CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2008-0034

WASTE DISCHARGE REQUIREMENTS FOR CITY OF PORTERVILLE WASTEWATER TREATMENT FACILITY TULARE COUNTY

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

1. The City of Porterville (hereafter Discharger or City) owns and operates a wastewater treatment facility (WWTF) that serves the people of Porterville and the nearby community of Porter Vista. The design treatment capacity of the WWTF is 8.0 million gallons per day (mgd).

2. The WWTF is on Grand Avenue west of Highway 65 in Porterville, Section 27, T21S, R27E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference.

3. Waste Discharge Requirements (WDRs) Order No. R5-2001-103 adopted on 27 April 2001, restricts the monthly average daily discharge flow to 5.3 mgd and prescribes effluent limitations on a monthly average basis for 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), settleable solids (SS), chloride, and total coliform organisms.

4. Cease and Desist Order No. R5-2001-104 (CDO), adopted on 27 April 2001, required the Discharger to perform a series of tasks according to a time schedule. Tasks required under the CDO include (a) provide effluent disposal capacity sufficient to comply with the terms and conditions of WDRs Order No. R5-2001-103 at the permitted monthly average discharge rate of 5.3 mgd including cessation of hydraulic impacts on the Teapot Dome landfill, (b) adoption and implementation of an industrial sewer pretreatment program, (c) conduct a hydrogeologic investigation to investigate the extent of impacts to groundwater quality in violation or threatened violation of groundwater limitations, and (d) evaluate cleanup alternatives and select a cost effective cleanup action for approval that achieves compliance and assures sustained compliance with groundwater limitations. The Discharger completed all tasks identified in the CDO, except for parts of one task (Task 5). Task 5 of the CDO was to evaluate, select, and propose cost-effective cleanup actions for sustained compliance with groundwater limitations. The Discharger failed to submit the required cleanup proposal, but rather has implemented several management practices intended to prevent further degradation of groundwater, including increasing the land available for irrigation, and decreasing the amount of effluent allowed to percolate. Rescission of the CDO is considered separately.

5. Update of Order No. R5-2001-103 is needed to ensure that the discharge is consistent with Regional Water Board plans and policies and prescribe requirements that are effective in protecting existing and potential uses of receiving waters, and to reflect changes the Discharger has made in its water recycling operation.

Wastewater Treatment Facility

6. The WWTF is an activated sludge treatment plant consisting of a headworks with mechanical and manual screens, aerated grit chambers, two "clarators" with primary clarifier and aeration chambers, two primary clarifiers, two aeration basins, four secondary clarifiers, a chlorine contact tank, a blower room, two sludge thickeners (Dissolved Air Flotation units), four anaerobic sludge digesters, and a biosolids transfer station.

7. Undisinfected secondary treated effluent is discharged to the Reclamation Area where it is used to irrigate feed and fodder crops or discharged directly to about 60 acres of percolation basins during times when the irrigation demand is low.

8. The Discharger does not apply chlorine to disinfect the effluent unless required to control algae blooms.

9. Prior to 1987, the treated effluent was discharged to 12-acres of percolation basins at the WWTF or used to irrigate approximately 100 acres of farmland adjacent to the WWTF. The old percolation ponds are now used as emergency storage ponds in the event that the effluent pumps are without power or become inoperable. Title 22 requires that the WWTF have an emergency storage capacity to handle maximum discharge flows for a 24-hour period. The capacity of the emergency storage ponds exceeds the 8 million gallons required under Title 22, based on maximum permitted flows..

10. Prior to 1995, the City discharged sludge to unlined sludge drying beds at the WWTF and then applied the dried sludge as a soil amendment to land surrounding the WWTF.

11. Wasted sludge from the primary and secondary clarifiers has been pumped to a series of four anaerobic sludge digesters then transferred via a pipeline approximately 4.5 miles to about 11 acres of soil cement lined sludge drying beds on City owned land adjacent to the airport. In 2006, the Discharger submitted documentation that the soil cement lined beds have hydraulic conductivities of less than $1x10^{-6}$ cm/sec. Dried sludge was then transported to San Joaquin Composting for disposal. In July 2007, the Discharger submitted a Notice of Intent (NOI) for coverage under the Boisolids General Order to land apply boisolids for use as a soil amendment on approximately 440 acres of agricultural land in the City's Reclamation Area. The biosolids were spread and disked into select fields in November 2007. Following application, the fields were planted with alfalfa. According to the operations plan in the NOI, the fields used for biosolids will not be irrigated with effluent for one year following application. Current sludge production is about 1,100 tons of dried sludge per year, which requires an estimated 65 to 70 acres of land each year. The Discharger estimates that, at an average daily flow of 8 mgd, sludge production would be about 1,300 tons/year.

12. Discharger self-monitoring reports (SMRs) show that the winter flows are not significantly higher than summer flows, indicating that there is no significant inflow and infiltration to the collection system during winter months. Current monthly average daily and maximum daily discharge flows are about 4.7 and 5.4 mgd, respectively, with the highest flows occurring in late summer and early fall.

13. Self-monitoring data from January 2006 to April 2007 characterize the discharge as follows:

Constituent/Parameter	Units	Influent	Effluent	% Removal[1]
Monthly Average Discharge Flow	mgd	--	4.8	--
Conventional Pollutants				
BOD[2]	mg/L	353	14	96
TSS[3]	mg/L	321	6.6	98
Settleable Solids	mL/L	--	<0.1	--
Salts				
EC[4]	µmhos/cm	--	868	--
TDS	mg/L	--	460	--
Sodium	mg/L	--	101	--
Chloride	mg/L	--	96	--
Boron	mg/L	--	0.24	--
Nitrogen Forms				
Nitrate as Nitrogen	mg/L	--	6.4	--
TKN[5]	mg/L	--	10.7	--
Ammonia as Nitrogen	mg/L	--	7.8	--
Total Nitrogen[6]	mg/L	--	17.7	--

[1] Percent removal (% removal)
[2] 5-day biochemical oxygen demand (BOD)
[3] Total suspended solids (TSS)
[4] Electrical conductivity at 25ºC (EC)
[5] Total Kjeldahl nitrogen (TKN)
[6] Calculated by summing the concentrations of nitrate as nitrogen and TKN, and assuming the concentration of nitrite is negligible.

14. Source water for the City of Porterville is from a network of 28 groundwater wells. Based on the flow-weighted average EC of the source water of about 400 µmhos/cm the average EC of the effluent is about 470 µmhos/cm over source water.

Sanitary Sewer Overflows

15. A “sanitary sewer overflow” is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the 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.

16. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems Water Quality Order No. 2006-003-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 is greater than one mile in length; therefore, the General Order is applicable.

Water Recycling

17. WDRs Order No. R5-2001-103 incorporated water-recycling specifications to allow the Discharger to implement water recycling.

18. Based on data submitted in the Discharger’s self-monitoring reports (SMRs) the Reclamation Area consists of approximately 980 gross acres, with about 400 acres suitable for irrigation using recycled water. In addition, the Discharger is completing infrastructure improvements to add about 220 acres to its irrigated Reclamation Area, which would bring the total acreage available for water recycling to about 620 acres, 30 acres of which are owned by Mr. Robert Nuckols. The reclamation of effluent on the City owned Reclamation Area is addressed herein. Reclamation on properties owned by Mr. Nuckols is under separate water reclamation requirements (Order No. R5-2001-246).

19. Based on SMR data, the Discharger plants approximately 70% of its fields in alfalfa and the remaining 30% with a combination of oat hay and sudan grass. Nitrogen uptake rates for alfalfa and double cropped oat hay and sudan grass are 480 lbs/acre/year and 440 lbs/acre/year, respectively, based on the *Western Fertilizer Handbook, 9th edition*.

20. At the permitted flow of 5.3 mgd, and an average nitrogen concentration of 18 mg/L, the total nitrogen loading to the approximately 620 irrigated acres of the Reclamation Area is about 468 lbs/acre/year, which will meet nutrient loading at agronomic rates, based on current cropping distributions, with 70% of the fields planted in alfalfa and 30% of the fields planted with a combination of oat hay and sudan grass.

21. At the maximum monthly average daily flow of 8 mgd and current cropping distributions, the Discharger estimates about 750 acres of land will be needed for irrigation to meet nutrient and hydraulic loading at agronomic rates.

22. During the non-growing season when irrigation is not required, the effluent is discharged to percolation ponds with a high infiltration capacity. In the past, up to 75% of the total effluent volume was allowed to percolate in a 43-acre disposal field. Based on groundwater data, excessive percolation in the past has affected groundwater quality in this area especially for nitrates and EC. Order R5-2001-103 required the Discharger to decrease percolation and increase the amount of reclaimed water used for irrigation. Based on recent SMRs, the percolation volume has been less than 20% of the total annual effluent flow since 2004.

Site-Specific Conditions

23. The WWTF and Reclamation Area are in a semi-arid climate characterized by dry summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and evaporation in the discharge area are about 11 inches and 53.4 inches, respectively, according to information published by California Department of Water Resources (DWR).

