

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2009-0002

WASTE DISCHARGE REQUIREMENTS

FOR

BYRON SANITARY DISTRICT  
BYRON WASTEWATER TREATMENT FACILITY  
CONTRA COSTA COUNTY

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

1. Byron Sanitary District (hereafter referred to as Discharger) submitted a Report of Waste Discharge (RWD) on 3 March 2008 for updating existing Waste Discharge Requirements (WDRs) for its wastewater treatment facility (WWTF). Supplemental information was received on 1 August 2008.
2. The Byron WWTF was previously regulated under WDRs Order No. 5-00-058, adopted by the Regional Water Board on 17 March 2000, which prescribes requirements for the protection of water quality and sets an average dry weather flow (ADWF) limit of 80,000 gallons per day (gpd).
3. Cleanup and Abatement Order (CAO) Order No. R5-2002-0733 and Time Schedule Order (TSO) No. R5-2005-0900 required facility improvements necessary to protect groundwater quality. This update of Waste Discharge Requirements reflects improvements made to the treatment and disposal facilities to comply with the enforcement orders. Prior to improvements, the WWTF consisted of an influent pump station, bar screens, an Imhoff tank, four treatment ponds, two emergency ponds, and a ten acre land disposal area. The Discharger plans to improve the collection system, replace the Imhoff tank and pump station with new headworks and pump station, remove sludge from ponds, improve wastewater flow configuration between ponds, improve the control and monitoring system, and replace three monitoring wells (MW1, MW2, and MW3) that were inappropriately placed, did not have construction logs and without adequate surface seals. The Discharger also submitted a Monitoring Well Replacement Workplan in November 2008 for MW 4, which was placed outside the property boundary and potentially impacted by an adjacent creek carrying irrigation drainage.
4. For the purposes of this Order, the term "Wastewater Treatment Facility" (WWTF) shall mean the headworks, pump station, the percolation and evaporation (P/E) ponds, and land disposal area.
5. The WWTF is at 4200 Camino Diablo Road, Byron, Contra Cost County located east of the Byron community, in Section 11, T1S, R3E, MDB&M. The facility location is shown on Attachment A, which is attached hereto and made part of this Order by reference.

6. The Assessor's Parcel Numbers for the P/E ponds are APN 002-180-01 and 002-180-02 and the discharge point is APN 002-032-002. The site plan of the facility is shown on Attachment B, which is attached hereto and made part of this Order by reference.

### **Existing Facility and Discharge**

7. The existing facility was previously permitted for 80,000 gpd and consists of an influent pump station, bar screens, a 40,000 gallon Imhoff tank, six percolation and evaporation (P/E) ponds, and a 10 acre land application area.
8. The existing WWTF treats wastewater from the community of Byron with 381 equivalent dwelling units (EDUs) equating to 68,600 gpd assuming 180 gpd per EDU. Connections include 219 residences, a 540-student elementary school, the Contra Costa County Boy's Ranch, and commercial facilities. The single largest commercial facility is Marin Food Specialties, Inc., a small health food packaging plant with bakery that discharges process and wash water. For pretreatment, Marin Food Specialties has a grease trap that they are required to clean every 6 weeks.
9. The RWD reports the 2007 annual average flow as approximately 60,800 gpd with a maximum monthly average flow of 65,700 gpd and a minimum of 54,600 gpd. Flow data for 2007 was assumed to be more accurate than historic flow data due to a previously failed check valve. The faulty valve allowed the backflow of wastewater and resulted in double counting of influent flow. The valve was replaced in August 2007.
10. The RWD water balance assumes an inflow and infiltration (I/I) of 4,800 gpd during the wet winter months November through March. The I/I value is based on five percent of the proposed 96,000 gpd design flow. The assumed I/I value is considered to be an adequate estimate based on the 2007 annual flow data and average monthly precipitation, which shows most I/I occurring during the dry summer months. The summer I/I is thought to result from irrigation practices from adjacent agriculture. The Discharger has plans to rehabilitate the wastewater collection piping impacted by the irrigation as described in Finding 40.
11. The WWTF's pond system is composed of six P/E ponds that also treat and store the wastewater. The planned treatment operation of the ponds is discussed in Finding 34 and 35. The primary disposal mechanism of wastewater occurs primarily through the ponds from evaporation and percolation. The RWD assumes a conservative infiltration rate of 0.03 feet per day based on published infiltration rates (0.12 to 0.40 ft/d) for Marcuse Clay, described by the National Resource Conservation Service Soil Survey, that underlie the facility. The percolation for Ponds 1 and 2 were further reduced to 0.015 ft/d to account for solids accumulation. The physical characteristics of the four treatment ponds and two storage ponds are summarized below:

Pond Name	Area (acres)	Max depth <sup>1</sup> (feet)	Max Volume (ac-ft)	Function
Pond 1	0.41	3.0	1.24	Treatment/disposal
Pond 2	0.44	3.0	1.33	Treatment/disposal
Pond 3	0.96	3.0	2.89	Treatment/disposal
Pond 4	0.88	3.0	2.64	Treatment/disposal
Pond 5	1.07	5.0	5.35	Storage/disposal
Pond 6	1.47	5.0	7.35	Storage/disposal

<sup>1</sup> Water depth at capacity minus two feet of freeboard

12. The WWTF does not currently use aerators or other active treatment systems. Reduction of biochemical oxygen demand (BOD) and total suspended solids (TSS) is achieved through atmospheric oxygen diffusion during extended retention in the WWTF ponds. The wastewater is not disinfected.
13. Since wastewater will not be disinfected all precipitation commingled with wastewater is retained on site. Precipitation may commingle with wastewater at the headworks, P/E ponds, and the land application area. The land application area slopes west to east and contains a berm on the eastern edge to retain applied wastewater and storm water runoff.

#### **Site Description and Land Application**

14. The Discharger previously bought the 20-acre agricultural parcel south of the existing disposal facility, as shown in Attachment B, to provide additional effluent disposal area. A botanical survey and wetland assessment of the 20-acre parcel was prepared for the Discharger on 11 January 1999. The study found that approximately 5.1 acres of the parcel are occupied by wetlands. Additionally, a rare plant species (San Joaquin saltbush) is established on a 3.2-acre area in the western portion of the parcel. The Discharger's consultant used indicators prescribed by the U.S. Army Corps of Engineers for delineating wetlands.
15. On 10 March 1999, the Discharger certified a Mitigated Negative Declaration for use of the 20-acre parcel for effluent disposal. Mitigation consisted of wetlands avoidance and relocation of the San Joaquin saltbush to a 1.95-acre mitigation site in the southwest corner of the parcel to offset the loss of approximately one acre of its habitat during construction of the proposed disposal area expansion. Consequently, the Discharger only uses the 10 acres of the parcel for a land application area and effluent disposal.
16. The 10 acre land application area slopes gently from east to west. To protect the wetlands water quality and the rare species habitat area, an earthen dike has been constructed on the eastern edge to contain effluent within the 10-acre portion of the parcel that is for effluent disposal.

- 17. The RWD states that wastewater from the P/E ponds is directed to the land application area when the ponds are at capacity, a pond is closed for maintenance, or to maintain vegetative growth.
- 18. The RWD assumes a conservative infiltration rate of 0.03 feet per day based on published infiltration rates (0.12 to 0.40 ft/d) for Marcuse Clay. The percolation for the land application area was further reduced in the water balance to 0.015 ft/d as an additional factor of safety.

**Chemical Characteristics of Supply, Influent and Effluent Waters**

- 19. The community of Byron does not have a public water supply system, so the chemical character of the municipal water supply is unknown. Residents in the community acquire supply water through private wells, which are not monitored.
- 20. On 8 September 2003, the Regional Water Board Executive Officer issued a Revised Monitoring and Reporting Program that did not require influent sampling. According to the RWD, commercial and industrial wastewater contributions to the WWTF are minimal. Data from a single sampling event on 23 October 2007 are provided below:

Constituent	Units	Value
pH	pH Units	7.1
BOD	mg/L	390
Total Dissolved Solids	mg/L	1300
Total Suspended Solids	mg/L	170
Total Kjeldahl Nitrogen	mg/L	42
Electrical Conductivity	µmhos/cm	2400
Nitrate – N	mg/L	<0.25
Ammonia –N	mg/L	34

The high TDS and EC values are presumably caused by naturally occurring saline groundwater used by the community for municipal water supply. These values are less than the background monitoring well values collected from the WWTF from May 2005 to November 2007 (presented in Finding 50), which are at a minimum 12,000 mg/L for TDS and 22,000 µmhos/cm for EC.

- 21. The range of the Imhoff tank effluent quality collected once per month from May 2005 to December 2007 is presented below for constituents required by the Revised Monitoring and Reporting Program. Total suspended solids were also sampled once in December 2006. The RWD also provides the averaged results of a duplicate sample analysis sampled in February 2005. This data is summarized below:

Constituent	Units	Average	Maximum	Minimum
pH <sup>1</sup>	pH Units	7.3	7.5	6.9
BOD <sup>1</sup>	mg/L	157	270	87
Total Kjeldahl Nitrogen <sup>1</sup>	mg/L	42	66	26
Electrical Conductivity <sup>1</sup>	µmhos/cm	2528	3100	1700
Total Dissolved Solids <sup>2</sup>	mg/L	1278	1700	950
Total Suspended Solids <sup>3</sup>	mg/L	1300	--	--
Nitrate – N <sup>4</sup>	mg/L	< 0.5	--	--
Ammonia – N <sup>4</sup>	mg/L	40	--	--
Sodium <sup>4</sup>	mg/L	367	--	--
Chloride <sup>4</sup>	mg/L	370	--	--
Calcium <sup>4</sup>	mg/L	50	--	--
Total Alkalinity – CaCO <sub>3</sub> <sup>4</sup>	mg/L	630	--	--
Magnesium <sup>4</sup>	mg/L	32	--	--
Boron <sup>4</sup>	mg/L	4.5	--	--
Iron <sup>4</sup>	mg/L	0.15	--	--
Lead <sup>4</sup>	mg/L	< 0.001	--	--
Chromium <sup>4</sup>	mg/L	0.014	--	--
Aluminum <sup>4</sup>	mg/L	< 0.1	--	--
Zinc <sup>4</sup>	mg/L	0.059	--	--
Manganese <sup>4</sup>	mg/L	0.105	--	--
Orthophosphate	mg/L	5.5	--	--
Fluoride <sup>4</sup>	mg/L	0.3	--	--
Bromide <sup>4</sup>	mg/L	1.0	--	--

<sup>1</sup> Imhoff effluent samples collected monthly from May 2005 to December 2007 (32 samples)

<sup>2</sup> Imhoff effluent sample data not available for December 2006 (31 samples)

<sup>3</sup> Imhoff effluent sampled once in December 2006 (1 sample)

<sup>4</sup> Imhoff effluent duplicate sample analysis from February 2005 (2 samples)

Since the Imhoff tank does not provide any TDS or EC reduction, as expected the values do not change significantly from the influent characteristics. While the Imhoff tank provided a predictable reduction in BOD, the reason for increase in TSS, which was only sampled once from the Imhoff tank effluent, is difficult to determine and may have been sampled during a period of high variability. However, the Imhoff tank has a reported history of not being cleaned and biosolid accumulation causing system bypass, as reported in the CAO and TSO. The Discharger states that replacing the Imhoff tank with a new, updated headworks, as discussed in Finding 29, is expected to improve water quality flowing into the ponds and minimize variability.

