CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2013-0055

WASTE DISCHARGE REQUIREMENTS
FOR
CALIFORNIA DEPARTMENT OF STATE HOSPITALS
COALINGA STATE HOSPITAL
FRESNO COUNTY

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

1. The California Department of State Hospitals (formerly the California Department of Mental Health, hereafter Discharger) submitted a Technical Report (Report) dated November 2001 to support the discharge of domestic wastewater from the wastewater treatment facility (WWTF) at the Coalinga State Hospital (Hospital). The Discharger subsequently submitted a Report of Waste Discharge dated 12 April 2002 to address comments from Central Valley Regional Water Control Board staff concerning the 2001 Report.

2. The Discharger owns and operates the Hospital and is responsible for compliance with these Waste Discharge Requirements (WDRs). The Hospital became operational in 2004, and the WWTF has operated and discharged domestic wastewater since that time.

3. The Hospital is at 24,511 West Jayne Avenue about five miles east of the community of Coalinga in Fresno County and about four and a half (4.5) miles west of Interstate 5. The Hospital is adjacent to and east of the Pleasant Valley State Prison operated by the California Department of Corrections and Rehabilitation.

4. The Hospital, WWTF, and Land Application Area are in the eastern half of Section 4, Township 21 S, Range 16 E. The property comprises about 320 acres, and the Hospital itself covers the northern 160 acres of the 320-acre parcel. The WWTF and the Land Application Area are situated on the southern 160 acres of the 320-acre parcel, as shown on Attachment A, which is a part of this Order by reference. The six lined wastewater ponds that comprise the WWTF (described in more detail below) are present along the eastern property boundary.

Existing Facility and Discharge

5. The WWTF consists of a headworks with two screw pumps, comminutor, auger screen, manually cleaned bar screen, a Parshall flume flow meter; four partially mixed aerated ponds; two storage ponds; a chlorination system; and a Land Application Area. Solids removed during the screening process are disposed of at an offsite landfill. The RWD indicates the WWTF was designed for an average

daily wastewater flow of 0.4 million gallons per day (mgd) with a maximum design flow of 0.6 mgd.

6. The four aerated ponds are lined with a 60-mil synthetic liner, aerated with horizontal brush aerators, and are designed to produce undisinfected secondary effluent. The volume of the aerated ponds is 3.0 million gallons each. Wastewater flows from the aerated ponds into two lined (60-mil) 32.6 million gallon capacity storage ponds (total capacity of 65.2 million gallons) prior to discharge to the Land Application Area.

7. The Discharger has submitted flow data in self-monitoring reports since 2006. The average daily flow rate in 2011 was 0.085 mgd (85,000 gallons per day), but increased in 2012 to 0.103 mgd. The overall average flow has been 0.094 mgd since January 2011. The flows are well within the design capacity of the WWTF (0.4 mgd average flow and 0.6 mgd maximum).

8. Average effluent quality since 2011 is as follows:

CONSTITUENT	UNITS	RESULTS
Electrical Conductivity	micromhos per centimeter (umhos/cm)	846
Biochemical Oxygen Demand (BOD)	milligrams per liter (mg/L)	4.4
Total Suspended Solids (TSS)	mg/L	6.4
Total Kjeldahl Nitrogen	mg/L	5.0
Ammonia as Nitrogen	mg/L	na
Nitrate as Nitrogen	mg/L	na
Sodium	mg/L	109
Chloride	mg/L	142
Sulfate	mg/L	70
Total Dissolved Solids	mg/L	528

9. The first of the four aerated ponds was constructed with a 0.45 million gallon sludge pit in the center of the pond that is intended to provide anaerobic/facultative digestion and long term storage of the sludge. Sludge accumulation in the pit has been negligible to date, and sludge removal has not been required.