24. Soils in the Reclamation Area consist primarily of San Joaquin loam, according to the United States Department of Agriculture Natural Resources Conservation Service. These soils are moderate to slightly alkali. Hardpan underlies much of the soil in the Reclamation Area. The permeability of the soil depends on the depth and thickness of the hardpan layer. Where the hardpan has been ripped the soils display moderate permeability and water holding capacity. Soils underlying the former disposal field and the new percolation ponds in the Old Deer Creek drainage area consist primarily of Tujunga sand, which exhibits high permeability and rapid infiltration rates up to 3 inches per hour.

25. The WWTF is not within a 100-year floodplain according to Federal Emergency Management Agency maps.

26. The Discharger is not required to obtain coverage under a National Pollutant Discharge Elimination System general Industrial storm water permit for the WWTF because all storm water runoff is retained onsite and does not discharge to a water of the United States.

27. The WWTF is located within the City of Porterville and is surrounded by commercial, residential, and vacant properties. Land use in the vicinity of the Reclamation Area is primarily agricultural. The primary crops grown within five miles of the Reclamation Area includes hay, corn, alfalfa, and citrus (oranges). Additional crops including grapes, olives, plums, and almonds are typically grown in the area according to DWR land use data published in 1999. Most crops in this area are furrow irrigated, with a combination of surface and groundwater although some are sprinkler irrigated, according to the University of California Cooperative Extension.

Groundwater Considerations

28. Depth-to-groundwater in the vicinity of the WWTF and the Reclamation Area varies considerably. Regional groundwater in the area is encountered between 50 and 100 feet below ground surface (bgs), and flow is to the southwest, according to information in Lines of Equal Elevation of Water in Wells in Unconfined Aquifer, published by Department of Water Resources in Spring 2004.

29. In 1993 the Discharger established a groundwater-monitoring network around the WWTF and the Reclamation Area. Fourteen additional monitoring wells were installed in 2002 as part of the hydrogeologic investigation required under the conditions of WDRs Order No. R5-2001-103 and CDO No. R5-2001-104.

30. In the most recent groundwater monitoring reports groundwater was first-encountered between 35 and 50 feet in the monitoring wells around the WWTF. Groundwater flow has generally been to the west.

31. In recent groundwater monitoring reports for the Reclamation Area, groundwater has been first encountered between 45 and 110 feet bgs. Monitoring wells MW-110, MW-111, and MW-112, up-gradient and down-gradient of the lined sludge drying beds, have been dry since 2003. Groundwater flow in recent years has generally been to the west-southwest except in the area around the percolation ponds where, due to mounding, groundwater appears to flow away from the ponds in all directions.

32. Groundwater data for selected constituents in the area of the WWTF and the Reclamation Area from 2003 to 2006 is presented below:

MW-ID	EC µmhos/cm	TDS mg/L	Chloride mg/L	Sodium mg/L	Nitrate (as N) mg/L
Up-Gradient of Wastewater Treatment Facility					
MW-3N	280	183	10.2	21	2.6
MW-3S	290	182	11	20	2.8
Down-Gradient of Wastewater Treatment Facility					
MW-4	460	280	17	33	16
MW-5	560	380	30	33	26.7
MW-6	315	200	12	23	8.9
MW-7	475	290	18	31.5	15.6
MW-8	310	310	10.7	28	5.6
MW-9	300	180	17.3	18	4.9

MW-ID	EC µmhos/cm	TDS mg/L	Chloride mg/L	Sodium mg/L	Nitrate (as N) mg/L
Up-Gradient of Reclamation Area					
MW-101	285	180	7.6	15.5	1.6
MW-112	Dry	Dry	Dry	Dry	Dry
MW-113	630	355	22.5	32	14.9
MW-115	600	380	16	25	8.4
Down-Gradient of Reclamation Fields					
MW-102	Dry	Dry	Dry	Dry	Dry
MW-103	950	570	82	42	13.9
MW-104	920	500	74	77	12.4
MW-114	445	230	13	25	4
Down-Gradient of Percolation Ponds					
MW-105	980	590	93	103	15.1
MW-106	930	580	94	86	14.2
MW-107	950	600	102	85	18.4
MW-108	1,020	595	96	107	14.7
MW-109	900	510	94	100	12.4
Down-Gradient of Sludge Drying Beds					
MW-110	Dry	Dry	Dry	Dry	Dry
MW-111	Dry	Dry	Dry	Dry	Dry

33. Based on existing data, groundwater in the area is generally of good to excellent quality, except for nitrates, with EC and TDS values around 300 to 600 µmhos/cm and 200 to 400 mg/L, respectively. Nitrate concentrations in groundwater vary.

34. Beneath the WWTF, EC and nitrate (as nitrogen) concentrations in groundwater range from approximately 300 µmhos/cm, and 3 mg/L, respectively, in the up-gradient monitoring wells to 560 µmhos/cm and 27 mg/L, respectively, in MW-5 directly down-gradient of the former percolation ponds and sludge drying beds, and an area of buried sludge, which was removed in September 2007. Monitoring wells at a greater distance from these areas show decreasing EC and nitrate concentrations.

35. Groundwater beneath the WWTF can be influenced by off-site sources, such as the Porter Slough and septic tanks in an unsewered area adjacent to the WWTF as well as climatic conditions (wet vs. dry years). Cyclical trends noted in trend graphs of monitoring well data provided by the Discharger are likely influenced by these off-site sources.

36. Groundwater in the vicinity of the Reclamation fields is monitored by monitoring wells MW-102, MW-103, MW-104, and MW-114. MW-102 is adjacent to and down-gradient of

non-effluent irrigated fields, and is occasionally dry, especially in recent years. MW-114, down-gradient of Reclamation Area, shows concentrations of EC and nitrate (as nitrogen) in compliance with water quality objectives. MW-103 and MW-104 show concentrations that exceed water quality objectives with nitrate (as nitrogen) ranging from 12 mg/L to 14 mg/L and EC's between 920 µmhos/cm and 950 µmhos/cm. Monitoring wells MW-113 and MW-115, up-gradient of the Reclamation Area, have EC concentrations ranging from 600 to 630 µmhos/cm and nitrate (as nitrogen) concentrations from 8.4 mg/L to 15 mg/L.

37. Elevated EC and nitrate concentrations are present in monitoring wells MW-105 through MW-109, in the vicinity of the former disposal field and the new percolation ponds, with EC's between 800 and 1,000 µmhos/cm and nitrate (as nitrogen) between 12 mg/L and 19 mg/L. Nitrate concentrations in these wells exceed the primary maximum contaminant level (MCL) for nitrate, expressed as nitrogen of 10 mg/L. In addition, elevated concentrations of sodium and chloride are also present in these monitoring wells.

38. Groundwater in the area of the percolation ponds is between 40 to 50 feet bgs. Soils in the area are sandy and highly permeable. The continued percolation of effluent with nitrogen concentrations that exceed water quality objectives will likely contribute and may further exacerbate nitrogen impacts in the area. This Order establishes a groundwater limitation of 10 mg/L for nitrate as nitrogen or background, whichever is greater, and requires the Discharger to evaluate its wastewater management practices to establish best practicable treatment or control measures to maintain beneficial uses for groundwater.

Teapot Dome Municipal Solid Waste Landfill Facility

39. The Teapot Dome Municipal Solid Waste Landfill Facility (hereafter Landfill), owned and operated by the County of Tulare, is adjacent to the Friant-Kern Canal and immediately west of the former disposal field. The Landfill, which has been in operation since 1950, consists of one existing unlined waste management unit (Unit) covering 71 acres. The deepest base of landfilled refuse is near 40 feet in depth below ground surface.

40. The County of Tulare monitors groundwater conditions in the vicinity of the Landfill. In 2000, Tulare County indicated that the artificial mounding of groundwater under the disposal field had increased the groundwater gradient and, in turn, groundwater flow velocity in the vicinity of the Landfill. As a result, the City's continued discharge to the area has the potential to increase area groundwater to levels that would threaten or adversely affect the Landfill and groundwater quality.

41. Current WDRs prohibit the Discharger from discharging effluent to the disposal field in a manner that contributes to the flooding and migration of waste constituents from the Teapot Dome Landfill. Based on an investigation of groundwater conditions in the disposal field, the City's hydrogeologist recommended that the City: (a) discontinue use of Pond 4 (in the disposal field) for effluent recharge, (b) develop new percolation basins in the old Deer Creek drainage area more than 2,500 feet from the closest part of the

Landfill, (c) place a continuous water-level recorder in MW 105 to monitor enhanced water-level management practices in the disposal field, and (d) install a new well upgradient of effluent percolation ponds in the old Deer Creek area. As a result, the City purchased additional land south and east of the Teapot Dome landfill and constructed a 14-acre percolation test pond 2,500 feet from the closest point of the landfill and ceased use of the 43-acre disposal field for percolation of effluent. Since then, water levels in MW-105, located between the landfill and the new percolation pond, have steadily decreased, except for a peak in Spring 2006, during a relatively wet year. Construction, on approximately 50 acres of additional percolation ponds in the Old Deer Creek drainage area was completed in 2007, bringing the total area of percolation ponds to approximately 60 acres.