22. The RWD provides effluent data for disposal to the land application area after pond treatment. The land application data are the averaged results of a duplicate sample analysis sampled in February 2005 and at the same time as the Imhoff tank effluent as described in Finding 21. The table below provides the land application data and the percent change as compared to the Imhoff tank effluent data. Most values either decreased or remained the same.

Constituent	Units	Value	% Change <sup>1</sup>
Nitrate - N	mg/L	<0.05	0%
Ammonia - N	mg/L	40	0%
Sodium	mg/L	420	14%
Chloride	mg/L	370	0%
Calcium	mg/L	77	54%
Total Alkalinity – CaCO <sub>3</sub>	mg/L	580	-8%
Magnesium	mg/L	36	13%
Boron	mg/L	4.6	2%
Iron	mg/L	0.12	-20%
Lead	mg/L	<0.001	0%
Chromium	mg/L	0.01	-29%
Aluminum	mg/L	<0.1	0%
Zinc	mg/L	0.012	-80%
Manganese	mg/L	0.127	21%
Orthophosphate	mg/L	4.5	-18%
Fluoride	mg/L	0.2	-33%
Bromide	mg/L	1.0	0%

<sup>1</sup> Difference in Imhoff tank effluent and wastewater applied to land application area divided by Imhoff tank effluent

**Previous Enforcement**

23. In November 2002, the Regional Water Board adopted CAO No. R5-2002-0733, which states that the “Discharger’s facility needs significant improvements to prevent pond berm failure, prevent seepage into the adjacent wetlands, and improve effluent quality.” The CAO requires the discharger to construct a wastewater treatment facility that complies with WDR Order No. 5-00-0058 by 30 October 2004 and submit supporting progress reports during development.
24. In January 2005, the Regional Water Board adopted TSO No. R5-2005-0900 because the Discharger was not complying with the CDO or WDRs Order No. 5-00-058. The TSO states that the WWTF has degraded groundwater with respect to nitrogenous compounds and coliform bacteria. The TSO specifies a contingent timeline for submitting progress

reports and constructing a wastewater treatment facility capable of ensuring long-term compliance with WDRs Order No. 5-00-058.

### **Planned Changes in Discharge**

25. The Discharger submitted a RWD in March 2008 and supplemental information in August 2008 for updating the existing WWTF to comply with the CDO and TSO.
26. After improvements, the WWTF will be designed to treat an average of 96,000 gpd. Future connections are estimated to include an additional 84 equivalent dwelling units (EDUs) totaling 465 EDUs equating to an ADWF of 83,700 gpd, assuming 180 gpd per EDU.
27. Anticipated future growth includes infill projects, the annexation of a small section of Byer road, school expansion, and business redevelopment.
28. The improvements do not account for other long-term future developments of a proposed Bay Area Rapid Transit (BART) station or a planned commercial development at the Contra Costa County Eastern Airport. The RWD states that, accepting wastewater from these developments would likely require further facility improvements and a permit revision.
29. The existing Imhoff tank and pump station will be replaced with a new headworks, pump station and magnetic flowmeter. The headworks will consist of a channel-mounted rotating screen. The rotating screen is designed to remove solids greater than 0.25 inches. The screened solids will be removed by a shaftless screw conveyor. Screens will be washed using a non-potable well planned for installation. The screened solids are bagged, stored in a dumpster, and hauled off site to a permitted disposal facility.
30. The pump station will consist of a five foot diameter wet well and two submersible pumps – one active and one standby. Each pump will have a capacity of 331,200 gpd providing capability to handle the 96,000 gpd design flow, five percent I/I, and a 3.3 peaking factor. The wet well will be equipped with a low and high level alarm system. The alarm system will alert operators of a failure with an auto-dialer and warning lights on the control panel. The RWD states that WWTF is visited each day by an operator. The wet well has the capability to accept power from a portable generator in case of power failure. The wet well can also be retrofitted with a dedicated generator if required.
31. In case of a power outage and pump failure, a sewer overflow pipeline will convey raw wastewater by gravity to Ponds 5 and 6 for emergency storage and to prevent a wastewater spill. The auto-dialer will notify the operator on call who will power the pumps with a portable generator as soon as possible. Additionally, any wastewater bypassed to Ponds 5 or 6 will be pumped to Pond 1 with a portable pump.
32. Flow volumes will be monitored using a magnetic flow meter installed after the wet well and prior to the P/E ponds.
33. The RWD describes planned pond rehabilitation that includes: (1) removal of sludge from Ponds 1 through 4, (2) replacing valve and overflow structures, (3) repairing of the berm

between Ponds 3 and 4, (4) repairing and reshaping of pond berms as needed, (5) placing broken concrete on portions of pond berms to prevent erosion, and (6) replacing transfer piping to allow greater flexibility in pond operation as described below.

34. Ponds 1 through 4 will be fitted with new flow transfer piping that will allow the pond system to be operated in series or parallel. The WWTF is anticipated to be primarily operated in the series configuration with wastewater from the headworks flowing into Pond 1 and then into Pond 3, 4 and 2, consecutively. Wastewater from Pond 3 will be able to flow to either Pond 5 or Pond 6 as needed for additional storage capacity. Additionally, wastewater from Pond 2 will be pumped to the land application area as needed. A wastewater diagram for the series configuration is shown on Attachment C, which is attached hereto and made part of this Order by reference.
35. The flow between ponds will switch to the parallel configuration during a time of high BOD load and low temperatures such that Pond 1 would not be able to meet the dissolved oxygen requirement of 1 mg/L. In parallel mode, the BOD load would be split between Pond 1 and 2 to obtain a greater surface area for oxygen transfer. Wastewater from Pond 1 will flow to Pond 3 and wastewater from Pond 2 will flow to Pond 4. Wastewater from either Pond 3 or Pond 4 will be able to flow to either Pond 5 or Pond 6 as necessary for storage and disposal. Wastewater from Pond 2 will not be discharged to the land application area for a period of 30 days after converting from parallel to series configuration.

### **Existing Wastewater Collection System and Planned Improvements**

36. The collection system consists of about 12,000 feet of 6-, 8-, and 10-inch sewer mains with about 10,500 feet owned by Byron Sanitary District. The collection system is primarily constructed of vitrified clay pipe (approximately 76%) with the remaining being a mixture of polyvinyl chloride (PVC) and steel pipe. The 2007 flow data do not show a significant amount of I/I during the rainy winter months. However, the discharger states that the greatest I/I occurs during August as a result of irrigation from an alfalfa field immediately west of the facility.
37. The sanitary sewer system collects wastewater and consists of sewer pipes, manholes, and/or other conveyance system elements that direct raw sewage to the treatment facility. 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 treatment facility. 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. Sanitary sewer overflow is also defined in State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*. The Internet web location for State Water Board Order No. 2006-0003-DWQ is:  
[http://www.waterboards.ca.gov/resdec/wqorders/2006/wqo/wqo2006\\_0003.pdf](http://www.waterboards.ca.gov/resdec/wqorders/2006/wqo/wqo2006_0003.pdf).



38. Sanitary sewer overflows consist of varying mixtures of domestic and commercial wastewater, depending on land uses in the sewage collection system. The chief causes of sanitary sewer overflows include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and/or contractor caused blockages.
39. 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 exceedance 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.
40. The Discharger shall take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system. The RWD states that the Discharger will improve the wastewater collection system by removing accumulated sand and gravel, install intermediate manholes in pipe runs exceeding 400 feet, and bring buried manholes to grade. The Discharger has plans to repair the main line along Camino Diablo Road, which is expected to significantly decrease I/I associated with the adjacent alfalfa field irrigation.
41. The Discharger has submitted a Notice of Intent to apply for coverage under State Water Board Order No. 2006-0003-DWQ. The discharger has completed the *Development Plan and Schedule* and *Sanitary Sewer Management Plan (SSMP) Sections I, II, III and VI*. This Order requires the Discharger to complete and implement the SSMP consistent with State Water Board Order No. 2006-0003-DWQ and to comply with that Order and its General WDRs Monitoring and Reporting Program (Water Quality Order No. 2008-0002-EXEC).

#### **Site-Specific Conditions**

42. The WWTF site is at an elevation approximately at 10 feet mean sea level (MSL), and the area is relatively flat with drainage west to east. Surface water drainage is to Sacramento San Joaquin Delta collected through agricultural drains and Fisk Creek.
43. Annual precipitation in the vicinity averages approximately 13.35 inches. The 100-year total annual precipitation is approximately 22.2 inches. The mean evapotranspiration rate is approximately 55.21 inches per year.
44. The P/E ponds and the land disposal area are within the 100-year flood plain. However, the ponds and land disposal area are protected from inundation by their perimeter levee.
45. Based on the Natural National Resource Conservation Service soil survey, the soils underlying the WWTF consist of Marcuse Clay.