Change in Wastewater Application

10. The RWD contains a water balance that addresses year round irrigation needs. The water balance assumes a flow rate of 0.4 mgd (far greater than the actual 0.098 mgd flow), an irrigation efficiency of 70 percent, and cropping with alfalfa, cotton, or both. The water balance indicates that at the proposed rate of 0.4 mgd, the 100 -acre Land Application Area would accept all of the wastewater, and supplemental irrigation water would be required in the summer months. The two

32.6 million gallon storage ponds would provide 81.5 days of storage each (at a flow rate of 0.4 mgd) in periods of rainfall that won't allow for the application of wastewater to the Land Application Areas.

11. The Discharger does not have 100 acres on which to discharge wastewater. Rather, 50 acres are available for the land application of wastewater and the northern 50 acres collects regional storm water. An inspection in 2010 found the site was unlevel and wastewater had flowed across the field towards the storm water retention basin. Central Valley Water Board staff issued an April 2002 letter and *Facilities Inspection Report* requesting that the Discharger address the disposal issues. The Discharger provided a May 2010 response letter stating it would construct an earthen berm to separate the Land Application Area from the storm water runoff basin, laser level the Land Application Area, and plant the Land Application Areas with Bermuda grass. The Discharger has built the berm and divided the 50-acre Land Application Area into three general areas (SE, Southern, and SW sections) for wastewater disposal. The Discharger has planted the Land Application Area with Bermuda grass and has laser leveled the fields to maximize the area wastewater spreads to and increase infiltration of the wastewater into the soil.

12. The RWD included a water balance based on the annual precipitation associated with a 100-year return period, which showed that at a flow of up to 0.40 mgd, the 100 acres was more than sufficient to discharge the wastewater at the proposed rate. Reconsideration of the water balance assuming only the 50-acre Land Application Area shows disposal capacity exceeding 0.20 mgd.

13. Nitrate monitoring is not part of the current analytical suite, but was analyzed in the past. The results indicate the nitrate as nitrogen results in effluent were very low, averaging about 3 mg/L. Total Kjeldahl nitrogen results have averaged about 5 mg/L since 2011. Using a total nitrogen value of 10 mg/L and the current flow rate of 0.1 mgd, the nitrogen loading would be about 60 pounds per acre per year (lbs/ac/yr). At a flow rate of 0.20 mgd, the nitrogen loading would be about 120 lbs/ac/yr. The Land Application Area is currently planted with Bermuda grass that can remove over 200 lbs/ac/yr of nitrogen. However, the grass is not harvested, so uptake rates would be significantly less than 200 lbs/ac/yr. The Bermuda grass will uptake some nitrogen, and some nitrogen will also be lost to the atmosphere during transformations in the soil column. With the low nitrogen concentration in the discharge, the uptake of nitrogen in the root zone by the Bermuda grass, nitrogen losses in the soil column, the depth to groundwater of greater than 250 feet below the ground surface (bgs), as described in Finding 24, and low permeability of the area soils, as described in Findings 19 through 21, the discharge should not degrade the underlying groundwater with respect to nitrogen.

14. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. 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.

15. The land application of wastewater by the Discharger is not a recycled water project subject to regulation under Title 22 California Code of Regulations Section 60301 et seq., as the Hospital is not applying the treated effluent to the Land Application Area to produce a crop. However, the application of certain Title 22 requirements (e.g. proper identification of hose bibs delivering treated wastewater, setbacks from areas of public access and signs warning the public of the presence of wastewater) to the discharges to the Land Application Areas are prudent to protect public health.

Site Specific Conditions

16. Source water is obtained from the City of Coalinga that gets its water supply from the Central Valley Project via the Coalinga Canal, which is operated by the Westlands Water District. Source water quality was found in the 2011 Consumer Confidence Report prepared for the City of Coalinga and in reports from the adjacent Pleasant Valley State Prison and the nearby City of Coalinga WWTF. The results are summarized in the following table. The source water EC values measured at the Hospital, the Pleasant Valley State Prison and the City of Coalinga WWTF average about 450 umhos/cm and are higher than the value reported (260 umhos/cm) in the 2011 Consumer Confidence Report. The table below shows the range of EC values reported.