Basin Plan, Beneficial Uses, and Water Quality Objectives

42. The Water Quality Control Plan for the Tulare Lake Basin, 2nd Edition, (hereafter Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board. Pursuant to Section 13263(a) of the California Water Code (CWC), these waste discharge requirements implement the Basin Plan.

43. Water in the Tulare Lake Basin is in short supply, requiring importation of surface water from other parts of the State. The Basin Plan encourages recycling on irrigated crops wherever feasible and indicates that evaporation of recyclable wastewater is not an acceptable permanent disposal method where the opportunity exists to replace an existing use or proposed use of fresh water with recycled water.

44. The WWTF is in Detailed Analysis Unit (DAU) No. 243 within the Tule Basin hydrologic unit. The Basin Plan designates the beneficial uses of groundwater in this DAU as municipal and domestic supply, agricultural supply, industrial service and process supply, and wildlife habitat supply.

45. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, require 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.

46. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. 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.

47. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including:

    a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC shall not exceed the EC of the source water plus 500 µmhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.

    b. Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 µmhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

    These effluent limits are considered best practicable treatment or control (BPTC).

48. The list of crops in Finding 27 is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but is representative. Crops sensitive to salt and boron such as citrus and stone fruit are currently being grown in the area.

49. The Basin Plan requires municipal WWTFs that discharge to land to comply with treatment performance standards for BOD_5 and TSS. WWTFs that preclude public access and are greater than 1 mgd must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, for both BOD_5 and TSS.

Antidegradation Analysis

50. State Water Resources Control Board Resolution No. 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution No. 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 BPTC to minimize degradation.

51. 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, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous

concentrated individual wastewater systems, and the impact on water quality will be substantially less. 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.

52. Constituents of concern that have the potential to degrade groundwater include, in part, salts and nutrients. Some degradation of groundwater has occurred as a result of past discharge. This Order establishes terms and conditions of discharge to ensure that the discharge does not unreasonably affect present and anticipated uses of groundwater and includes groundwater limitations that apply water quality objectives established in the Basin Plan to protect beneficial uses. The discharge will likely not impair the beneficial uses of groundwater because:

    a. For nitrogen, shallow groundwater already contains nitrate concentrations in excess of water quality objectives as a result of previous discharges and agricultural practices in the area. The WDRs include provisions requiring the Discharger to evaluate its wastewater management practices and submit a comprehensive Wastewater Management plan for the Reclamation Area intended to maximize the nitrogen utilization of the crops and preclude further degradation of groundwater.

    b. For salinity, the Basin Plan contains effluent limits for EC of SW + 500 µmhos/cm, 1,000 µmhos/cm max that considered the antidegradation policy when adopted. With an EC of about 868 µmhos/cm, the treated effluent meets the Basin Plan limit for SW + 500 µmhos/cm. The WDRs would set an effluent limitation for EC of 500 µmhos/cm over source or a maximum of 1,000 µmhos/cm, whichever is less, and a chloride limit of 175 mg/L and should therefore not unreasonably impair the beneficial uses of groundwater with respect to salinity.

Treatment and Control Practices

53. The WWTF described in Findings 6 through 11, provides treatment and control of the discharge that incorporates:

    a. secondary treatment;

    b. disinfection (when required);

    c. pretreatment monitoring and compliance assessment;

    d. recycling of wastewater for crop irrigation;

    e. soil cement lined sludge drying beds with hydraulic conductivities of less than $1x10^{-6}$ cm/sec;

    f. appropriate biosolids handling and treatment for reuse;

    g. an operation and maintenance (O&M) manual; and

    h. certified operators to ensure proper operation and maintenance.

Water Recycling Criteria

54. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. The California Department of Public Health (DPH), which has primary statewide responsibility for protecting public health, has established statewide criteria in Title 22, California Code of Regulations, Section 60301 et seq., (hereafter Title 22) for the use of recycled water and has developed guidelines for specific uses. Revisions of the water recycling criteria in Title 22 became effective on 2 December 2000. The revised Title 22 expands the range of allowable uses of recycled water, establishes criteria for these uses, and clarifies some of the ambiguity contained in the previous regulations.

55. A 1988 Memorandum of Agreement (MOA) between DPH and the State Water Resources Control Board (State Water Board) on the use of recycled water establishes basic principles relative to the agencies and the regional water boards. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California.

56. State Water Board Resolution No. 77-1, Policy with Respect to Water Recycling in California, encourages recycling projects that replace or supplement the use of fresh water, and the Water Recycling Law (California Water Code Section 13500-13529.4) declares that utilization of recycled water is of primary interest to the people of the State in meeting future water needs.

57. The Basin Plan encourages recycling on irrigated crops wherever feasible and indicates that evaporation of recyclable wastewater is not an acceptable permanent disposal method where the opportunity exists to replace an existing use or proposed use of fresh water with recycled water.

58. Title 22, Section 60323 requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards. The Discharger submitted an engineering report to the Regional Water Board and DPH pursuant to Title 22, Section 60323, for its water recycling operations in August 1998, which was updated in January 2002 to include the additional property south of the former effluent disposal field.

Other Regulatory Considerations

59. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in Title 40, Code of Federal Regulations, Part 503, Standards 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. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to EPA. The City has

filed a Notice of Intent (NOI) to spread biosolids within the Reclamation Area for use as a soil amendment.

60. As the discharge consists of treated domestic sewage and incidental discharges from treatment and storage facilities associated with a domestic wastewater treatment plant, and as these discharges are regulated by waste discharge requirements consistent with applicable water quality objectives, the WWTF and its discharge is exempt from containment pursuant to Title 27, Section 20090(a).

CEQA

61. The City of Porterville certified an Environmental Impact Report (EIR) on 18 February 1992 in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended) for expansion of the WWTF to a capacity of 8 mgd.

62. The Regional Water Board is a responsible agency pursuant to CEQA. The Regional Water Board reviewed and considered the EIR with respect to water quality. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

General Findings

63. 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.

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

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

66. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2008-0034 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the WWTF that discharges the waste subject to this Order.

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

Public Notice

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

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

70. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order No. R5-2001-103 is rescinded and that, pursuant to Sections 13263 and 13267 of the California Water Code, the City of Porterville and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated wastes, except as allowed by *Standard Provisions and Reporting Requirements for Waste Discharge Requirements,* dated 1 March 1991, E.2 is prohibited.

3. Discharge of waste classified as ‘hazardous’, as defined in Section 2521(a) of Title 23, California Code of Regulations, Section 2510 et seq., is prohibited. Discharge of waste classified as ‘designated,’ as defined in California Water Code Section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

4. Effluent disposal in a manner that adversely affects the Teapot Dome Landfill is prohibited.

B. Effluent Limitations

1. The monthly average flow rate shall not exceed 5.3 mgd. To increase the monthly average flow rate above 5.3 mgd, the Discharger shall submit the technical report and certification required by Provision H.13 of this Order at least 60 days before the planned flow increase. Upon approval by the Executive Officer, the discharge flow rate may be increased up to 8.0 mgd.

2. The effluent discharge shall not exceed the following limitations:

Constituent	Units	Monthly Average	Daily Maximum
BOD_5[1]	mg/L	40	80
TSS[2]	mg/L	40	80
Chloride	mg/L	175	- - -

[1] Five day biochemical oxygen demand (BOD_5)

[2] Total suspended solids (TSS)

3. The arithmetic mean of BOD_5 and TSS in effluent samples collected over a monthly period shall not exceed 20 percent of the arithmetic mean of the values for influent samples collected at appropriate the same times during the same period (80 percent removal).

4. The annual flow-weighted average EC of the discharge shall not exceed the flow-weighted average EC of the source water plus 500 µmhos/cm or a maximum of 1,000 µmhos/cm, whichever is less. The flow-weighted average of the source water shall be a moving average for the most recent 12 months.

C. Discharge Specifications

1. All conveyance, treatment, storage, and disposal units shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. Public contact with effluent (treatment works, Ponds, or Reclamation Area) shall be precluded through such means as fences, signs (in accordance with Title 22, California Code of Regulations (CCR) Section 60310(g)), or acceptable alternatives.

3. Objectionable odors shall not be perceivable beyond the limits of the WWTF property at an intensity that creates or threatens to create nuisance conditions.

4. Disposal ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter. 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.

5. On or about **1 October** of each year, available disposal pond storage capacity shall at least equal the volume necessary to comply with Discharge Specification C.4.

6. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

   a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.

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

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

   d. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but not during, the 1 April to 30 June bird nesting season.

7. 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 groundwater limitations.

D. Recycling Specification

The following specifications apply to the Reclamation Area under the ownership or control of the Discharger. Other use areas are covered by separate water recycling requirements.

1. Use of undisinfected secondary treated recycled water shall be limited to flood irrigation of fodder, fiber, and seed crops not eaten by humans or for grazing of non-milking cattle and shall comply with the provisions of Title 22.