46. Published infiltration rates for the soils range from 0.06 to 0.20 in/hr (0.12 to 0.40 feet per day).
47. The WWTF is adjacent to an agriculture field, a seasonal wetlands, and Fisk Creek, which is also seasonal. Fisk Creek provides irrigation drainage and flows north into Discovery Bay and eventually into the Sacramento San Joaquin Delta. Fisk Creek has historically had beaver dams that cause inundation of both the wetlands adjacent to the land application area and the stormwater drainage ditch along Camino Diablo Road during the wet season. During a site visit, the discharger stated that the beaver dam had been removed. Additionally, in 2008, the discharger fixed a culvert along Camino Diablo Road and Fisk Creek that was prone to blockage that also caused inundation of the wetlands and stormwater drainage ditch. The removal of the beaver dam and fixing the culvert are expected to minimize further inundation.

### Groundwater Considerations

48. The RWD states that, the typical depth to groundwater underlying the WWTF is five feet below ground surface. Groundwater levels are usually one foot or more below the P/E pond bottoms but groundwater monitoring data indicate that groundwater can be higher than the pond bottoms. However, during periods of high groundwater, a water level rise was not observed in the ponds. The RWD states that: "Groundwater is found in a sandy aquifer beneath a clay layer that extends from the surface to 20 to 35 feet bgs. Because of the clay layer, the aquifer is confined or semi-confined. Therefore, groundwater levels measured in the monitoring wells are an indication of the potentiometric surface of the groundwater in the deeper sand aquifer, not an indication of the actual position of groundwater in the clay layer." The water balance accounts for this reduction in permeability by reducing the published soil percolation rate as described in Finding 11.
49. Groundwater flow direction for the area trends from the west to the east northeast..
50. The range of groundwater quality data observed from monitoring during eleven quarterly events conducted from May 2005 to November 2007 is presented below.

Constituent	Range of Analytical Results <sup>1</sup>						
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6 <sup>2</sup>	MW-7 <sup>3</sup>
Total coliform organisms	<2 - 1600	<2 - 1600	<2 - 1600	<2	<2 - 500	<2 - 7	<2
Electrical Conductivity	5700 - 7100	2600 - 4400	2300 - 6400	3400 - 4800	3700 - 6800	23000 - 28000	22000 - 25000
Total dissolved solids	3400 - 4000	1500 - 2400	1400 - 3900	2200 - 3000	2400 - 4000	13000 - 17000	12000 - 15000
Nitrate - N	<0.1 - 3.9	<0.1	<0.1 - 5.7	1.9 - 8.1	<0.1	0.4 - 1.2	0.4 - 0.8
Ammonia - N	<0.1	<0.1 - 2.7	<0.1 - 0.2	<0.1 - 0.2	<0.1 - 0.5	<0.1	<0.1 - 0.3

<sup>1</sup> mg/L except for total coliform organism (MPN/100 mL) and electrical conductivity (µmhos/cm)

<sup>2</sup> Side gradient background well

<sup>3</sup> Upgradient background well

The region is known to have naturally occurring high saline groundwater as indicated by the high values of electrical conductivity (EC) and total dissolved solids (TDS) in background wells MW-6 and MW-7. While wells monitoring the WWTF's impact to groundwater indicate concentrations for EC and TDS that exceed Basin Plan limits, these concentrations are actually a near order of magnitude less than background concentrations.

The CAO and TSO state that the WWTF's operations have impacted the groundwater in terms of total coliform organisms (TCO), nitrate, and ammonia. However, the Discharger states that impacted wells are impaired and/or inappropriately located. Specifically, the construction logs for monitoring wells MW-1, -2, and -3 can not be located and do not have adequate surface seals resulting in surface water intrusion, which has impacted monitoring results for coliform. The Discharger also states that MW-4 is not appropriately placed within the WWTF's controllable property boundary. Additionally, the Discharger claims that nitrate and ammonia levels in MW-3 and MW-4, which are adjacent to Fisk Creek, may have been influenced by irrigation drainage and dredging activity in Fisk Creek. While the Discharger has not provided surface monitoring data to support the potential influence of Fisk Creek on MW-3 and MW-4, the locality and monitoring data in MW-5 support this potential influence and show that upgradient wastewater ponds are not detrimentally affecting groundwater in terms of nitrate and ammonia. Additionally, coliform concentrations in MW-5 have not exceeded 2 MPN/mL since the maximum concentration of 500 MPN/mL occurred in May 2006 and only exceeded 2 MPN one other time in May 2005 at 13 MPN/mL. These concentrations potentially may have occurred due to sampling contamination. Therefore, MW-5 is considered to be the only monitoring well indicative of downgradient groundwater quality.

The RWD and supplemental *MW-4 Replacement Workplan* state that monitoring wells MW-1, -2, -3 and -4 will be abandoned and replacement monitoring wells will be constructed. The RWD provides a rationale describing the relocation of the new monitoring wells to positions less likely to be impacted by surface water intrusion and that will better monitor groundwater conditions underlying the facility. The *MW-4 Replacement Workplan* proposes a location within the fenced perimeter of Ponds 5 and 6 capable of monitoring downgradient groundwater conditions.

51. The historical groundwater data and substantial changes in the monitoring well network make it appropriate for this Order to require the Discharger to submit a *Monitoring Well Disinfection Workplan* in event of continued coliform violations and to provide a statistical evaluation of groundwater quality in the form of a *Groundwater and Pond Evaluation Report*.

### **Basin Plan, Beneficial Uses, and Water Quality Objectives**

52. 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. These requirements implement the Basin Plan.

53. Surface water drainage from the site is to agricultural ditches and Fisk Creek, which flow into the Sacramento San Joaquin Delta. The Basin Plan designates the beneficial uses of the Sacramento San Joaquin Delta as municipal and domestic supply (MUN); agricultural supply (AGR); industry process (PROC); industry service supply (IND); water contact recreation (REC-1); noncontact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); warm and cold water migration (MIGR); spawning, reproduction and/or early development of warm freshwater aquatic organisms (SPWN); wildlife habitat (WILD); and navigation (NAV).
54. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO). The shallow groundwater contains salts in concentrations exceeding the State Water Resources Control Board *Sources of Drinking Water Policy* criteria for source of drinking water, however without an amendment to the Water Quality Control Plan and an exemption from the State Water Board, the shallow groundwater must be protected as a municipal and domestic drinking water supply.
55. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
56. The Basin Plan's narrative water quality objective for chemical constituents, at a minimum, requires waters designated as domestic or municipal supply to meet the MCLs specified in Title 22. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
57. In summary, the narrative toxicity objective 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. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.
58. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater. The applicability of this objective to groundwater designated as MUN has been affirmed by State Water Board Order No. WQO-2003-0014 and by subsequent decisions of the Sacramento County Superior Court and California Court of Appeal, 3rd Appellate District.
59. The applicable groundwater limitation for nitrate as nitrogen is the background groundwater quality. The background groundwater quality for nitrate as nitrogen ranged from 0.4 to

1.2 mg/L from May 2005 to November 2007, which is less than the California primary MCL of 10 mg/L.

60. The applicable groundwater limitation for ammonia as nitrogen is the background groundwater quality. The background groundwater quality for ammonia as nitrogen ranged from less than 0.1 to 0.3 mg/L from May 2005 to November 2007, which is less than the applied narrative Taste and Odor objective of 1.5 mg/L.

### **Antidegradation Analysis**

61. State Water Resources Control Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
- a. The degradation is consistent with the maximum benefit to the people of the State;
  - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
  - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives; and
  - d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.
62. 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 the State. The technology, energy, 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. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and groundwater degradation provided terms of the Basin Plan are met.
63. Constituents of concern that have the potential to degrade groundwater include nutrients and coliform organisms, as discussed below:
- a. For nutrients such as nitrate, the potential for unreasonable degradation depends not only on the quality of the treated effluent, but the ability of the vadose zone below the effluent storage/disposal ponds to provide an environment conducive to nitrification and denitrification to convert the effluent nitrogen to nitrate and the nitrate to nitrogen gas before it reaches the water table. While the groundwater monitoring data indicate that groundwater has been impacted in respect to nitrate and ammonia resulting from wastewater application to unlined wastewater ponds and to the land disposal area, the Discharger claims that data are not representative of WWTF activity. Subsequently, the Discharger proposes to reconstruct and relocate impaired monitoring wells to acquire more representative data as indicated in MW-5. Therefore, pending

completion of the *Groundwater and Pond Evaluation Report*, there is no reason to require denitrification at this time.

- b. For coliform organisms, the potential for exceedance of the Basin Plan's numeric water quality objective depends on the ability of vadose zone soils below the effluent storage/disposal ponds and saturated soils within the shallow water bearing zone to provide adequate filtration. Again, the Discharger claims that impacted monitoring wells (MW-1, -2 and -3) suffered from inadequate construction and impaired surface seals that caused surface water intrusion that caused the detection of naturally occurring surface coliform organisms. The fact that total and fecal coliform organisms have been less than 2 MPN/mL in MW-4 and have not been detected in MW-5 since August 2006 indicates that there may be adequate filtration at the wastewater treatment plant site. Although disinfection would reduce the potential threat, the use of sodium hypochlorite would also increase the salinity of the effluent and create trihalomethanes. Therefore, pending completion of the *Groundwater and Pond Evaluation Report*, there is no reason to require disinfection at this time.
64. For EC, the background groundwater monitoring data exceeds all applicable Basin Plan limits. The minimum background EC concentration found between May 2005 and November 2007 was 22,000  $\mu\text{mhos/cm}$ . In comparison, for the same time period, the maximum downgradient groundwater EC concentration in MW-5 was 6,800  $\mu\text{mhos/cm}$ . Additionally, between May 2005 and December 2007 the maximum effluent EC concentration was 3,100  $\mu\text{mhos/cm}$ . Therefore, the discharge will most likely not impair the beneficial uses of groundwater due to increased salinity. Based on best professional judgment, as long as the Discharger continues to implement BPTC an EC limit and a salinity reduction program are not required for this discharge.
  65. The Discharger submitted an *Antidegradation Plan* in March 2008 and a supplemental *MW-4 Replacement Workplan* in November 2008. The overall plan outlines the rehabilitation of the current groundwater monitoring well network to establish baseline criteria for groundwater elevation, gradient, and water quality. The plan includes replacing four monitoring wells and retrofitting the well heads of the three other monitoring wells to prevent the potential intrusion of surface water. The plan also proposes to include the monitoring of fixed dissolved solids, total Kjeldahl nitrogen, boron, chlorides, iron, manganese, and sodium on a quarterly basis and sample standard minerals and metals on an annual basis. This Order requires the timely submittal of the *Groundwater and Pond Evaluation Report* and subsequent BPTC evaluation and implementation. Completion of these tasks, and implementation of any necessary approved strategies developed from that work, will confirm that BPTC and the highest water quality consistent with the maximum benefit to the people of the State have already been achieved, or if not, will ensure that they are achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16. Based on the results of the scheduled tasks, the Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

### **Treatment and Control Practices**

66. After improvements, the Discharger will provide treatment and control of the discharge that incorporates:
  - a. Alarms and operational procedures to minimize and prevent bypass or overflow;
  - b. A flexible flow design between ponds to accommodate potentially high BOD loads without losing treatment capability;
  - c. Appropriate biosolids storage and disposal practices;
  - d. An Operation and Maintenance (O&M) manual; and
  - e. The use of certified operators to assure proper operation and maintenance.
67. As noted above, it is not clear whether the WWTF has impacted underlying groundwater quality and the level of degradation that complies with Resolution No. 68-16 has not been fully evaluated. Even if some historic degradation has occurred, the facility improvements described in Finding No. 3 were designed to eliminate any future degradation. Therefore, it is appropriate for this Order to establish a schedule of tasks to formally evaluate groundwater quality and evaluate additional BPTC measures if unreasonable groundwater degradation will occur. Completion of these tasks, and implementation of the approved strategies developed from that work, will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved, or will confirm that the facility already meets these standards with the new upgrades.
68. This Order establishes groundwater limitations 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.