CONSTITUENT	UNITS	RESULTS
Electrical Conductivity	umhos/cm	260 - 589

17. The land surface in the area of the Hospital and the Land Application Area slopes gradually to the northeast. The elevation of the WWTF is about 570 feet above mean sea level, with about a five-foot drop across the half mile wide site.

18. According to Federal Emergency Management Agency maps (Map Number 06019C3275 F), the Hospital, WWTF, and the Land Application Area are not located within a 100-year flood plain. They are shown as being outside the 500 year flood plain. The WWTF and Land Application Area are about a half mile northwest from a Zone A 100 year flood plain that is located along Zapato Chino Creek.

19. According to the Web Soil Survey published by the United States Department of Agriculture Natural Resources Conservation Service, soils in the vicinity of the WWTF and Land Application Area are predominantly the Posochanet clay loam and the Lethent Clay loam. The Posochanet Clay loam is present on the western portion of the Land Application Area with the Lethent clay loam unit comprising about 20 percent of the soils along the eastern portion of the Land Application Area.

20. The Posochanet clay loam, a saline-sodic soil series, is described as moderately well drained with low to moderate available water capacity and is a Class 2s soil. It is described as very slightly saline to slightly saline with EC values of 4 to 8 millimhos per centimeter (mmhos/cm). Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices. The "s" subclass indicates the soil is limited mainly because it is shallow, droughty, or stony.

21. The Lethent clay loam is described as moderately well drained with low to moderate available water capacity and is a Class 3s soil. It is described as slightly saline to moderately saline with EC values of 4 to 16 mmhos/cm. Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both. The "s" subclass indicates the soil is limited mainly because it is shallow, droughty, or stony.

22. The Coalinga area is characterized by hot, dry summers and cool winters. The rainy season generally extends from November through March. Average annual precipitation for the area is about 8.3 inches. According to the DWR, the maximum annual precipitation for a 100-year rainfall return period is estimated to be about 17.6 inches.

23. Land uses in the vicinity of the Hospital and the WWTF are primarily agricultural. The Pleasant Valley State Prison occupies about 160 acres immediately adjacent to the Hospital to the west, but the majority of the surrounding land is used for agricultural purposes. The primary crops grown in the area are field crops like cotton, grain, and hay crops with lesser amounts of pistachios, onions, garlic, and sugar beets, according to the Fresno County 2000 Land Use Map published by the DWR.

Groundwater Considerations

24. Groundwater in the area occurs in unconfined and confined aquifers. Generally, the unconfined first encountered groundwater is of poor water quality, with better quality water found beneath the confining layer known locally as the Corcoran

Clay. The elevation of groundwater in the unconfined aquifer is approximately 300 feet above mean sea level (about 250 to 285 feet [bgs]), according to information in *Lines of Equal Elevation of Water in Wells in Unconfined* Aquifer, published by DWR, Spring 2004. Regional flow of the unconfined aquifer is generally to the east/northeast in the vicinity of the Hospital.

25. There are no monitoring wells at the Hospital or WWTF, but regional/historical groundwater quality data can be found on the Water Quality Portal web site, a cooperative service provided by the United States Geological Survey (USGS), the Environmental Protection Agency, and the National Water Quality Monitoring Council. A review of the USGS files indicates 25 wells are within a five mile radius of the WWTF. Five wells were identified within 2.5 miles of the WWTF and have depths of less than 500 feet bgs (220 to 463 feet bgs). The results are old (1951 to 1964) and from only one or two sampling events, but they depict the water quality of the first encountered groundwater as sampled 50 years ago.