2. The Discharger will maintain the following setback distances from areas irrigated with recycled water:

Setback Distance (feet)	To
25	Property Line
30	Public Roads
50	Drainage courses
100	Irrigation wells
150	Domestic wells

3. No physical connection shall exist between recycled water piping and any domestic water supply or domestic well, or between recycled water piping and any irrigation well that does not have an air gap or reduce pressure principle device.

4. The perimeter of the Reclamation Area shall be graded to prevent ponding along public roads or other public areas and prevent runoff onto adjacent properties not owned or controlled by the Discharger.

5. Areas irrigated with recycled water shall be managed to prevent nuisance conditions or breeding of mosquitoes. More specifically:

   a. All applied irrigation water must infiltrate completely within a 48-hour period;

   b. Ditches not serving as wildlife habitat should be maintained 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 recycled water.

6. Recycling of WWTF effluent shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management plan. The annual nutrient loading of reclamation areas, including the nutritive value of organic and chemical fertilizers and recycled water, shall not exceed crop demand.

7. Public contact with recycled water shall be controlled using signs and/or other appropriate means. Signs of a size no less than four inches high by eight inches wide with proper wording (shown below) shall be placed at all areas of public access and around the perimeter of all areas used for effluent disposal or conveyance to alert the public of the use of recycled water. All signs shall display an international symbol similar to that shown in Attachment C, a part of this Order, and present the following wording:

"RECYCLED WATER – DO NOT DRINK"

"AGUA DE DESPERDICIO RECLAMADA – POR FAVOR NO TOME"

E. Sludge Specifications

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

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

2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property.

3. Any handling and storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary (i.e., no longer than two years) and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations of this Order.

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

5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a Regional Water Board or State Water Board or a local (e.g., county) program authorized by a Regional Water Board. In most cases, this means the General Biosolids Order (State Water Board Water Quality Order No. 2004-12-DWQ, "General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities"). For a biosolids use project to be authorized by the General Biosolids Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

6. Any proposed change in sludge use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

F. Pretreatment Requirements

1. The Discharger shall implement the necessary controls to ensure incompatible wastes are not introduced to the treatment system. These include, at a minimum: (a) wastes that create a fire or explosion hazard, or corrosive structural damage to the treatment works; (b) solid or viscous wastes in amounts that cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works; (c) petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through; (d) Any waste, including oxygen demanding pollutants (BOD_5, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency; (e) pollutants that result in the presence of toxic gases, vapors, or fumes within the treatment works; and (f) any trucked or hauled pollutants, except at points predesignated by the Discharger.

2. The Discharger shall implement the controls necessary to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

   a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

   b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

G. Groundwater Limitations

1. Release of waste constituents from any treatment or storage component associated with the discharge shall not cause or contribute to groundwater:

   a. Containing constituent concentrations in excess of the concentrations specified below or natural background quality, whichever is greater:

      (i) Nitrate as nitrogen of 10 mg/L.

      (ii) Electrical Conductivity of 900 µmhos/cm.

      (iii) Total Coliform Organisms of 2.2 MPN/100 mL.

      (iv) For constituents identified in Title 22, the MCLs quantified therein.

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

H. Provisions

1. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements,* dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as Standard Provision(s).

2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2008-0034, which is part of this Order, and any revisions thereto as adopted by the Regional Water Board or approved by the Executive Officer. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger self-monitoring reports.

3. The Discharger shall keep at the WWTF a copy of this Order, including its MRP, Information Sheet, attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.

4. The Discharger shall not allow pollutant-free wastewater to be discharged into the Facility collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means storm water (i.e., inflow), groundwater (i.e., infiltration), cooling waters, and condensates that are essentially free of pollutants.

5. The Discharger must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger only when the operation is necessary to achieve compliance with the conditions of this Order.

6. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

7. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the Discharger shall submit to the Regional Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the time schedule. 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 rescission of this Order.

8. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the appropriate Regional Water Board office.

9. To assume operation 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 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. If approved by the Executive Officer, the transfer request will be submitted to the Regional Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

11. The Discharger shall maintain and operate all ponds sufficient to protect the integrity of containment levees and prevent overtopping or overflows. Unless a California 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). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain in each pond permanent markers with calibration that indicates the water level at design capacity and enables determination of available operational freeboard.

12. The Discharger shall obtain coverage under, and comply with, Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality Order No. 2006-003-DWQ.

13. **At least 60 days** prior to requesting an increase in the monthly average daily flow limit above 5.3 mgd, the discharger shall submit a technical report documenting that it has completed necessary improvements to add additional land to its irrigation plan and an engineering certification that it has sufficient disposal capacity to comply with the terms and conditions of this Order. This provision will be considered satisfied following written acceptance from the Executive Officer.

14. **By 1 January 2009**, the Discharger shall complete a groundwater study evaluating existing groundwater data, and submit a comprehensive Wastewater Management Plan for the Reclamation Area. The Wastewater Management Plan shall evaluate, to the extent practicable, the extraction and use of groundwater from areas beneath the Reclamation Area that have elevated concentrations of waste constituents (e.g., high nitrate), and shall include at a minimum:
    (a) a description of the Reclamation Area and storage facilities;
    (b) a description of the types of crops to be grown and their water and nutrient uptake rates;
    (c) supporting data and calculations for monthly and annual water and nutrient balances;
    (d) management practices that will ensure wastewater, irrigation water, and commercial fertilizers are applied at agronomic rates;
    (e) a coordinated sampling and analysis plan for monitoring soils, wastewater, and plant tissue to verify the nutrient balance; and
    (f) a system of record keeping.

15. If the Wastewater Management Plan required by Provision H.14 indicates that excess nitrogen will cause a nutrient imbalance, then **by 1 July 2009**, the Discharger shall submit a technical report evaluating its wastewater management practices. The evaluation shall establish best practicable treatment or control measures, including the possibility of treating wastewater to remove nitrogen, to comply with the groundwater limitations in this Order and ensure that beneficial uses of groundwater are maintained. The technical report shall include a time schedule to implement the identified measures.

16. **Salinity Source Control Study: by 1 March 2009,** the Discharger shall conduct a salinity evaluation and prepare a Salinity Control Plan to manage and control the salinity of the discharge.

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 14 March 2008.

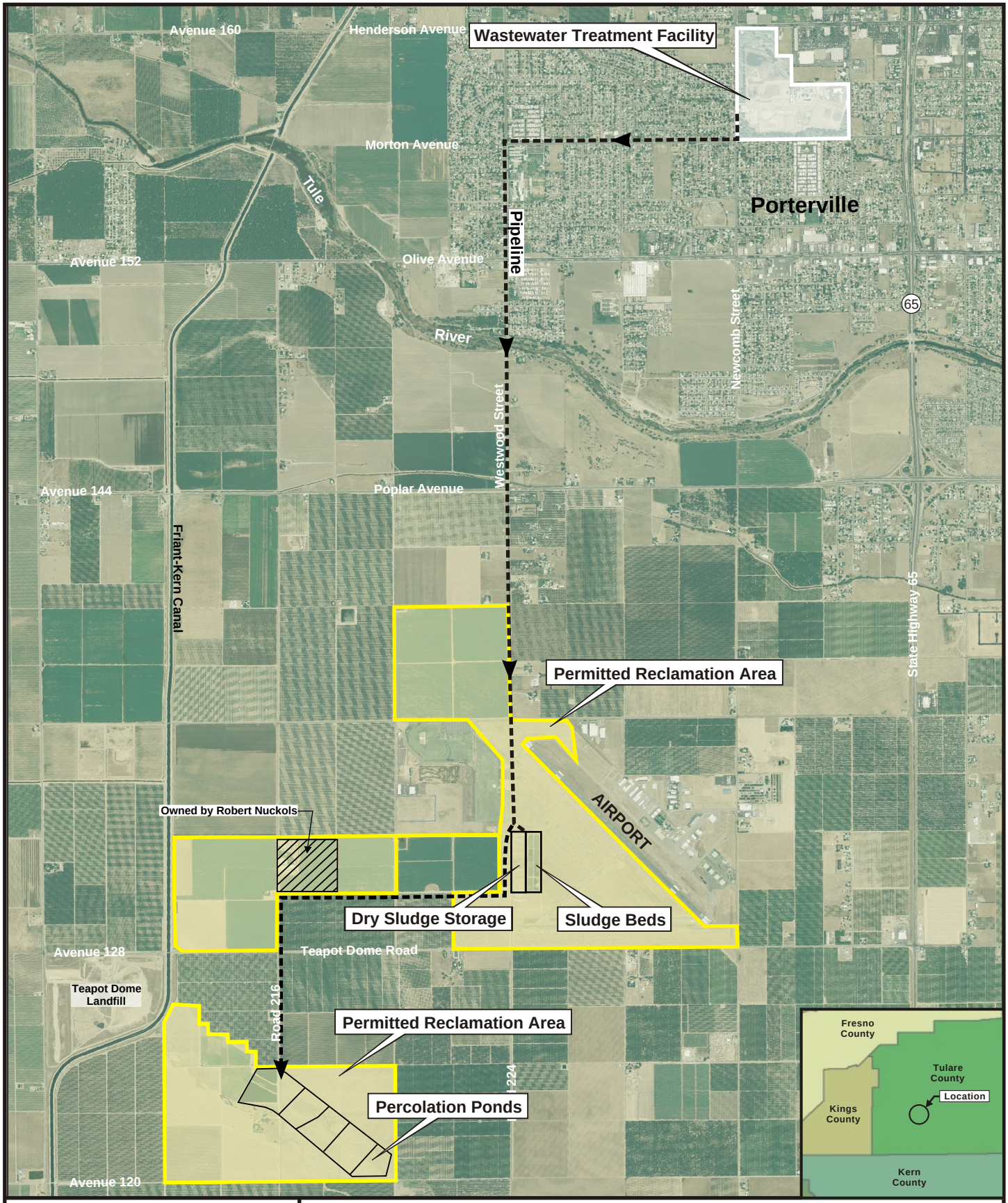
PAMELA C. CREEDON, Executive Officer

Order Attachments:

A Site Location Map
B. Flow Diagram
C. Recycled Water Signage

Monitoring and Reporting Program No. R5-2008-0034
Information Sheet
Standard Provisions (1 March 1991)

DKP/kc: 3/14/08



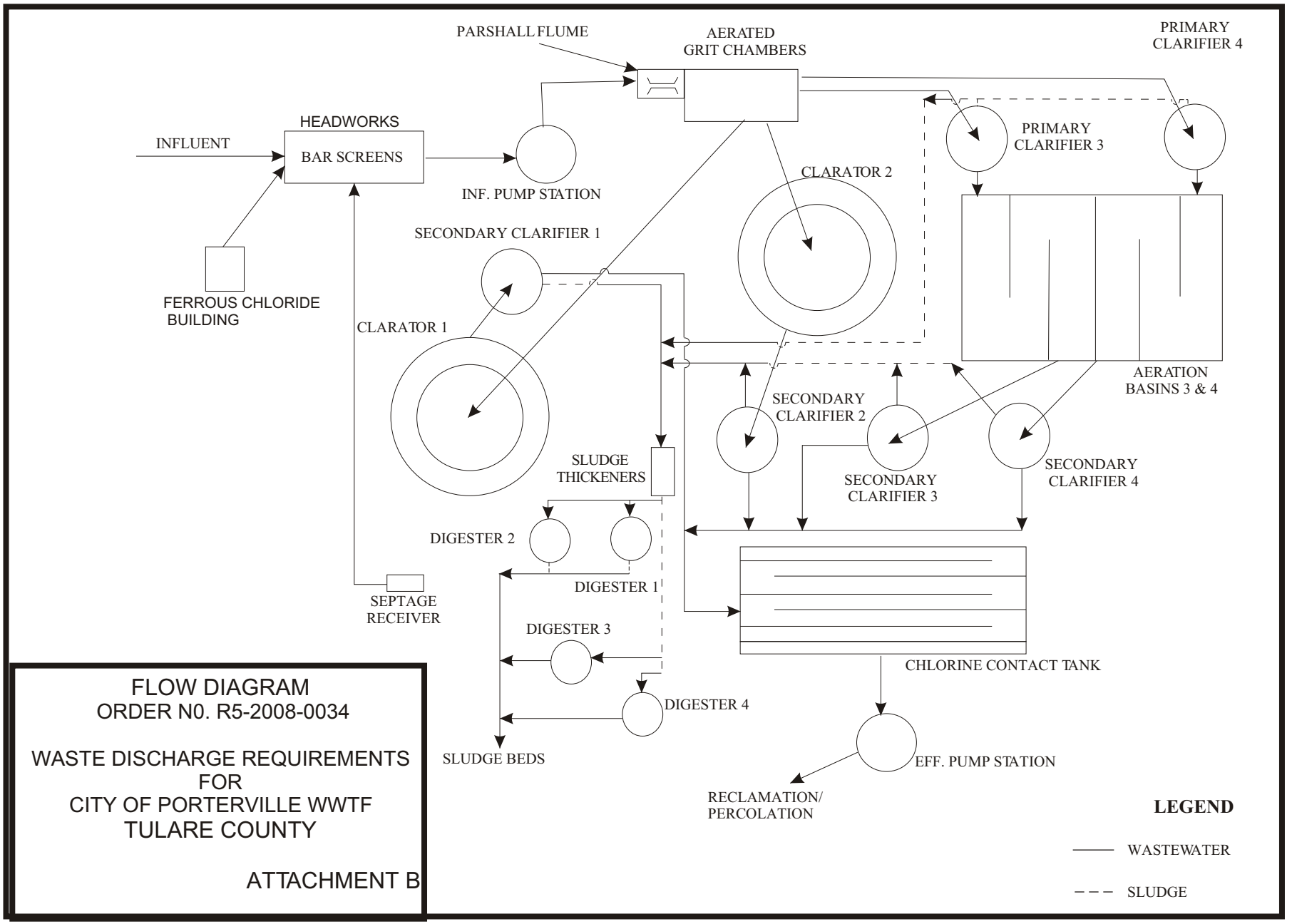
Map Source:
NAIP Aerial Photograph (2005)

SCALE
0 0.25 0.5 1 Miles

SITE LOCATION MAP

ORDER NO. R5 -2008-0034
WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF PORTERVILLE
WWTF AND PERMITTED RECLAMATION LAND
TULARE COUNTY

ATTACHMENT A



FLOW DIAGRAM
ORDER N0. R5-2008-0034

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF PORTERVILLE WWTF
TULARE COUNTY

ATTACHMENT B

INTERNATIONAL SYMBOL FOR NONPOTABLE WATER

ORDER NO. R5-2008-0034
WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF PORTERVILLE WWTF
TULARE COUNTY

ATTACHMENT C

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2008-0034
FOR
CITY OF PORTERVILLE
WASTEWATER TREATMENT FACILITY
TULARE COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code (CWC) section 13267.

The Discharger shall not implement any changes to this MRP unless and until the Regional Water Board adopts or the Executive Officer issues a revised MRP. Changes to sample location shall be established with concurrence of Regional Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer. All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions). The results of analyses performed in accordance with specified test procedures, taken more frequently than required at the locations specified in this MRP, shall be reported to the Regional Water Board and used in determining compliance.

Field test instruments (such as pH) may be used provided that:

1. The operator is trained in the proper use of the instrument;
2. The instruments are calibrated prior to each use;
3. Instruments are serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions; and
4. Field calibration reports are submitted as described in the “Reporting” section of this MRP.

Each laboratory report shall clearly identify the following:

1. analytical method;
2. measured value;
3. units;
4. what constituent a value is reported as;
5. method detection limit (MDL);
6. reporting limit (RL) (i.e., a practical quantitation limit or PQL);
7. documentation of cation/balance for general minerals analysis of supply water and groundwater samples.

Unless exceptions are previously approved in writing by the Executive Officer, all laboratory results shall be reported down to the MDL; non-detected results shall be reported as less than the MDL (<MDL); and results above the MDL, but below the concentration of the lowest calibration standard for multipoint calibration methods or below the reporting limit for other methods shall be flagged as estimated.

Analytical procedures shall comply with the methods and holding times specified in: *Methods for Chemical Analysis of Water and Wastes* (EPA-600/4-79-020, 1983); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA/600/R-93/100, 1993); *Standard Methods for the Examination of Water and Wastewater, 20th Edition* (WEF, APHA, AWWA); and *Soil, Plant and Water Reference Methods for the Western Region, 2003*, 2nd Edition (hereafter Western Region Methods).

If monitoring consistently shows no significant variation in magnitude of a constituent concentration after at least 12 months of monitoring, the Discharger may request the MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

INFLUENT MONITORING

Influent samples shall be collected at the inlet of the headworks at approximately the same time as the effluent samples. Time of a grab sample shall be recorded. Influent monitoring shall include at least the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency
Flow	mgd	Continuous	Daily[1]
Monthly Average Daily Flow	mgd	Computed	Monthly
Settleable Solids	ml/L	Grab	Daily
pH	s.u.[2]	Grab	Daily
BOD_5[3]	mg/L	24-hour composite[4]	Weekly
TSS[5]	mg/L	24-hour compsoite[3]	Weekly

[1] Sample frequencies referenced hereafter in this program as daily shall not include weekends or holidays.

[2] pH standard units (s.u.).

[3] Five-day, 20°C biochemical oxygen demand (BOD_5)

[4] Composite samples may consist of flow-proportioned grab samples.