### **Other Regulatory Considerations**

69. The State Water Board adopted Order No. 97-03-DWQ (NPDES General Permit No. CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The wastewater treatment plant facilities are designed to contain all storm water runoff that might have contacted the waste regulated under this Order. Because there is no storm water discharge from the industrial portion of the facility, the Discharger is not required to obtain coverage under NPDES General Permit No. CAS000001.
70. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems General Order No. 2006-0003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length, therefore the General Order is applicable.

The Discharger has filed a Notice of Intent (NOI) for coverage under the General Order with the State Water Resources Control Board.

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

The technical reports required by this Order and the attached “Monitoring and Reporting Program No. R5-2009-0002” are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

72. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to CWC Section 13801, apply to all monitoring wells.
73. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with Title 14 CCR, Section 15301. This Order involves negligible or no expansion of use of the facility, which has been upgraded to decrease its potential water quality impacts.
74. 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.
75. The Regional Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Water 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. All biosolids will be hauled to a separate permitted facility.
76. 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



CCR Section 20380. 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.

77. 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, CCR, Section 20380 et seq. 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 facility.
78. Pursuant to CWC 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**

79. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, as well as the Regional Water Board's administrative record, were considered in establishing the following conditions of discharge.
80. The Discharger and interested agencies and persons have been notified of the Regional Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.
81. All comments pertaining to the discharge were heard and considered in a public hearing.

**IT IS HEREBY ORDERED** that, pursuant to Sections 13263 and 13267 of the California Water Code, Waste Discharge Requirements Order No. 5-00-058, Cleanup and Abatement Order No. R5-2002-0733 and Time Schedule Order No. R5-2005-0900 are rescinded and Byron Sanitary District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

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

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

1. Discharge of wastewater at a location or in a manner different from that described in the findings is prohibited.
2. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
3. Discharge of waste classified as "hazardous" under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of the California Water Code is prohibited.
4. Bypass or overflow of untreated or partially treated waste is prohibited.
5. Discharge of sewage from a sanitary sewer system at any point upstream of a wastewater treatment plant is prohibited. Discharge of wastewater downstream of the wastewater treatment plant, other than at the designated P/E ponds or land application area, is prohibited.

#### **B. Discharge Specifications**

1. **Effective immediately**, the average daily dry weather flow shall not exceed 96,000 gpd between the months April through October, and the average daily flow shall not exceed 100,800 between the months November through March, inclusive. The total annual influent flow shall not exceed 35.8 million gallons.
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. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Section 13050 of the California Water Code (CWC).
4. The Discharger shall operate all systems and equipment to optimize the quality of the treated effluent.
5. Public contact with wastewater shall be precluded or controlled through such means as fences, signs, or acceptable alternatives.
6. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the wastewater treatment, storage or P/E ponds at an intensity that creates or threatens to create nuisance conditions.
7. As a means of discerning compliance with Discharge Specification B.6, the dissolved oxygen content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.
8. All P/E ponds shall be managed to prevent 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 water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
9. All treatment and storage facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
  10. The WWTF shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
  11. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment levees and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain in each pond permanent staff gauges with calibration marks that indicate the water level at design capacity and enable determination of available operational freeboard.
  12. On or about **15 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications B.10 and B.11.
  13. No stored wastewater shall have a pH less than 6.5 or greater than 10.0.

**C. Land Discharge Specifications**

1. Land discharge of effluent shall comply with the following setback requirements:

Setback Definition <sup>1</sup>	Minimum Irrigation Setback (feet)
Edge of land application area to property boundary	50
Edge of land application area to a public road	50
Edge of land application area to an irrigation well	100
Edge of land application area to a domestic well	100

Setback Definition <sup>1</sup>	Minimum Irrigation Setback (feet)
Edge of land application area to a manmade or natural surface water drainage course <sup>2</sup> or spring	50

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

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

2. Land discharge runoff (i.e., discharge tailwater and stormwater) shall be completely contained within the designated land application area and shall not enter any surface water drainage course.
3. Land discharge of effluent shall not be applied at a BOD loading rate greater than 100 pounds BOD per acre per day or at a mass loading rate that would create a nuisance condition or degrade groundwater quality.
4. Land discharge 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. The land disposal area shall be managed to maintain uniform infiltration and best practicable disposal efficiency.
6. The land discharge areas 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.

**D. General Solids Disposal Specifications**

1. Sludge means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the facility. Biosolids refers to sludge that has undergone sufficient treatment and testing to qualify for reuse pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land recycling.

2. Sludge and solid waste shall be removed from screens, sumps, and ponds as needed to ensure optimal plant operation.
3. Treatment and storage of sludge shall be confined to the treatment facility property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
4. Any storage of residual sludge, solid waste, and biosolids at the facility shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.
5. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27 CCR Division 2. Removal for further treatment, disposal, or reuse at disposal sites operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.
6. Use and disposal of biosolids shall comply with the self-implementing Federal regulations of 40 CFR 503, which are subject to enforcement by the U.S. EPA, not the Regional Water Board. If during the life of this Order, the state accepts primacy for implementation of 40 CFR 503, the Regional Water Board may also initiate enforcement where appropriate.

**E. Receiving Water – Groundwater Limitations**

1. Release of waste constituents from any wastewater treatment or storage system component associated with the wastewater treatment facility shall not contribute to groundwater or cause groundwater to:
2. Contain constituent concentrations in excess of the concentrations specified below or monitored background quality, whichever is greater.

Constituent	Units	Limitation
Nitrite (as N)	mg/L	BG <sup>2</sup>
Nitrate (as N)	mg/L	BG <sup>2</sup>
Ammonia (as NH <sub>4</sub> )	mg/l	BG <sup>2</sup>
pH	Std.	6.5 to 8.4
Total Coliform Organisms	MPN/100 mL	2.2
Title 22 <sup>1</sup>	As specified	MCL

<sup>1</sup> Includes all constituents listed in 22 CCR for which primary or secondary MCLs have been promulgated.

<sup>2</sup> Concentration in downgradient monitoring wells can not exceed the value obtained in background monitoring well(s) for that monitoring period.

3. Impart taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

## F. 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 in Provision G.4.
  - a. **Within 120 days** of completion of improvement and rehabilitation construction, **but no later than 1 September 2009**, the Discharger shall submit a *Construction As-Built Completion Report* certifying that the project has been completed as described in the RWD and the improvements are fully operational. The report shall include as-built drawings of the headworks, pump station, P/E ponds and land disposal system. The report must at least specify that the:
    - i. Overflow and alarm system has been installed and is functional;
    - ii. Imhoff tank has been properly abandoned and no longer in use;
    - iii. New headworks and pump station are operational;
    - iv. Sludge has been removed from ponds;
    - v. Transfer piping between Ponds 1, 2, 3, and 4 has been installed and operates as proposed;
    - vi. New land disposal dispersal piping has been installed; and
    - vii. Land application area has been leveled to provide even dispersal of effluent.
  - b. **Within 60 days** of completion of constructing replacement monitoring wells MW-1, -2, -3, and -4, **but no later than 3 August 2009**, the Discharger shall submit a *Monitoring Well Installation Report* prepared in accordance with, and including the items listed in Attachment D: "*Requirements for Monitoring Well Installation Reports.*" The report shall describe the installation and development of all new monitoring wells, and explain any deviation from the previously submitted workplans.
  - c. By **23 February 2010**, if coliform concentrations exceed the 2 MPN/mL limit after two groundwater monitoring well sampling events, the Discharger shall submit a *One Time Monitoring Well Disinfection Workplan*. The workplan must provide a description of the intended disinfection method and adhere to the American Water Works Association Disinfection of Wells standard. Subsequent to disinfection, the acquired groundwater monitoring data will be considered to be representative of underlying groundwater quality.
  - d. **Within 30 months** of installing the replacement monitoring wells and collecting the first representative samples, **but no later than 1 February 2012**, the Discharger shall submit a *Groundwater and Pond Evaluation Report* prepared by a California licensed engineer or geologist. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of

monitoring data and calculation of the concentration in background monitoring wells. Determination of background quality shall be made using the methods described in Title 27 CCR, Section 20415(e)(10), and shall be based on data from at least eight consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare the calculated background concentration with the downgradient monitoring well data and make a determination of whether groundwater degradation has occurred resulting from facility operations. The report shall recommend final groundwater limitations which comply with Resolution 68-16 for the waste constituents listed therein. Subsequent use of a concentration as a final groundwater limitation will be subject to the discretion of the Regional Water Board. In addition, the Discharger shall evaluate the hydraulic relationship between the disposal ponds, Fisk Creek, and any adjacent wetlands, including but not limited to identifying the conditions under which Fisk Creek is either a losing or gaining surface water body. If it is determined that operations of the WWTF has degraded groundwater quality and the upgrades described in Finding No. 3 will not prevent further degradation, the Discharger shall evaluate its treatment system as required by Provision F.2.

