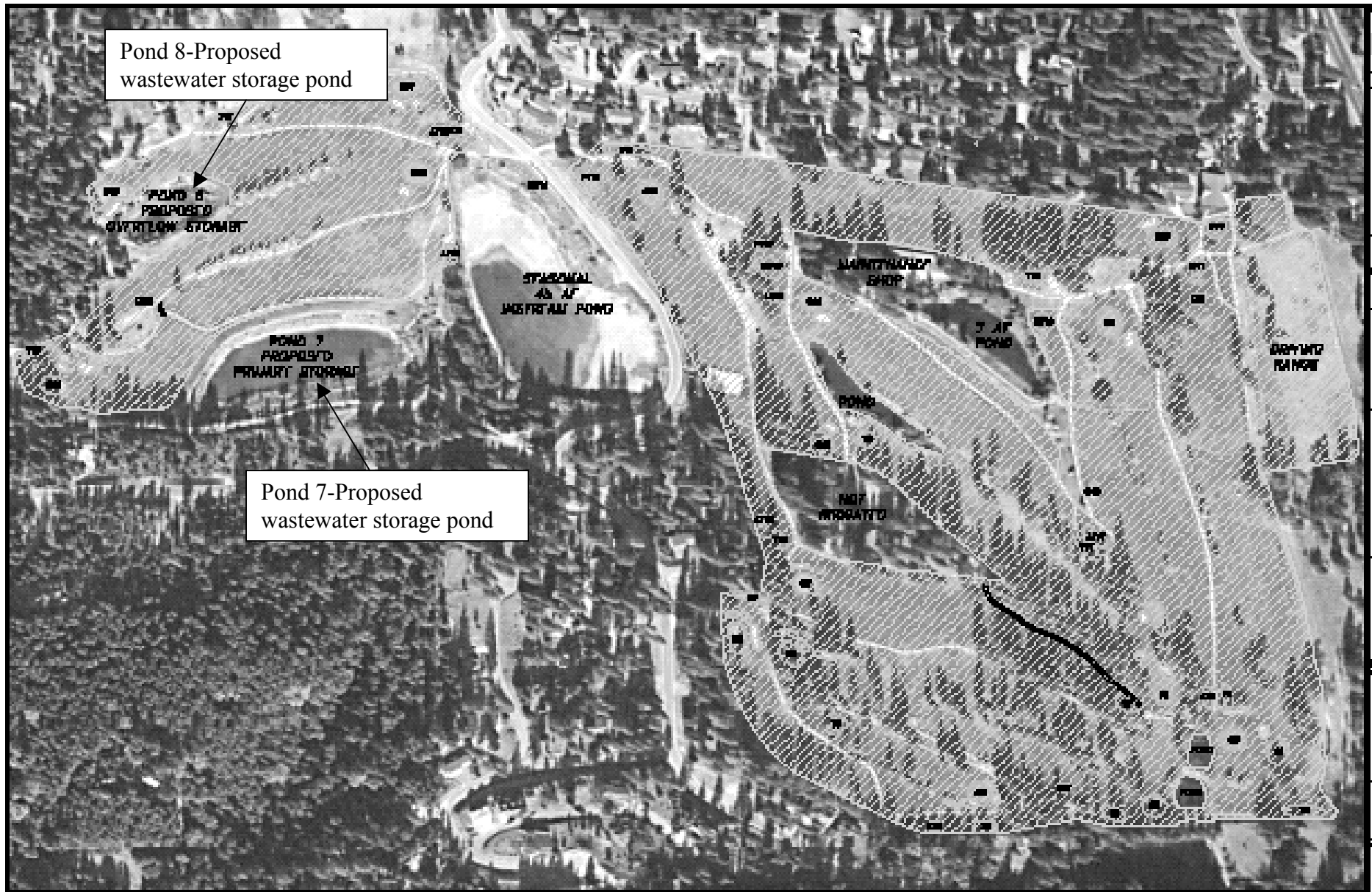
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Approximate Scale
1 inch = 2,400 Feet

Drawing Reference:
U.S.G.S TOPOGRAPHIC MAP
7.5 MINUTE QUADRANGLE

SITE PLAN
AMADOR WATER AGENCY
BUCKHORN WTP AND REUSE SITE
AMADOR COUNTY



Approximate Scale
Unknown

Drawing Reference:
Amador Water Agency
Plate 4
Report of Waste Discharge

SITE MAP
Buckhorn WTP Wastewater Storage and Reuse Areas
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ATTACHMENT B