[5] Total suspended solids (TSS)

EFFLUENT MONITORING

Effluent samples shall be collected at the outfall of the chlorine contact chamber and shall be representative of the volume and nature of the discharge. Time of collection of a grab sample shall be recorded. Effluent monitoring shall include the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency[1]
Settleable solids	ml/L	Grab	Daily
pH	s.u.[2]	Grab	Daily
BOD_5	mg/L	24-hour composite[3]	Weekly

Constituent/Parameter	Units	Type of Sample	Sampling Frequency[1]
TSS	mg/L	24-hour composite[3]	Weekly
Nitrogen Forms			
Nitrate (as N)	mg/L	24-hour composite[3]	Twice-Monthly[4]
TKN[5]	mg/L	24-hour composite[3]	Twice-Monthly[4]
Total Nitrogen	mg/L	Calculated	Twice-Monthly[4]
Salinity			
EC[6]	µmhos/cm	Grab	Monthly
TDS[7]	mg/L	Grab	Monthly
Chloride	mg/L	24-hour composite[3]	Monthly
Sodium	mg/L	24-hour composite[3]	Monthly
Metals[8]	varies	24-hour composite[3]	Annually[9]
General Minerals[10]	mg/L	24-hour composite[3]	Annually[9]

[1] If results of monitoring a pollutant appear to indicate either the failure to achieve the design treatment goals of the wastewater treatment facility or potential upset of the treatment process, but monitoring frequency is not sufficient to validate the results, the frequency of sampling shall be increased to confirm the magnitude and duration of such treatment failures, if any, and aid in identification and resolution of the problem.

[2] pH standard units (s.u.).

[3] Unless otherwise approved, 24-hour composite samples shall be collected using a composite wastewater sampler synchronized with a flow meter to take flow proportional (volumetric) samples. While being composited samples shall be refrigerated at 4 ºC (39.2 ºF).

[4] On non-consecutive weeks.

[5] Total Kjeldahl Nitrogen (TKN).

[6] Electrical conductivity at 25°C.

[7] Total dissolved solids (TDS), as used in this MRP, shall be determined using Standard Methods 2540C for combined organic and inorganic TDS and EPA Method No. 160.4 for inorganic TDS.

[8] Metals as referred to in this program shall include the constituents in the Metals Analyte List presented below.

[9] In October

[10] General Minerals as referred to in this program shall include the constituents in the General Minerals Analyte List presented below.

Metals Analyte List[1]

Aluminum	Iron	Selenium
Barium	Lead	Silver
Copper	Manganese	Zinc
Cadmium	Mercury	Nickel
Chromium	Molybdenum	

[1] With the exception of wastewater samples, samples placed in an acid-preserved bottle must first be filtered. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24-hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

General Minerals Analyte List[1]

Alkalinity (as $CaCO_3$)	Carbonate (as $CaCO_3$)	pH
Arsenic	Chloride	Potassium
Bicarbonate (as $CaCO_3$)	EC	Sodium
Boron	Hardness (as $CaCO_3$)	Sulfate
Calcium	Magnesium	TDS

[1] General Minerals analyte lists may vary depending on the laboratory, but shall include at least the above analytes and properties.

POND MONITORING

Effluent storage and disposal ponds shall be sampled systematically for the parameters specified below. Pond monitoring shall include at least the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency
DO[1,]	mg/L	Grab	As Required[2]
Freeboard	Feet[3]	Observation	Weekly

[1] Dissolved oxygen (DO)

[2] If offensive odor is detected by or brought to the attention of WWTF personnel, monitor first affected pond(s) daily until DO is > 1.0 mg/L. Samples shall be collected at a depth of one foot, opposite the inlet to the pond(s). If DO results for any pond in use creates an odor or nuisance, the Discharger shall implement corrective measures as specified in the operations and maintenance manual and monitor said pond daily until its DO stabilizes above 1.0 mg/L. Samples shall be collected between 0700 and 0900 hours.

[3] Freeboard shall be monitored to the nearest tenth of a foot.

In addition, the Discharger shall inspect the condition of the disposal ponds once per week and write visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating on the disposal pond surface and their location; whether burrowing animals or insects are present; and the color of the reservoirs (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.). A ***summary*** of the entries made in the log during each month shall be submitted along with the monitoring report the following month.

GROUNDWATER MONITORING

Concurrently with groundwater quality sampling, the Discharger shall measure the water level in all monitoring wells in its network as groundwater depth (in feet and hundredths) and as groundwater surface elevation (in feet and hundreds above mean sea level). The horizontal geodetic location of each monitoring well shall be provided where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum.

After measuring water levels and prior to collecting samples , each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall include in its submittal of groundwater elevation data, a contour map based on said data showing the gradient and direction of groundwater flow under/around the facility and effluent disposal area(s). The groundwater contour map shall also include the location of the monitoring wells and active storage and land disposal areas (i.e., areas receiving treated effluent).

Samples shall be collected from the approved monitoring wells (WWTF: MW-5, MW-6, MW-7, and MW-8; Reclamation Area: MW-103 and MW-114; Percolation Pond Area: MW-105, MW-107, and MW-106) and analyzed for the following constituents. Once sampling pursuant to Provision G.4 is complete, the Discharger shall monitor groundwater for the constituents and frequencies specified below.

Constituent/Parameter	Units	Type of Sample	Frequency
Depth to groundwater	Feet[1]	Measured	Quarterly[2,3]
Groundwater elevation	Feet above mean sea level	Calculated	Quarterly[2,3]
Nitrogen compounds:			
Nitrate (as N)	mg/L	Grab	Quarterly[2]
TKN	mg/L	Grab	Quarterly[2]
Total Nitrogen	mg/L	Calculated	Quarterly[2]
General Minerals[4]	mg/L	Grab	Quarterly[2]
Total Organic Carbon	mg/L	Grab	Annually[5]
Total Coliform Organisms	MPN/100 ml	Grab	Annually[5]
Iron	mg/L	Grab	Annually[5,6]
Manganese	mg/L	Grab	Annually[5,6]

[1] To the nearest hundredth of a foot.

[2] January, April, July and October.

[3] All Monitoring Wells (MW-3N/S through MW-9 and MW-101 through MW-115).

[4] General Minerals shall include at least the constituents listed in General Minerals Analyte List included herein in the Effluent Monitoring section. An anion/cation balance demonstrating that analyses are complete shall accompany the results.

[5] In October.

[6] Samples must be filtered prior to preservation.

SOURCE WATER MONITORING

The City's municipal source water supply shall be monitored as follows:

Constituent/Parameter	Units	Measurement	Frequency
EC[1]	µmhos/cm	Grab	Quarterly[2]

[1] Report as a flow-weighted average form all supply wells and include copies of supporting calculations with monitoring reports.

[2] January, April, July and October.

PRETREATMENT MONITORING

Quarterly and annual pretreatment reports must be submitted in accordance with Provision E.7 of Standard Provisions and Reporting Requirements. The annual report shall be submitted by 28 February of each year. The reports shall also describe progress towards correction of deficiencies noted during audit or pretreatment compliance inspections by the Board and/or EPA. Information required in the fourth quarterly report shall be included as part of the annual report. If none of the aforementioned conditions exist, a letter at the end of each quarter must be submitted, at a minimum, certifying that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter.

Signed copies of the reports shall also be submitted to the EPA Regional Administrator and the State Board at the following addresses, or as advised in writing subsequent to adoption of this Order:

Regional Administrator
U.S. EPA, Region 9
Water Management Division (W-5-2)
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Division of Water Quality
State Water Resources Control Board
P.O. Box 944213
Sacramento, CA 94244-2130

SLUDGE MONITORING

To ensure that industrial and other discharges to the wastewater treatment facility are not interfering with treatment process, the Discharger shall collect a composite sample of sludge annually, as set forth by Title 40 Code of Federal Regulations (CFR) Part 503.16. Any Notice of Necessary Information (NANI) form prepared for submittal to the United States Environmental Protection Agency shall be forwarded to the Regional Water Board.

Composite samples shall be collected in accordance with the Environmental Protection Agency's *POTW Sludge Sampling And Analysis Guidance Document* (EPA/ 833B89100, August 1989) and test for metals:

Arsenic	Copper	Nickel
Cadmium	Lead	Selenium
Molybdenum	Mercury	Zinc

The control of pathogens and the reduction of vector attraction shall be achieved in accordance with the Environmental Protection Agency's *Control of Pathogens and Vectors In sewage Sludge* (EPA/625-R-92/013, July 2003).

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

RECLAMATION AREA MONITORING

The Discharger shall perform routine monitoring and loading calculations for each discrete irrigation area. Monitoring shall include types of crop(s), amount of water and/or reclaimed water applied to the crop(s) (in acre-feet), and amount of sludge and/or chemical fertilizers (in pounds of nitrogen per acre). The monitoring reports shall also include nitrogen and inorganic salt loading from reclaimed water use in pounds per acre per month and cumulative totals for each discrete irrigation area (starting at 0 on 1 January). The monitoring data shall be reported quarterly in accordance with the following schedule:

Monitoring Period	Reports Due
January – March	1 May
April – June	1 August
July – September	1 November
October – December	1 February

The Discharger shall utilize a form approved by the Executive Officer for reporting Reclamation Area Monitoring.

REPORTING

The Discharger shall report monitoring data and information as required in this MRP and as required in the Standard Provisions. Daily, weekly, semi-monthly, and monthly data shall be reported in monthly monitoring reports.

Monitoring data and/or discussions submitted concerning WWTF performance must also be signed and certified by the chief plant operator. When reports contain laboratory analyses performed by the Discharger and the chief plant operator is not in the direct line of supervision of the laboratory, reports must also be signed and certified by the chief of the laboratory.