- e. By **1 September 2009**, the Discharger shall submit a finalized *Operation and Maintenance Plan (O&M Plan)* for the WWTF. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel. Key personnel shall be familiar with its contents. The O&M Plan shall provide the following:
- i. Operation and Control of Wastewater Treatment - A description of the wastewater treatment equipment; operational controls; treatment requirements/effluent limitations; flow diagrams including valve/gate locations; operation of the treatment systems during start-up, normal operation, by-pass, shut-down, and draining procedures; potential operational problems including a troubleshooting guide.
  - ii. Sludge Handling - A description of the biosolids handling equipment, operational controls, control tests and observations related to process control, potential operational problems including a troubleshooting guide, and disposal procedures.
  - iii. Personnel - Recommended staffing requirements, staff qualifications, training requirements and schedule, and operator certification requirements.
  - iv. Maintenance – Maintenance procedures, equipment record system, scheduling and use of the maintenance record system, inventory system, special tools, warranty provisions and expiration dates, maintenance cost and budgeting system, maintenance schedule of all equipment including lubricants, filters, etc.
  - v. Emergency Response – A description of the vulnerability analysis including emergencies such as power outage, severe weather, or flooding. An equipment and telephone list for emergency personnel and equipment vendors. Coordination procedures with fire, police, and health department personnel, and an emergency operating plan.

- vi. Safety – A general discussion of the hazards of collection systems, mechanical equipment, explosion, pathogens, oxygen deficiencies, chemical and electrical hazards, etc.
  - vii. Appendices – Shall include flow diagrams, valve/gate locations, copy of WDRs, miscellaneous form samples, manufacturer’s manuals, and a list of reference materials.
2. If the *Groundwater and Pond Evaluation Report* shows that the discharge of waste is causing groundwater to contain waste constituents in concentrations statistically greater than background water quality then, within **120 days** of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility’s waste treatment and disposal system to determine best practicable treatment and control for each waste constituent identified to cause groundwater quality degradation. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year. The Discharger shall propose additional or alternate treatment technologies necessary to achieve compliance with the applicable regulations. Proposed technologies will require Regional Water Board staff approval prior to implementation. Following such implementation, the Regional Water Board must determine that any incremental degradation complies with Resolution 68-16 and that the WWTF meets the BPTC requirement.
3. **At least 180 days prior** to any biosolids removal and disposal, the Discharger shall submit a *Biosolids Cleanout Plan*. The plan shall include a detailed plan for sludge removal, sludge drying, and disposal. The plan shall specifically describe the phasing of the project, measures to be used to control runoff or percolate from the sludge as it is drying, and a schedule that shows how all dried sludge will be removed from the site prior to the onset of the rainy season (1 October).
4. **Within the next RWD** for any future expansion of the treatment and disposal system, the Discharger shall include a *Feasibility Study* that provides an evaluation of the improvements considered, including a wastewater return strategy for the land application area, other technology improvements, BPTCs, regionalization opportunities with nearby sanitary districts and the potential implementation of conservation and reuse strategies.
5. 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 bear the professional's signature and stamp.

6. The Discharger shall comply with Monitoring and Reporting Program No. R5-2009-0002, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
7. 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)."
8. 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.
9. The Discharger shall provide certified wastewater treatment facility operators in accordance with Title 23 CCR, Division 3, Chapter 26.
10. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Water Board any material change or proposed change in the character, location, or volume of the discharge.
11. The Discharger shall comply with the requirements of the Statewide General Waste Discharge Requirements (General WDRs) for Sanitary Sewer Systems (Water Quality Order No. 2006-0003), the Revised General WDRs Monitoring and Reporting Program (Water Quality Order No. 2008-0002-EXEC), and any subsequent revisions thereto. Upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow, the Discharger shall notify the Regional Water Board in accordance with Water Quality Order No. 2008-0002-EXEC and 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.
  - d. Cleanup of sewage-related debris at the overflow site.
  - e. Disinfection and posting of the area.

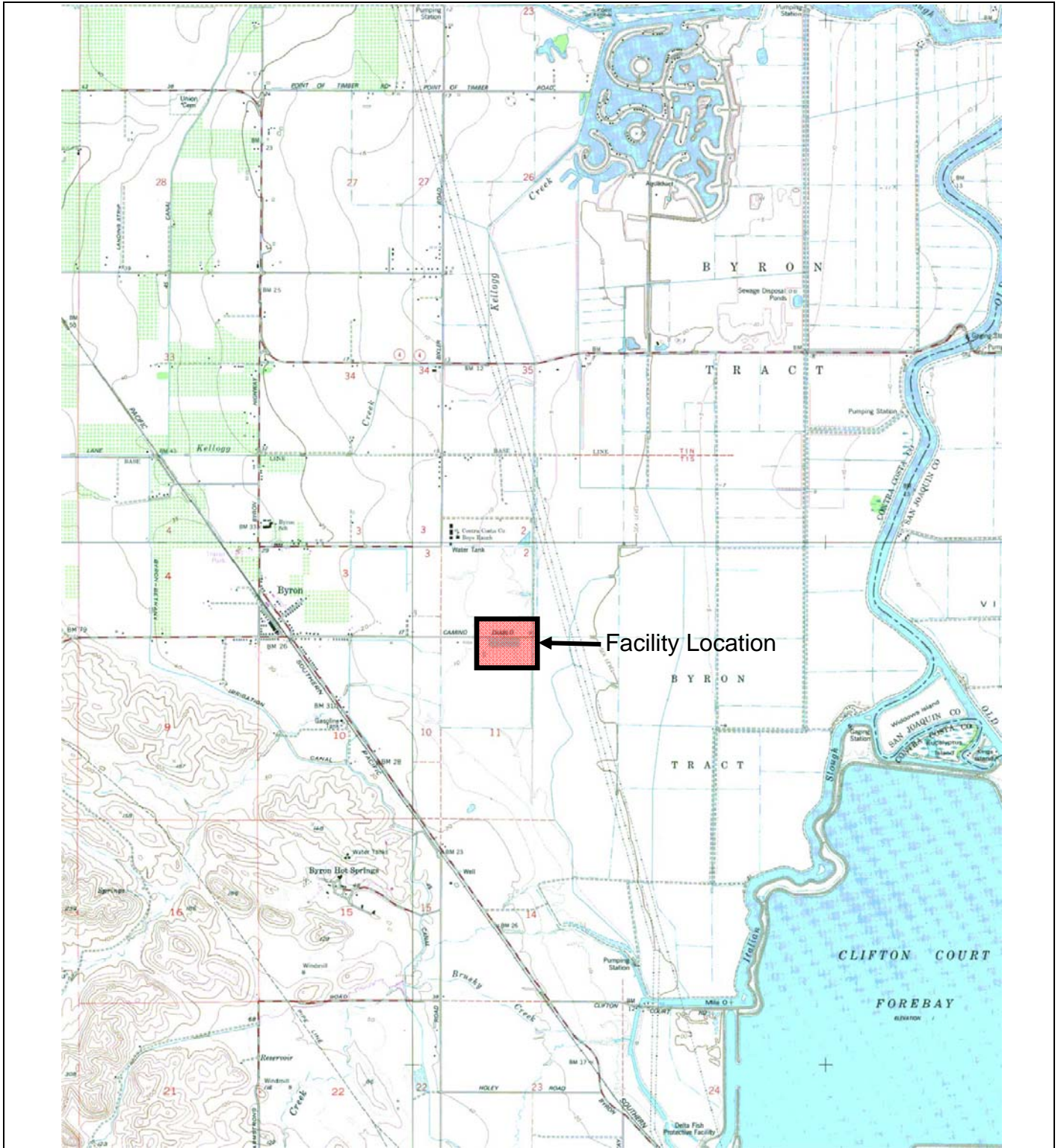
12. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
13. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
14. The Discharger shall submit to the Regional Water 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 Water Board in writing when it returns to compliance with the time schedule.
15. In the event of any change in control or ownership of the facility or wastewater disposal areas, the Discharger must 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. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
16. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Regional Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.
17. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.

18. 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.
19. The Regional Water Board will review this Order periodically and will revise requirements when necessary.

I, PAMELA C. CREEDON, 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 February 2009.

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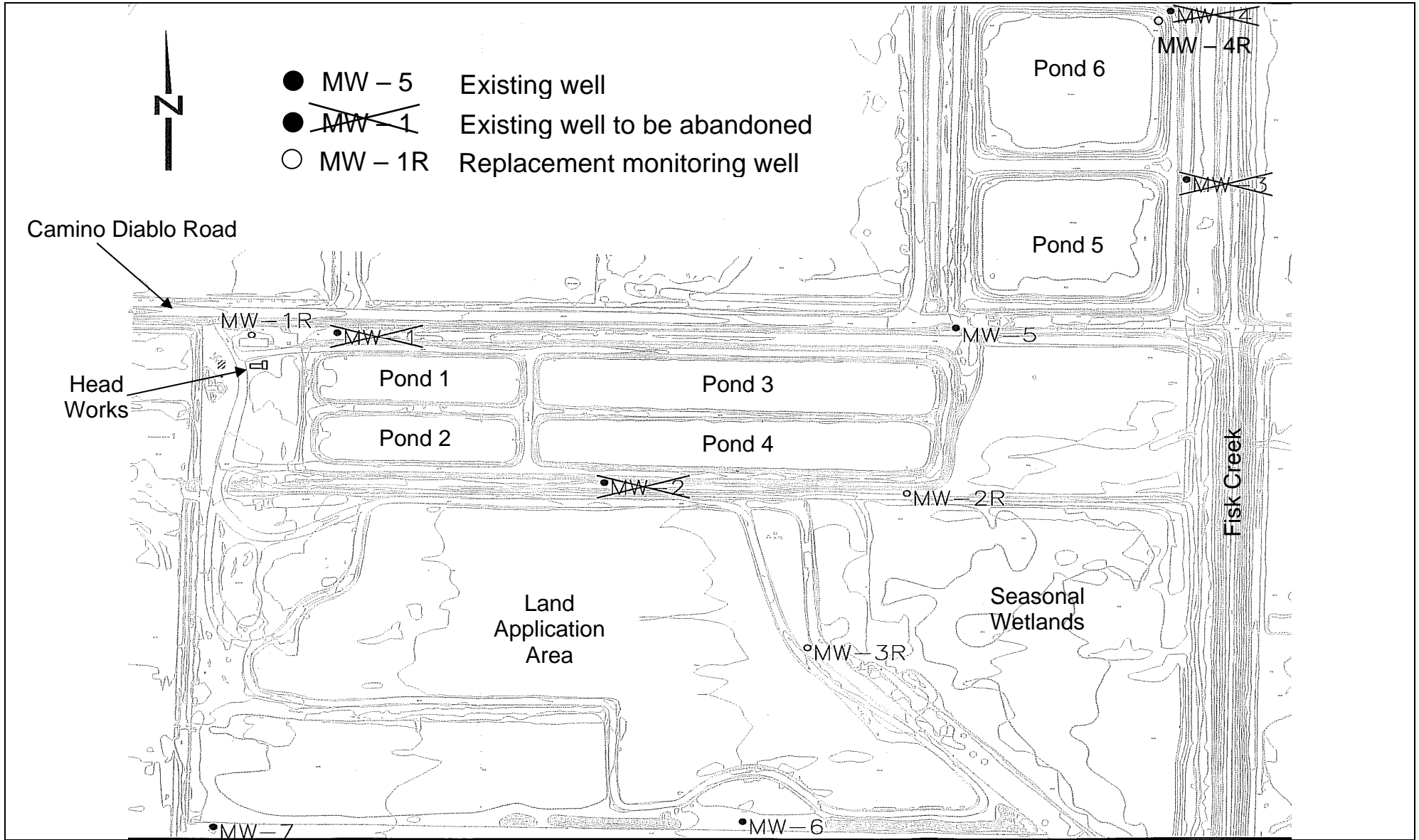
PAMELA C. CREEDON, Executive Officer