26. Results from the USGS wells are summarized in the following table.

USGS WELL RESULTS

Well Number	E23E001M	E12Q0001M	E07E01M	E08E001M	E36Q001M
Well Depth[1]	285	338	220	463	235
Constituent			Results		
EC (umhos/cm)	1230	1480	1330	1890	2320
TDS (mg/L)	858	1050	942	1360	1720
Chloride (mg/L)	34	60	49	98	120
Sodium (mg/L)	130	160	140	220	280
Sulfate (mg/L)	400	510	440	674	900
Nitrate (mg/L)	24	5.8	15	8.4	15
Nitrate as Nitrogen (mg/L)	5.42	1.31	3.4	1.9	3.4
Boron (mg/L)	1.5	1.2	1.3	0.9	2.8

1. Depth is in feet below the ground surface.

27. The data illustrates that the poor quality of the first encountered groundwater significantly predates the discharge. All of the EC, TDS, and sulfate values exceed the recommended Secondary Maximum Contaminant Level (MCL) for each of the three constituents, and each of the three constituents exceeds the Upper and Short Term MCLs in at least one well. Comparing the water quality presented in Finding 26 to the effluent quality presented in Finding 8, illustrates that the proposed discharge has lower concentrations for all constituents except chloride than those reported for the first encountered groundwater of the region.

Basin Plan, Beneficial Uses, and Water Quality Objectives

28. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004 (the "Basin Plan") designates beneficial uses, establishes narrative and numerical 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. In accordance with Water Code section 13263(a), these waste discharge requirements implement the Basin Plan.

29. The WWTF and the Land Application Area lie within the Pleasant Valley Groundwater Basin as depicted on Figure II -2 of the Basin Plan. The Basin Plan designates the beneficial uses of groundwater as municipal and domestic supply, agricultural supply, and industrial process supply.

30. The WWTF and the Land Application Area lie within the South Valley Floor Hydrologic Unit, specifically the Kettleman Hydrologic Area (No. 558.50). The area around the WWTF and Land Application Area regionally drains northeast towards Los Gatos Creek, a Valley Floor Water. The Basin Plan designates the following beneficial uses for Valley Floor Waters including Los Gatos Creek: agricultural supply, industrial process supply, industrial service supply, water contact recreation, non-contact water recreation, warm freshwater habitat, wildlife habitat, rare and endangered species habitat, and groundwater recharge.

31. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, require waters designated as MUN to meet the State drinking water MCLs specified in Title 22. The Basin Plan recognizes that the Central Valley 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.

32. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste 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.

33. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.

34. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references, indicate that yield reductions in nearly all crops are not evident when irrigating with water having an EC less than 700 umhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 umhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

35. The Basin Plan encourages the land application of wastewater and identifies crop irrigation as a land application option where the opportunity exists to replace an existing use or proposed use of fresh water with recycled water.

36. The Basin Plan also states that the water quality objectives contained therein do not require improvement over naturally occurring background groundwater quality. The baseline for determining background water quality is generally the quality as of 1968. If background water quality exceeded objectives since 1968, then background water quality becomes the objective.

Antidegradation

37. State Water Board Resolution No. 68-16 ("*Policy with Respect to Maintaining High Quality Waters of the State*") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation does not result in water quality less than that prescribed in State and regional policies, including violation of one or more water quality objectives.

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses.

    c. The Discharger employs best practicable treatment or control (BPTC) to minimize degradation.

    d. The degradation is consistent with the maximum benefit to the people of the State.

38. Constituents of concern that have the potential to cause degradation of high quality waters include, in part, organics, nutrients, and salts.

    a. To reduce the organic load of its discharge, solids are screened from the waste stream and sludge is digested/settles out in the lined aeration pond No. 1 prior to discharge into the lined storage ponds. The ponds are lined, reducing the organic load to the vadose zone beneath the ponds, and the treated wastewater is discharged to a 50-acre Land Application Area minimizing the potential for anoxic and reducing conditions in soil. These measures are expected to prevent odor and nuisance conditions and reduce the potential for the degradation of groundwater from organic loading. BOD loading estimates indicate that the discharge will add about four pounds per acre per day (lbs/ac/day) to the soils of the Land Application Area;

    b. For nitrogen and nitrates, the application of wastewater at reasonable rates for both nutrient and hydraulic loading should preclude degradation of groundwater. The total nitrogen concentration in effluent appears to be low (less than 10 mg/L), the depth to groundwater is greater than 250 feet bgs, and the soils are clay loams with low to moderate percolation, all of which are protective of the underlying groundwater. Additionally, Bermuda grass is grown on the Land Application Area. The grass is not harvested, so some nitrogen is returned to the soil, but the grass utilizes nitrogen in the root zone keeping it from leaching to the underlying groundwater and some nitrogen will be lost to the atmosphere as the nitrogen is transformed in the soil column.