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be

summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the discharge monitoring report.

A. Monthly Reports

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

1. Results of influent, effluent, and disposal pond monitoring;
2. Calculated Monthly Average Daily Flow;
3. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
4. Copies of laboratory analytical reports; and
5. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.

B. Quarterly Reports

Wastewater*:* Daily, weekly, monthly, and quarterly monitoring data shall be reported in quarterly monitoring reports. Quarterly monitoring reports shall be submitted to the Regional Water Board **by the 1st day of the second month after the calendar quarter** (i.e., the 1st Quarter Report is due by 1 May, 2nd Quarter Report is due by 1 August, and the 3rd Quarter Report is due 1 November). The monthly reports required on 1 May, 1 August, and 1 November shall be combined with the quarterly report for ease of submittal. Quarterly monitoring reports shall include all monitoring data required in the monthly monitoring schedule, and the data from quarterly effluent and water supply monitoring events.

Groundwater: Quarterly groundwater monitoring data shall be reported in quarterly monitoring reports and submitted to the Regional Water Board as detailed in the previous section. Quarterly monitoring reports shall include all monitoring data required from quarterly groundwater monitoring events. The quarterly groundwater monitoring reports shall contain:

1. Quarterly groundwater contour maps;
2. Graphs of the laboratory analytical data for all samples taken from each well within at least the previous five calendar years. Each such graph shall plot over time for a given monitoring well the concentration of one or more waste constituents; and
3. All monitoring analytical data obtained during the quarter presented in tabular form and included with previous data obtained for the given well.

C. Annual Reports

Wastewater: An Annual Report shall be prepared as a fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule plus the results of any annually sampled constituents (general minerals, selected metals, etc). The Annual Report shall be submitted to the Regional Water Board **by 1 February of the year following the year the samples were collected.** In addition to the data normally presented, the Annual Report shall include the following:

1. The names, certificate grades, and general responsibilities of all persons in charge of wastewater treatment and disposal;
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations;
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (standard Provision C.4);
4. A statement whether the current operation and maintenance manual, and contingency plan, reflect the WWTF as currently constructed and operated, and the dates when these documents were last reviewed for adequacy;
5. The results of an annual evaluation conducted pursuant to Standard Provisions E.4 and a figure depicting monthly average discharge flow for the previous five calendar years;
6. The most recent annual water supply report for the City;
7. A summary of sludge monitoring, including:
   a. Annual sludge production in dry tons and percent solids;
   b. A schematic diagram showing sludge handling facilities and solids flow diagram; and
   c. A description of disposal methods, including the following information related to the disposal methods used at the WWTF. If more than one method is used, include the percentage of sludge production disposed of by each method.
      i. For **landfill disposal**, include (a) the Order numbers that regulate the landfill(s) used, (b) the present classifications of the landfill(s) used, and (c) the names and locations of the facilities receiving the sludge.
      ii. For **land application**, include: (a) the locations of the site(s), and (b) the Order number of any WDRs that regulates the site(s).
      iii. For **incineration**, include: (a) the names and location of the site(s) where sludge incineration occurs, (b) the Order numbers of WDRs that regulate the site(s), (c) the disposal method of ash, and (d) the names and locations of facilities receiving ash (if applicable); and
      iv. For **composting**, include: (a) the location of the site(s), and (b) the order numbers of any WDRs that regulate the site(s).

8. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with this Order.
9. A statement regarding whether the current operation and maintenance manual, and contingency plan, reflect the groundwater cleanup system as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.

Groundwater: An Annual Groundwater Monitoring Report shall be prepared as a fourth quarter groundwater monitoring report. The Annual Groundwater Monitoring Report will include all groundwater monitoring data required in the monthly/quarterly groundwater monitoring schedule plus the results of any annually sampled groundwater constituents (general minerals, selected metals, etc). The Annual Groundwater Monitoring Report shall be submitted to the Regional Board **by 1 February of the year following the year the samples were collected.** In addition to the data normally presented in the quarterly groundwater monitoring reports, the Annual Report shall include the following:

1. Quarterly groundwater contour maps from the previous four quarters;
2. Graphs of the analytical data for all samples collected from each monitoring well for at least five calendar years. Each such graph shall plot over time for a given monitoring well the concentration of one or more waste constituents specified herein and selected in concurrence with Regional Water Board staff. Graphs shall be plotted at a scale appropriate to show trends or variations in water quality, and shall plot each datum, rather than plotting mean values.
3. All monitoring data obtained during the previous monitoring events for at least the last five calendar years.

Septage: The Discharger shall keep daily logs of septage received that includes, at a minimum, company name, septage origin, and estimated quantity. A summary of this information shall be reported in the annual reports monitoring reports. Daily logs shall be kept onsite for at least five years and available for Regional Water Board's staff review during an inspection.

All technical reports required herein must be overseen and certified by a California registered civil engineer, certified engineering geologist, or certified hydrogeologist in accordance with California Business and Professions Code, sections 6735, 7835, and 7835.1.

All reports submitted in response to this Order shall comply with the signatory requirements in Standard Provision B.3.

A transmittal letter shall accompany each self-monitoring report. The letter shall discuss any violations during the reporting period and all actions taken or planned for correcting 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 Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by:_____
PAMELA C. CREEDON, Executive Officer

14 March 2008
(Date)

DKP/kc: 3/14/2008

INFORMATION SHEET

CITY OF PORTERVILLE WWTF
TULARE COUNTY

Background

The City of Porterville (hereafter Discharger or City) owns and operates a Wastewater Treatment Facility (WWTF) that serves the people of Porterville and the nearby community of Porter Vista. The WWTF is currently regulated by Waste Discharge Requirements (WDR) Order No. R5-2001-103 and Cease and Desist Order No. R5-2001-104.

The WWTF is an activated sludge treatment plant consisting of a headworks with mechanical and manual screens, aerated grit chambers, two "clarators" with primary aerator and aeration chambers, two primary clarifiers, two aeration basins, four secondary clarifiers, a chlorine contact tank, a blower room, sludge thickeners (Dissolved Air Flotation units), four anaerobic sludge digesters, and a biosolids transfer station. The design capacity of the WWTF is 8 million gallons per day (mgd). The permitted monthly average daily discharge flow is 5.3 mgd (in 2006 the monthly average daily discharge flows were between 4.3 and 5.1 mgd). WWTF generates secondary treated effluent. The WWTF does not chlorinate to disinfect the treated effluent unless required to handle algae blooms.

Prior to 1987 sludge was stored in unlined sludge drying beds at the WWTF and the treated effluent was discharged to 12-acres of percolation basins at the WWTF or used to irrigate approximately 100 acres of farmland adjacent to the WWTF. In the 1990s this ceased and the effluent and sludge was transported approximately 4.5 miles to lands south and west of the municipal airport, where the sludge is stored in soil cement lined sludge drying beds and the treated effluent is used to irrigate fodder and fibber crops or allowed to percolated in a 43-acre disposal field. In the past up to 75% of the total effluent was discharged to the 43-acre disposal field for percolation. The percolation of effluent in the disposal field increased the groundwater gradient and, in turn, groundwater flow velocity in the vicinity of the Landfill. As a result, the City's continued discharge to the area has the potential to increase area groundwater to levels that would threaten or adversely affect the Landfill and groundwater quality. Current WDRs prohibits the Discharger from discharging effluent to the disposal field in a manner that contributes to the flooding and migration of waste constituents from the Teapot Dome Landfill. In addition, the Discharger was directed to decrease percolation of effluent and increase the amount of reclaimed water used for irrigation.

The City's current Reclamation Area consists of approximately 980 acres with about 401 acres used for irrigation with recycled effluent (the rest of the Reclamation Area is dry farmed). The Discharger plans to complete infrastructure improvements on approximately 220 additional acres for a total of 620 acres available for irrigation, 30 acres of which are owned by Mr. Robert Nuckols.

Solids and Biosolids Disposal

Sludge is thickened and stored in the sludge digesters then is transferred via an underground pipeline approximately 4.5 miles to the sludge drying beds adjacent to the municipal airport. Currently the dried sludge is stockpiled in one of the lined sludge drying beds and hauled to a composting facility for disposal. In July 2007, the Discharger submitted a Notice of Intent

(NOI) for coverage under the Boisolids General Order to land apply boisolids for use as a soil amendment on approximately 440 acres of land in the City's Reclamation Area. According to the Operations Plan submitted with the NOI the biosolids will be spread in October. Following application a crop will be planted on the fields in November either alfalfa, oat hay, or oat hay followed by sudan grass. According to the Operations Plan the fields that are used for biosolids will not be irrigated with effluent for one year following application. Current sludge production is about 1,100 tons of dried sludge per year, which requires an estimated 65 to 70 acres of land each year. The Discharger estimates that, at an average daily flow of 8 mgd, sludge production would be about 1,300 tons/year.

Groundwater Conditions

Regional groundwater in the area is encountered between 50 and 100 feet below ground surface (bgs) and flows to the southwest, according to information in Lines of Equal Elevation of Water in Wells in Unconfined Aquifer, published by Department of Water Resources in Spring 2004.