Drawing Reference:  
U.S.G.S  
Brentwood, Woodward Island,  
Byron Hot Springs & Clifton  
Court Forebay  
TOPOGRAPHIC MAPS  
7.5 MINUTE QUAD

SITE LOCATION MAP  
BYRON WWTF  
CONTRA COSTA COUNTY

approx. scale  
1 in. = 4,225 ft.



- MW - 5 Existing well
- ~~MW - 1~~ Existing well to be abandoned
- MW - 1R Replacement monitoring well

Camino Diablo Road

Head Works

MW - 1R

Pond 1

Pond 2

Pond 3

Pond 4

MW - 5

~~MW - 2~~

○ MW - 2R

Land Application Area

Seasonal Wetlands

○ MW - 3R

Fisk Creek

Pond 6

Pond 5

~~MW - 4~~  
○ MW - 4R

~~MW - 3~~

● MW - 7

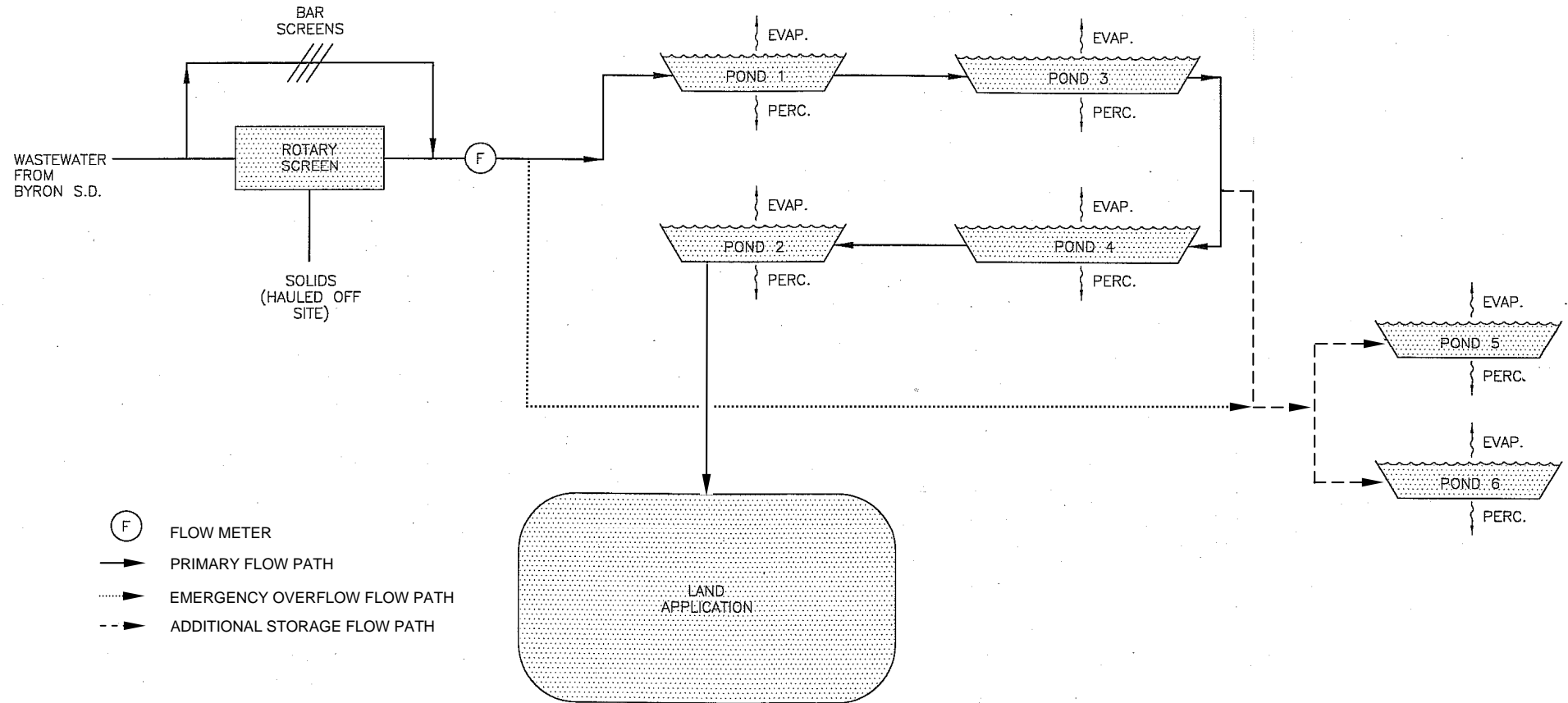
● MW - 6

Drawing Reference:  
Nolte Associates, Inc.

**SITE PLAN**

**BYRON WASTEWATER TREATMENT FACILITY**

**CONTRA COSTA COUNTY**

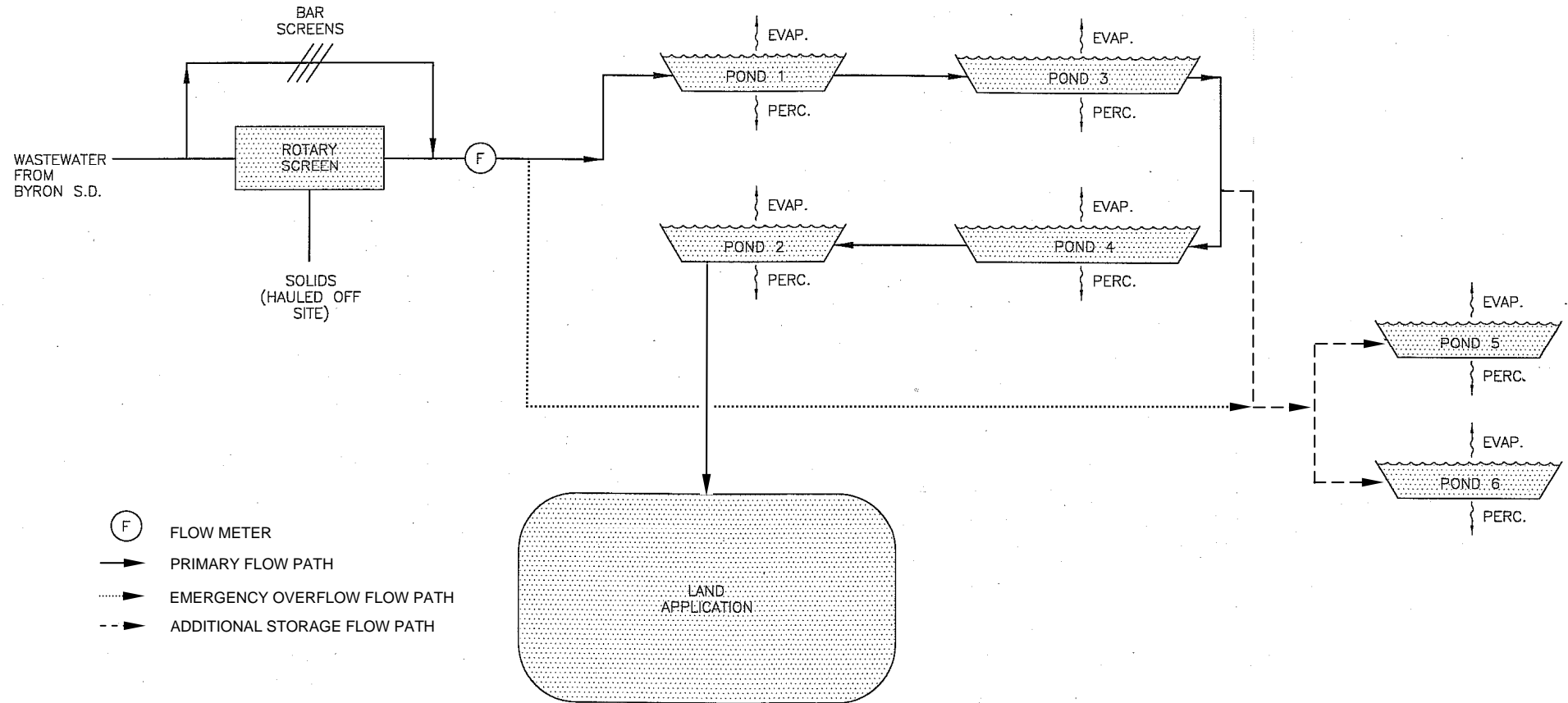


Drawing Reference:  
Nolte Associates, Inc.

**WASTEWATER FLOW DIAGRAM – SERIES CONFIGURATION**

**BYRON WASTEWATER TREATMENT FACILITY**

**CONTRA COSTA COUNTY**



Drawing Reference:  
Nolte Associates, Inc.