    c. Regarding salinity in general, the EC and TDS concentrations of the effluent meet water quality objectives for the crops grown in the area. Effluent concentrations are less than those observed in first encountered groundwater and indicate the discharge to the Land Application Area would be unlikely to cause degradation of groundwater above existing concentrations and/or in excess of water quality objectives. Also, soils are clay loams with low percolation values and the depth to groundwater is over 250 feet, further protecting the quality of the underlying groundwater. Provision H. 13 requires the Discharger to submit a Salinity Management Plan to evaluate possible salinity reduction measures.

39. The Basin Plan contains effluent limits to control the incremental increase in salts to the extent possible. The maximum EC of the effluent shall not exceed the EC of source water plus 500 umhos/cm. The discharge meets the EC effluent limit as the average EC of the effluent (846 umhos/cm) is lower than the source water (~450 umhos/cm) plus 500 umhos/cm or about 950 umhos/cm. The Basin Plan also includes effluent limits for discharges that may recharge good quality groundwater that include 1,000 umhos/cm for EC, 175 mg/L for chloride, and 1.0 mg/L for boron. The 1,000 umhos/cm EC limit and the 1.0 mg/L limit for boron do

not apply in this case because the first encountered groundwater is not "good quality" with respect to these constituents, and the EC and boron concentrations in first encountered groundwater exceed these values. The 175 mg/L for chloride is applicable, because the chloride concentrations in the first encountered groundwater are less than 175 mg/L. The chloride concentration in effluent (140 mg/L) meets the 175 mg/L limit. Chloride sensitive crops are not grown in the vicinity and any chloride degradation of groundwater that does occur is not expected to cause exceedances of water quality objectives or adversely affect beneficial uses.

40. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason exists to accommodate growth and limited groundwater degradation around the Hospital, provided that the terms of the Basin Plan are met. Degradation of groundwater by some of the typical waste constituents released with discharge from a domestic/municipal WWTF after effective source reduction, treatment, and control, and considering the best efforts of the Discharger and magnitude of degradation, is of maximum benefit to the people of the State.

41. Resolution 68-16 also requires that waste discharged to high quality water be required to meet WDRs that will result in the best practicable treatment or control of the discharge.

Treatment and Control Practices

42. The WWTF and its storage/irrigation system provide treatment or control of the discharge that incorporates:

    a. Screening of solids from the waste stream,
    b. Anaerobic/facultative digestion of sewage sludge in Aeration Pond No. 1,
    c. Even distribution of wastewater over the 50-acre Land Application Area with appropriate resting periods,
    d. Application of wastewater at rates that will not allow wastewater to stand for more than 48 hours,
    e. At least daily inspection of the Land Application Areas during times of discharge, and
    f. Appropriate solids disposal practices.

43. These Treatment and Control Practices are reflective of BPTC of the discharge.

Antidegradation Conclusions

44. Based on the reported strength of the wastewater (Finding 8), the quality of the first encountered underlying groundwater (Finding 26), the loading estimates for the discharge (Finding 13), and the antidegradation discussion (Findings 37 through 40), the discharge from the WWTF will not likely degrade the underlying first encountered groundwater. Any degradation that does occur will not cause exceedances of water quality objectives or adversely affect beneficial uses.