In 1993 the Discharger established a groundwater-monitoring network around the WWTF and the Reclamation Area. Additional monitoring wells were installed in 2001 as part of the hydrogeologic investigation required under the conditions of WDRs Order No. R5-2001-103 and CDO No. R5-2001-104.

In the most recent groundwater monitoring reports fist-encountered groundwater was between 35 and 50 feet in the monitoring wells around the WWTF and between 45 and 110 feet in the monitoring wells around the Reclamation Area. Groundwater flow in recent years has generally been to the west-southwest except in the area around the percolation ponds where, due to mounding, groundwater flows away from the ponds in all directions.

Groundwater in the area is generally of good to excellent quality, except for nitrates, with EC and TDS values around 300 to 600 µmhos/cm and 200 to 400 mg/L, respectively. Based on the data supplied, groundwater in the vicinity of the Reclamation Area has been degraded for nitrogen and salts as a result of past discharges from the WWTF. Groundwater nitrate concentrations in the vicinity of the percolation ponds are between 12.4 mg/L and 18 mg/L, expressed as nitrogen, and exceed the primary maximum contaminant limit (MCL) for nitrate of 10 mg/L. In addition, groundwater in the vicinity of the percolation ponds contains EC, sodium, and chloride at or near concentrations that could be harmful to salt sensitive crops such as citrus and stone fruit, which are grown in the area. The continued percolation of effluent, with nitrogen concentrations that exceed water quality objectives will likely contribute and may further exacerbate nitrogen impacts in the area.

Compliance History

The Discharger submits monthly, quarterly, and annual self-monitoring reports (SMRs) in compliance with the Monitoring and Reporting Program. The Discharger has noted its SMRs that the monthly average EC of the effluent occasionally exceeds 900 umhos/cm, and believes that it is the result of returning decant water from the sludge drying beds.

Cease and Desist Order No. R5-2001-104 (CDO), adopted on 27 April 2001, required the Discharger to perform a series of tasks according to a time schedule. Tasks required under the CDO include (a) provide effluent disposal capacity sufficient to comply with the terms and conditions of WDRs Order No. R5-2001-103 at the permitted monthly average discharge rate of 5.3 mgd including cessation of hydraulic impacts on the Teapot Dome landfill, (b) adoption and implementation of an industrial sewer pretreatment program, (c) conduct a hydrogeologic investigation to investigate the extent of impacts to groundwater quality in violation or threatened violation of groundwater limitations, and (d) evaluate cleanup alternatives and select a cost effective cleanup action for approval that achieves compliance and assures sustained compliance with groundwater limitations.

The Discharger completed the tasks identified in the CDO, except for parts of Task 5 (evaluate, select, and propose cost-effective cleanup actions for sustained compliance with groundwater limitations). The Discharger failed to submit a cleanup proposal, but rather has implemented several management practices intended to prevent further degradation of groundwater, including increasing the land available for irrigation, and decreasing the amount of effluent allowed to percolate. Rescission of the CDO is considered in a separate Order.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan indicates the greatest long-term problem facing the entire Tulare Lake Basin is increasing salinity in groundwater, a process accelerated by man's activities and particularly affected by intensive irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. The Regional Water Board encourages proactive management of waste streams by dischargers to control addition of salt through use, and has established an incremental EC limitation of 500 µmhos/cm or a 1,000 µmhos/cm, as the measure of the maximum permissible addition of salt constituents through use.

Discharges to areas that may recharge good quality groundwaters shall not exceed an EC of 1,000 µmhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not others. Policy and procedures for complying with this directive are set forth in the Basin Plan. 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, water recycling, and waste management advantages of municipal utility service far exceed any benefits

derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. 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.

Constitutes of concern that have the potential to degrade groundwater include, in part, nutrients and salts. However, the discharge will likely not degrade the beneficial uses of groundwater because:

a. For nitrogen, shallow groundwater already contains nitrate concentrations in excess of water quality objectives as a result of previous discharges and agricultural practices in the area. The WDRs would include provisions requiring the Discharger to evaluate its wastewater management practices and submit a comprehensive Wastewater Management plan for the Reclamation Area intended to maximize the nitrogen utilization of the crops and preclude further degradation of groundwater.

b. For salinity, the Basin Plan contains effluent limits for EC of SW + 500 µmhos/cm, 1,000 µmhos/cm max that considered antidegradation when adopted. With an EC of about 868 µmhos/cm, the treated effluent meets the Basin Plan limit for SW + 500 µmhos/cm. The WDRs would set an effluent limitation for EC of 500 µmhos/cm over source or a maximum of 1,000 µmhos/cm, whichever is less and a chloride limit of 175 mg/L and should therefore not unreasonably degrade the beneficial uses of groundwater with respect to salinity.

Treatment Technology and Control
The Discharger provides treatment and control of the discharge that incorporates:

a. secondary treatment;
b. disinfection (when required);
c. pretreatment monitoring and compliance assessment;
d. recycling of wastewater for crop irrigation;
e. soil cement lined sludge drying beds;
f. appropriate biosolids handling and treatment for reuse;
g. an operation and maintenance (O&M) manual; and
h. certified operators to insure proper operation and maintenance.

Title 27
Title 27, CCR, section 20005 et seq. (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and

specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27. Treatment and storage facilities for sludge that are part of the WWTF are considered exempt from Title 27 under section 20090(a), provided that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed Order, sludge that will not be subjected to further treatment by the WWTF) is not exempt from Title 27. Solid waste (e.g., grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with the Basin Plan.

CEQA
The Discharger certified an Environmental Impact Report (EIR) in February 1992 for expansion of the WWTF to a capacity of 8 mgd, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended). The Regional Water Board, as a responsible agency under CEQA, reviewed the EIR for the project relative to water quality. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

Proposed Order Terms and Conditions

Discharge Prohibitions, Specifications and Provisions
The proposed Order prohibits discharge to surface waters and water drainage courses and cross connection between potable water and well water piping with recycled water piping.

The proposed Order would set a monthly average daily flow limit of 5.3 mgd. With effluent limits for BOD_5 and TSS of 40 mg/L monthly average and 80 mg/L daily maximum, consistent with the Basin Plan. To increase flows up to 8.0 mgd the proposed Order requires that the Discharger shall submit a technical report and certification documenting that it has completed necessary improvements to add additional land to its irrigation plan and has sufficient disposal capacity to comply with the terms and conditions of this Order.

The proposed Order would establish an effluent limitation for EC of 500 µmhos/cm over source or a maximum of 1,000 µmhos/cm, whichever is less, and a chloride limit of 175 mg/L

that reflects Regional Water Board policy for managing the salts within the Tulare Lake Basin, and includes a Provision to conduct a salinity evaluation and prepare a Salinity Control Plan to manage and control the salinity of its discharge.

The discharge specifications regarding dissolved oxygen and freeboard are consistent with Regional Water Board policy for the prevention of nuisance conditions, and are applied to all such facilities. Due to the shallow depth of the percolation ponds and the rapid infiltration rates of the soil, monitoring for dissolved oxygen in the ponds is only required if offensive odors are detected.

In order to protect public health and safety, the proposed Order requires the Discharger to comply with the provisions of Title 22 and to implement best management practices with respect to recycled water application (application at reasonable rates considering the crop, soil, and climate).

The proposed Order would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedances of these objectives or natural background water quality, whichever is greatest.

The proposed Order includes Provisions to prepare a salinity control plan to control the salinity of its discharge and submit a comprehensive Wastewater Management Plan to evaluate its recycling practices and the potential for use of extracted groundwater from areas beneath the Reclamation Area that have elevates concentrations of waste constituents to ensure that groundwater quality is restored and protected. The evaluation shall also establish best practicable treatment or control measures, including the possibility of treating wastewater to remove nitrogen, to comply with the groundwater limitations in this Order and ensure that beneficial uses of groundwater will be maintained. The technical report shall include a time schedule to implement the identified measures.

Monitoring Requirements

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

The proposed Order includes effluent monitoring requirements and Reclamation Area monitoring. In order to adequately characterize wastewater, the Discharger is required to monitor for BOD_5, pH, EC, TDS, nitrogen, and other constituents.

The proposed Order also includes groundwater monitoring around the WWTF, Reclamation fields, sludge drying beds, and percolation area. Since 2001 the Discharger has implemented several management practices to prevent further groundwater degradation. Due to significant improvements made to date in the reclamation program including increasing land available for effluent irrigation and reduced reliance on percolation this Order proposes to reduce the number of monitoring wells to be sampled as part of the groundwater monitoring program.

The Discharger must monitor groundwater for waste constituents expected to be present in the discharge, and capable of reaching groundwater, and violating groundwater limitations if its treatment, control, and environmental attenuation, proves inadequate. For each constituent of concern, the Discharger must, as part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentration or to prescribed numerical limitations to determine compliance.

Reopener
The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. It may be appropriate to reopen the Order if applicable laws and regulations change.

DKP/kc: 3/14/08