**WASTEWATER FLOW DIAGRAM – SERIES CONFIGURATION**

**BYRON WASTEWATER TREATMENT FACILITY**

**CONTRA COSTA COUNTY**





**Linda S. Adams**  
Secretary for  
Environmental Protection

# California Regional Water Quality Control Board Central Valley Region

**Karl E. Longley, ScD, P.E., Chair**

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114  
Phone (916) 464-3291 • FAX (916) 464-4645  
<http://www.waterboards.ca.gov/centralvalley>



**Arnold  
Schwarzenegger**  
Governor

## **ORDER NO. R5-2009-0002 ATTACHMENT D REQUIREMENTS FOR MONITORING WELL INSTALLATION REPORTS**

Upon installation of the monitoring wells, the Discharger shall submit a well installation report which includes the information contained below. The report must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

### **Monitoring Well Installation Report**

The monitoring well installation report must provide the information listed below. In addition, the report must also clearly identify, describe, and justify any deviations from the approved workplan.

**A. General Information:**

Purpose of the well installation project

Brief description of local geologic and hydrogeologic conditions encountered during installation of the wells

Number of monitoring wells installed and copies of County Well Construction Permits

Topographic map showing facility location, roads, surface water bodies

Scaled site map showing all previously existing wells, newly installed wells, surface water bodies, buildings, waste handling facilities, utilities, and other major physical and man-made features.

**B. Drilling Details (in narrative and/or graphic form):**

On-site supervision of drilling and well installation activities

Drilling contractor and driller's name

Description of drilling equipment and techniques

Equipment decontamination procedures

Soil sampling intervals and logging methods

Well boring log

- Well boring number and date drilled
- Borehole diameter and total depth
- Total depth of open hole (same as total depth drilled if no caving or back-grouting occurs)
- Depth to first encountered groundwater and stabilized groundwater depth
- Detailed description of soils encountered, using the Unified Soil Classification System

**C. Well Construction Details (in narrative and/or graphic form):**

***California Environmental Protection Agency***



Well construction diagram, including:

- Monitoring well number and date constructed
- Casing and screen material, diameter, and centralizer spacing (if needed)
- Length of well casing, and length and position of perforated interval
- Thickness, position and composition of surface seal, sanitary seal, and sand pack
- Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development:

Date(s) and method of development

How well development completion was determined

Volume of water purged from well and method of development water disposal

Field notes from well development should be included in report

F. Well Survey (survey the top rim of the well casing with the cap removed):

Identify the coordinate system and datum for survey measurements

Describe the measuring points (i.e. ground surface, top of casing, etc.)

Present the well survey report data in a table

Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-0002  
FOR  
BYRON SANITARY DISTRICT  
BYRON WASTEWATER TREATMENT FACILITY  
CONTRA COSTA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the wastewater treatment facility (WWTF) influent, wastewater ponds, groundwater, and biosolids disposal. 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 Water Board staff shall approve specific sampling locations prior to any sampling activities. 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 sample shall be recorded on the sample chain of custody form.

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

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

### WWTF INFLUENT MONITORING

The Discharger shall monitor influent wastewater in accordance with the following. Samples shall be collected at the headworks. Influent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Flow	gpd	Flow Meter Observation	Daily	Monthly
BOD <sup>2</sup>	mg/L	Grab	Monthly	Monthly
Total suspended solids	mg/L	Grab	Monthly	Monthly
Electrical conductivity	mg/L	Grab	Quarterly	Quarterly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Five-day, 20° Celsius biochemical oxygen demand.

### WWTF POND MONITORING

The Discharger shall monitor all ponds at the WWTF, in accordance with the following. Samples shall be collected from permanent monitoring locations that will provide samples representative of the wastewater in each pond. Freeboard shall be measured vertically from the water surface to the lowest elevation of the pond berm, and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Freeboard	0.1 Feet	Staff Gauge Observation	Weekly	Monthly
Dissolved Oxygen <sup>2</sup>	mg/L	Grab	Weekly	Monthly
pH <sup>2</sup>	pH units	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Pond berm condition	--	Observation	Weekly	Monthly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Samples shall be collected opposite each pond inlet at a depth of one foot between 0700 and 0900 hours.

### WWTF EFFLUENT MONITORING

The Discharger shall monitor effluent wastewater in accordance with the following. When Ponds 5 and 6 are being utilized, samples shall be representative of the effluent to these ponds. For example, a grab sample from Pond 5 or 6 taken adjacent to the influent pipe is considered representative of the effluent if either or both of these ponds contain more than one foot of water. Otherwise, a grab sample taken from the pipeline manhole carrying wastewater from Pond 3 and 4 is considered representative of the effluent.

Additionally, when the Land Disposal Area is being utilized samples shall be representative of the effluent to the Land Disposal Area. A grab sample from Pond 2 within five feet of the outlet to the Land Disposal Area is considered representative of the effluent. Effluent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
BOD <sup>2</sup>	mg/L	Grab	Monthly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
Total nitrogen	mg/L	Grab	Monthly	Monthly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Electrical conductivity	umhos/cm	Grab	Quarterly	Quarterly
Total dissolved solids	mg/L	Grab	Quarterly	Quarterly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Five-day, 20° Celsius biochemical oxygen demand.

### LAND APPLICATION AREA MONITORING

Monitoring of the land application area shall be conducted **daily** when disposal is occurring, and the results shall be included in the monthly monitoring report. All land application areas shall be inspected following a disposal event to identify any equipment malfunction or other circumstance that might allow recycled water or treated wastewater to runoff the land application area and/or create ponding conditions that violate the Waste Discharge Requirements. Evidence of erosion, saturation, irrigation runoff, or the presence of nuisance conditions shall be noted in the report. A log of these inspections as well as any public complaints of runoff shall be kept at the facility and made available for review upon request.

Effluent monitoring results shall be used in calculations to ascertain loading rates at the land application area. Monitoring of the land application area shall include the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency <sup>1</sup>
Flow	Gallons	Estimated	Daily	Monthly
Land app. berm condition	--	Observation	Monthly	Monthly
Rainfall <sup>2</sup>	Inches	Observation	per CIMIS	Monthly
Acreage applied	Acres	Calculated	Daily	Monthly
Water application rate	gal/ac/day	Calculated	Daily	Monthly
BOD loading rate <sup>3</sup>	lbs/ac/day	Calculated	Daily	Monthly
Nitrogen loading rate <sup>3</sup>	lbs/ac/day	Calculated	Daily	Monthly

<sup>1</sup> Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

<sup>2</sup> Rainfall data shall be reported as provided by the Brentwood California Irrigation Management Information System (CIMIS) station (Station 47).

<sup>3</sup> Results shall be calculated based on the daily calculated water application rate and monthly effluent monitoring constituent data.

### FACILITY INSPECTIONS

The Discharger shall inspect the WWTF at least weekly. At a minimum, the inspection shall include the following elements:

- a. Condition of fences designed to prevent public access (monthly).
- b. Odors discernible at the property boundary (weekly).
- c. Integrity of all berms, dikes, and levees, including consideration of damage from erosion, wave action, and burrowing rodents (weekly).
- d. Headworks damage and debris accumulation (weekly).
- e. Flow metering system function (weekly).
- f. Piping systems, including control valves and visible piping (weekly).

### GROUNDWATER MONITORING

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring, with samples obtained approximately every three months.

This monitoring program applies to all seven existing monitoring wells, as well as those constructed after issuance of this MRP. Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Water Board for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged of at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Quarterly	Quarterly
Groundwater elevation <sup>1</sup>	0.01 feet	Calculated	Quarterly	Quarterly
Gradient	feet/feet	Calculated	Quarterly	Quarterly
Gradient direction	Degrees	Calculated	Quarterly	Quarterly
pH	pH units	Grab	Quarterly	Quarterly
Nitrate nitrogen	mg/L	Grab	Quarterly	Quarterly
Ammonia nitrogen	mg/L	Grab	Quarterly	Quarterly
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly	Quarterly
Total coliform organisms <sup>2</sup>	MPN/100 ml	Grab	Quarterly	Quarterly

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Electrical conductivity	umhos/cm	Grab	Semi annually	Semi annually
Total dissolved solids	mg/L	Grab	Semi annually	Semi annually
Standard minerals <sup>3</sup>	mg/L	Grab	Annually	Annually <sup>5</sup>
Metals <sup>4</sup>	ug/L	Grab	Annually	Annually <sup>5</sup>

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

<sup>2</sup> Using a minimum of 15 tubes or three dilutions

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

<sup>4</sup> At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc. Analytical methods shall be selected to provide reporting limits below the Water Quality Limit for each constituent.

<sup>5</sup> Results for constituents analyzed annually shall be reported in the fourth quarterly monitoring report each year.

### BIOSOLIDS MONITORING

The Discharger shall keep records regarding biosolids generated by the treatment processes, including any analytical test results; the quantity of biosolids removed for disposal; the quantity of biosolids removed from the ponds and temporarily stored on site; and steps taken to prevent nuisance conditions. Records shall be stored onsite and available for review during inspections.

If biosolids are transported off-site for disposal, then the Discharger shall submit records identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the disposal facility name and address, and copies of all analytical data required by the entity accepting the waste. These records shall be submitted as part of the Annual Monitoring Report.

### REPORTING

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

## **A. Monthly Monitoring Reports**

Monthly reports shall be submitted to the Regional Water Board on the **1<sup>st</sup> day of the second month following sampling** (e.g. the January Report is due by 1 March). Such reports shall bear the certification and signature of the Discharger's authorized representative. An example Monthly Monitoring Report is included as Attachment A to this MRP.

At a minimum, the monthly monitoring reports shall include:

1. Results of the following monitoring:
  - a. WWTF influent monitoring;
  - b. WWTF land application area monitoring;
  - c. WWTF effluent monitoring, including identification of the sampling locations from within the ponds; and
  - d. WWTF pond monitoring.
2. A comparison of monitoring data to the discharge specifications, disclosure of any violations of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format.
3. Copies of current calibration logs for all field test instruments.
4. If requested by staff, copies of laboratory analytical report(s).
5. A summary facility inspection and repair report. The following items shall be inspected at the specified frequency and specifically addressed in the report:
  - a. Condition of fences designed to prevent public access (monthly).
  - b. Alarm system function (monthly).
  - c. Odors discernible at the property boundary (weekly).
  - e. Integrity of all berms, dikes, and levees, including consideration of damage from erosion, wave action, and burrowing rodents (weekly).
  - f. Headworks damage and debris accumulation (weekly).
  - g. Flow metering system function (weekly).
  - h. Piping systems, including control valves and visible piping (weekly).