Designated Waste and Title 27

45. California Code of Regulations, title 27 (hereafter "Title 27") contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste, which includes designated waste, as defined by Water Code section 13173. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to a provision that exempts wastewater under specific conditions. This exemption, found at Title 27, section 20090, is described below:

    (b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leach fields if the following conditions are met:

        (1) The applicable regional water quality control board has issued WDRs, reclamation requirements, or waived such issuance;

        (2) The discharge is in compliance with applicable water quality control plan; and

        (3) The wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

46. The discharge authorized herein is exempt from the requirements of Title 27 in accordance with Title 27, section 20090(b) because:

    a. The Central Valley Water Board is issuing WDRs;

    b. The discharge is in compliance with the Basin Plan; and

    c. The treated effluent discharged to the Land Application Area does not need to be managed as a hazardous waste.

CEQA

47. The California Department of Mental Health circulated a Draft Environmental Impact Report (EIR) for the proposed WWTF in February 2000. A final EIR was approved in October 2000. No significant issues were noted in the Hydrology/Water Quality section of the Final EIR and no mitigation measures were required. The WWTF is not expanding, increasing the acreage for irrigating with wastewater, or increasing its flow, so additional CEQA evaluation is not required.

48. This Order includes requirements to protect water quality, including, but not limited to:

    a. Effluent Limits B.1 that establishes numerical EC effluent limitations that are reflective of best practicable treatment or control for this discharge.

    b. Discharge Specification C.4, which stipulates waste constituents cannot be released or discharged in a concentration or mass that causes violation of this Order's groundwater limitations.

    c. Provision H.14 that requires the submittal of a Salinity Management Plan.

General Findings

49. Based on the threat to water quality and complexity of the discharge, the WWTF is determined to be classified as 2-B. California Code of Regulations, title 23, section 2200 defines these categories to include any of the following:

    a. Category 2 threat to water quality: "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

    b. Category B complexity: "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."

50. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

51. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

52. Water Code section 13267(b) states that:

> In conducting an investigation … 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 … 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.

53. The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2013-0055 are necessary to assure compliance with these WDRs. The Discharger owns and operates the WWTF that discharges the waste subject to this Order.

Public Notice

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

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

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

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13263 and 13267, the California Department of State Hospitals and its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

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

2. Bypass of untreated or partially untreated wastes, except as allowed by Provision E.2 of Standard Provisions and Reporting Requirements, are prohibited.

3. Discharge of hazardous wastes, as that term is defined in California Code of Regulations, title 22, section 66261.1*et seq*., or of designated waste, as defined in Water Code section 13173, is prohibited.

4. Application of wastewater in a manner or location other than that described in the RWD and Findings herein is prohibited.

B. Flow/Effluent Limitations

1. The discharge of recycled water from the WWTF to the effluent storage ponds or the Land Application Area shall not exceed the following for the constituents listed (Compliance shall be determined at EFF-001, as described in Monitoring and Reporting Program R5-2013-0055):

Constituent	Units	Monthly Average	Daily Maximum
Flow[1]	mgd	0.20	0.30
BOD	mg/L	40	80
TSS	mg/L	40	80
Chloride	mg/L	175	---

1. For compliance, flow shall be monitored at INF-001

2. The 12-month rolling average EC of the discharge shall not exceed the 12-month rolling average EC of the source water plus 500 µmhos/cm. Compliance with this effluent limitation shall be determined monthly.

C. Discharge Specifications

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

2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.

3. The discharge shall remain within the permitted waste treatment/containment structures and Land Application Areas at all times.

4. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.

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

6. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in the two storage ponds a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

7. The treatment and storage ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

8. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:

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

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

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

   d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

9. Newly constructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.

10. Objectionable odors shall not be perceivable beyond the limits of the WWTF and/or the Land Application Areas at an intensity that creates or threatens to create nuisance conditions.

D. Land Application Area Specifications

The following specifications apply to Land Application Areas under the ownership or control of the Discharger:

1. All irrigation equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities.

2. Wastewater controllers, valves, and similar appurtenances shall be affixed with wastewater warning signs. The contents of the signs shall conform to California Code of Regulations, title 22, section 60310. Quick couplers and sprinkler heads, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibs that the public could use shall be eliminated.