The facility inspection and repair report shall include the name of the person conducting the inspections, dates of inspection, problems identified, repairs recommended, repairs completed, and dates of completion.

## **B. Quarterly Monitoring Reports**

The Discharger shall submit quarterly monitoring reports to the Regional Water Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarter is due by May 1<sup>st</sup>) each year.

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

The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.
3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any.
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements.
6. Summary data tables of historical and current water table elevations and analytical results.
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.
8. Copies of laboratory analytical report(s) for groundwater monitoring.



### **C. Annual Report**

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Water 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 quarterly monitoring report for the last quarter of the year.
2. Analytical results for all water supplies and other annual monitoring.
3. If requested by staff, tabular and graphical summaries of all data collected during the year.
4. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow (I/I), nuisance conditions, and a forecast of the flows anticipated in the next year.
5. An evaluation of the groundwater quality beneath the wastewater treatment facility.
6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.
8. Summary of information on the disposal of biosolids as described in the "Biosolids Monitoring" section.
9. A copy of the WWTF operator's current certification.
10. A discussion of the following:
  - a. Occurrences that the pond system was switched from the standard flow design (i.e. series mode) and the rationale for the switch.
  - b. Comparison of effluent values before and after the switch to flow design.

A letter transmitting the self-monitoring reports shall accompany each report. The 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 agents, 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: \_\_\_\_\_  
PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_ 5 February 2009  
(Date)

**ATTACHMENT A**  
**MONITORING AND REPORTING PROGRAM NO. R5-2009-0002**  
**EXAMPLE MONTHLY MONITORING REPORT**

**Note: The following is a suggested monthly report format that complies with the reporting requirements set forth in the MRP and the Standard Provisions and Reporting Requirements. The Discharger is not required to use the example monthly monitoring report, but all monthly monitoring reports must comply with the MRP and the Standard Provisions and Reporting Requirements. Additionally, the attached report format is not intended to be substituted for a complete Quarterly Monitoring Report or Annual Report.**

DATE: \_\_\_\_\_

TO:

Central Valley Regional Water Quality Control Board  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, CA 95670

FROM:

Byron Sanitary District  
P.O. Box 382  
Byron, CA 94514

Attention: Guy Childs

**MONTHLY MONITORING REPORT FOR** \_\_\_\_\_  
(month) (year)

**BYRON SANITARY DISTRICT  
BYRON WASTEWATER TREATMENT FACILITY  
CONTRA COSTA COUNTY**

Enclosed is the monthly monitoring report for the Byron Sanitary District wastewater treatment facility in Contra Costa County. The report covers the monitoring period noted above.

The following attachments comprise this monitoring report:

- A. Influent Monitoring Summary
- B. Effluent Monitoring Summary
- C. Pond Monitoring Summary
- D. Land Application Monitoring Summary
- E. Monitoring Data Comparison and Violation Disclosure
- F. Facility Inspection and Repair Report
- G. Field instrument calibration logs dated \_\_\_\_\_
- H. Analytical laboratory report(s) dated \_\_\_\_\_

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine.

\_\_\_\_\_  
(signature)

\_\_\_\_\_  
(date)

\_\_\_\_\_  
(month)                      (year)

(printed name)

**A. INFLUENT MONITORING (samples collected at headworks)**

Day of Month	Influent Flow (gpd)	BOD (mg/L)	TSS (mg/L)	EC (µmhos/cm)
Monitoring frequency <sup>1</sup> :	Daily	Monthly	Monthly	Quarterly
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
<b>Average</b>				
<b>Maximum</b>				

<sup>1</sup> Results shall be reported for the month during which samples were obtained.  
 BOD = biochemical oxygen demand      TSS = total suspended solids      EC = electrical conductivity  
 gpd = gallons per day

(month) \_\_\_\_\_ (year) \_\_\_\_\_

**B. EFFLUENT MONITORING**

Sampling Date:			
Sample Location:			
Sample Type:			
Constituent/Parameter	Sampling Frequency <sup>1</sup>	Analytical Result	Units
BOD	Monthly		
Total Kjeldahl nitrogen	Monthly		
Nitrate nitrogen	Monthly		
Total nitrogen	Monthly		
Electrical conductivity	Quarterly		
Total dissolved solids	Quarterly		

<sup>1</sup> Results shall be reported for the month during which samples were obtained.

**C. POND MONITORING**

Parameter:	Freeboard	Dissolved Oxygen	pH	Odors	Berm Condition
Monitoring Frequency:	Weekly	Weekly	Weekly	Weekly	Weekly
Sample Type:	Observation	Grab	Grab	Observation	Observation
Units:	feet	mg/L	pH units		
<b>Week 1</b>					
Date:					
Pond No. 1					
Pond No. 2					
Pond No. 3					
Pond No. 4					
Pond No. 5					
Pond No. 6					
<b>Week 2</b>					
Date:					
Pond No. 1					
Pond No. 2					
Pond No. 3					
Pond No. 4					
Pond No. 5					
Pond No. 6					

\_\_\_\_\_  
(month)                      (year)

Parameter:	Freeboard	Dissolved Oxygen	pH	Odors	Berm Condition
Monitoring Frequency:	Weekly	Weekly	Weekly	Weekly	Weekly
Sample Type:	Observation	Grab	Grab	Observation	Observation
Units:	feet	mg/L	pH units		
<b>Week 3</b>					
Date:					
Pond No. 1					
Pond No. 2					
Pond No. 3					
Pond No. 4					
Pond No. 5					
Pond No. 6					

<b>Week 4</b>					
Date:					
Pond No. 1					
Pond No. 2					
Pond No. 3					
Pond No. 4					
Pond No. 5					
Pond No. 6					

<b>Week 5</b>					
Date:					
Pond No. 1					
Pond No. 2					
Pond No. 3					
Pond No. 4					
Pond No. 5					
Pond No. 6					

(month) \_\_\_\_\_ (year) \_\_\_\_\_

**D. LAND APPLICATION AREA MONITORING**

Berm Condition (monthly observation):

Day of Month	Flow (gallons)	Rainfall (inches)	Applied Acreage (acres)	Water App. Rate (gal/ac/day)	BOD Loading (lbs/ac/day)	Nitrogen Loading (lbs/ac/day)
Monitoring frequency:	Daily	per CIMIS	Daily	Daily	Daily	Daily
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
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24						
25						
26						
27						
28						
29						
30						
31						
<b>Average</b>						
<b>Maximum</b>						





(month) \_\_\_\_\_ (year) \_\_\_\_\_

**F. SUMMARY FACILITY INSPECTION AND REPAIR REPORT**

<b>Inspection Date</b>	<b>Inspector</b>	<b>Problems identified, repairs recommended, repairs completed, and date of completion</b>
<b>Fence Condition (monthly)</b>		
<b>Alarm System (monthly)</b>		
<b>Odors (weekly)</b>		
<b>Pond berms (weekly)</b>		
<b>Headworks (weekly)</b>		
<b>Flow meter (weekly)</b>		
<b>Piping system (weekly)</b>		



# California Regional Water Quality Control Board Central Valley Region

Karl E. Longley, ScD, P.E., Chair



Arnold  
Schwarzenegger  
Governor

Linda S. Adams

Secretary for  
Environmental Protection

11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

Phone (916) 464-3291 • FAX (916) 464-4645

<http://www.waterboards.ca.gov/centralvalley>

19 February 2009

Mr. Rick Gilmore, General Manager  
Byron Sanitary District  
P.O. Box 382  
Byron, CA 94514

**CERTIFIED MAIL**  
**7006 0810 0002 9650 9319**

**NOTICE OF ADOPTION  
OF  
WASTE DISCHARGE REQUIREMENTS  
FOR  
BYRON SANITARY DISTRICT  
BYRON WASTEWATER TREATMENT FACILITY  
CONTRA COSTA COUNTY**

Waste Discharge Requirements (WDRs) Order No. R5-2009-0002 for the Byron Wastewater Treatment Facility was adopted by the California Regional Water Quality Control Board, Central Valley Region, at its 5 February 2009 meeting. During this action Cleanup and Abatement Order No. R5-2002-0733 and Time Schedule Order No. R5-2005-0900 were rescinded.

Although the WDRs allow wastewater discharge to land, the discharge is a privilege not a right and may be revoked at any time. Additionally, the WDRs include a Monitoring and Reporting Program (MRP) that contains specific monitoring requirements that Byron Sanitary District must implement. Please review the WDRs and MRP closely to ensure compliance with the conditions and monitoring requirements. A copy of the Order must be maintained at the site and must be accessible to anyone managing the facility or discharge.

In order to conserve paper and reduce mailing costs, a paper copy of the Order has been sent only to the Discharger. Interested parties are advised that the full text is available on the Regional Water Board's web site at  
[http://www.waterboards.ca.gov/centralvalley/board\\_decisions/adopted\\_orders/](http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/).

Anyone without access to the Internet who needs a paper copy of the Order can obtain one by calling Regional Water Board staff.

*California Environmental Protection Agency*

If you have any questions regarding the Order or request future changes to the Order, please call Mr. Robin Merod at (916) 464-4697 or by email at [rmerod@waterboards.ca.gov](mailto:rmerod@waterboards.ca.gov). All monitoring reports should be submitted to Mr. Guy Childs. Mr. Childs can be reached at (916) 464-4648 or by e-mail at [gchilds@waterboards.ca.gov](mailto:gchilds@waterboards.ca.gov).

MARY E. SERRA, P.E. Chief  
Waste Discharge to Land Permitting Unit

Enclosures: WDRs Order No. R5-2009-0002  
Standard Provisions

cc w/o enc.: Gordon Innes, State Water Resources Control Board, Sacramento  
Department of Health Services Office of Drinking Water, Sacramento  
Department of Water Resources, Sacramento  
Department of Fish and Game, Rancho Cordova  
Contra Costa County Environmental Health Department, Concord  
Bill Jennings, California Sportfishing Alliance, Stockton  
Mary N. Piepho, Contra Costa County Supervisor, Brentwood  
Virgil Koehne, Town of Discovery Bay, Discovery Bay  
David Piepho, Private Individual, Discovery Bay

rtm: 19 February 2009