3. Public contact with wastewater effluent shall be controlled using fences, 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 B, which is attached hereto and made part of this Order by reference, and present the following wording:

“RECYCLED WATER – DO NOT DRINK”

“AGUA RECICLADA –NO TOMAR”

4. The Discharger shall maintain the following setback distances from areas irrigated with treated wastewater:

Setback Distance (Feet)	To
25	Edge of Land Application Area to Property Boundary.
50	Land Application Areas to natural surface waters or natural surface water drainages.

150	Edge of Land Application Area to domestic well.
150	Wastewater/recycled water storage reservoir to domestic well.

5. Application of waste constituents to the Land Application Area shall be at reasonable rates to preclude creation of a nuisance and unreasonable degradation of groundwater, considering the crop, soil, climate, and irrigation management system.

6. Any irrigation runoff shall be confined to the Land Application Area and shall not enter any surface water drainage course or storm water drainage system unless the runoff does not pose a public health threat and is authorized by the appropriate regulatory agencies.

7. The perimeter of the Land Application Areas 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.

8. The irrigation with wastewater shall be managed to minimize erosion within the Land Application Areas.

9. The Land Application Area shall be managed to prevent breeding of mosquitoes. In particular:
   a. There shall be no standing water 48 hours after irrigation ceases;
   b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
   c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store wastewater.

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

E. Solids and Sludge/Biosolids 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 quality control board will satisfy this specification.

5. Biosolids shall comply at the time of application with either Class A or Class B pathogen reduction standards as listed in 40 CFR 503.

6. Biosolids shall comply with one of the vector attraction reduction standards as listed in 40 CFR 503.33.

7. Biosolids shall not be applied during periods of heavy rainfall or when the ground is saturated.

8. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board or State Water Board. In most cases, this means General Order 2004-0012-DWQ (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 General Order 2004-0012-DWQ, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

9. Any proposed change in solids disposal practices shall be reported to the Executive Officer in writing at least 90 days in advance of the change.

F. Groundwater Limitations

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

   a. Containing concentrations of constituents identified below, or natural background quality, whichever is greater.

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

      (ii) For constituents identified in Title 22, the Primary and Secondary MCLs quantified therein.

   b. Total Coliform Organisms of equal to or greater than 2.2 MPN/100 mL over any seven-day period.

G. Provisions

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991 (Standard Provisions), which are a part of this Order.

2. The Discharger shall comply with Monitoring and Reporting Program (MRP) R5-2013-0055, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer.

3. The Discharger shall keep at the WWTF office copies 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 must at all times properly operate and maintain its respective facilities and systems of treatment and control (and related appurtenances) that are installed or used 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 only when the operation is necessary to achieve compliance with the conditions of the Order.

5. All technical reports and work plans 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 a person registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports and work plans 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. All reports required herein are required pursuant to Water Code section 13267.

6. 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 Central Valley 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 Central Valley Water Board by letter when it returns to compliance with the time schedule.

7. 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 Central Valley Water Board.

8. 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 Central Valley 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 Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

9. The Discharger shall submit the technical reports and work plans required by this Order for Central Valley Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate.

10. As a means of discerning compliance with Discharge Specification C.10, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

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

12. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

13. By **2 December 2013**, the Discharger shall submit a Salinity Management Plan, with salinity source reduction goals and an implementation time schedule for Executive Officer approval. The control plan should identify any additional methods that could be used to further reduce the salinity of the discharge to the maximum extent feasible, include an estimate on load reductions that may be attained through the methods identified, and provide a description of the tasks, cost, and time required to investigate and implement various elements in the salinity control plan. The Discharger shall implement the plan in accordance with the approved schedule.

14. If the Central Valley Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of an objective for groundwater, this Order may be reopened for consideration of addition or revision of appropriate numerical effluent or groundwater limitations for the problem constituents.

15. The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan amendment that will establish a salt and nitrate management plan for the Central Valley. Through this effort the Basin Plan may be amended to define how the narrative water quality objectives are to be interpreted for the protection of agricultural use. If new information or evidence indicates that groundwater limitations different than those prescribed herein are appropriate, this Order will be reopened to incorporate such limits.

16. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

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 31 May 2013.

Original signed by:

_____
PAMELA C. CREEDON, Executive Officer

Order Attachments:

A Location Map
B. Nonpotable International Water Symbol

Monitoring and Reporting Program R5-2013-0055
Information Sheet
Standard Provisions (1 March 1991) (separate attachment to the Discharger only)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2013-0055
FOR
CALIFORNIA DEPARTMENT OF STATE HOSPITALS
COALINGA STATE HOSPITAL
FRESNO COUNTY

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

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after a statistically significant number of sampling events, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

A glossary of terms used within this MRP is included on page 8.

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this Order:

Monitoring Location Name	Monitoring Location Description
INF-001	Location where a representative sample of the WWTF's influent can be obtained prior to any additives, treatment processes, and plant return flow.
EFF-001	Location where a representative sample of the WWTF's effluent can be obtained prior to discharge into the storage ponds.
EFF-002	Location where the WWTF's effluent flow can be measured after the storage ponds and prior to discharge to the Land Application Area.

INFLUENT MONITORING

Influent samples shall be collected at the inlet of the headworks at INF-001. Influent monitoring shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
Weekly	pH	pH Units	Meter
Twice Monthly	BOD_5	mg/L	24-hour composite
Twice Monthly	TSS	mg/L	24-hour composite
Monthly	Monthly Average Discharge Flow	mgd	Computed

EFFLUENT MONITORING

The Discharger shall monitor treated effluent at EFF-001 as follows. Effluent samples shall be representative of the volume and nature of the discharges. Time of collection of the samples shall be recorded. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed below, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. Effluent monitoring shall include at least the following:

EFFLUENT MONITORING

Frequency	Constituent/Parameter	Units	Sample Type
Weekly	pH	pH Units	Grab
Twice Monthly	EC	umhos/cm	Grab
Twice Monthly	TDS	mg/L	Grab
Twice Monthly	BOD_5	mg/L	Grab
Twice Monthly	TSS	mg/L	Grab
Monthly	Nitrate as N	mg/L	Grab
Monthly	TKN	mg/L	Grab
Monthly	Ammonia	mg/L	Grab
Monthly	Total Nitrogen	mg/L	Computed
Monthly	Chloride	mg/L	Grab
Monthly	Sodium	mg/L	Grab
Annually	General Minerals	mg/L	Grab

POND MONITORING

Effluent storage ponds monitoring shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Weekly	Freeboard	Feet[1]	Calculated
Weekly	DO[2]	mg/L	Grab[3]

1. To nearest quarter (0.25') of a foot.
2. Should the DO be below 1.0 mg/L during a weekly sampling event, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in the affected ponds until the problem has been resolved.
3. Between 8:00 and 9:00 a.m.

Permanent markers (e.g., staff gauges) shall be placed in the effluent storage ponds. The markers shall have calibrations indicating water level at the design capacity and available operational freeboard. The Discharger shall inspect the condition of the effluent storage 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 effluent storage pond surface and their location; whether burrowing animals or insects are present; and the color of the pond water (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.).

SOURCE WATER MONITORING

The Discharger shall collect samples from its supply and analyze them for the constituents shown in the following table.

Frequency	Constituent/Parameter	Units	Sample
Monthly	EC	umhos/cm	Grab
Annually[1]	General Minerals	mg/L	Grab

1. Annually is once a year, with samples collected in the third quarter (July through September) of each year.

SLUDGE/BIOSOLIDS MONITORING

The Discharger shall inspect the storage ponds annually for the presence and thickness of sludge accumulation in the storage ponds and the results shall be included in the Fourth Quarter Monitoring Report. The Discharger shall report to the Central Valley Water Board when sludge needs to be removed from the storage ponds.

LAND APPLICATION AREA MONITORING

The Discharger shall monitor effluent applied to the Land Application Area at EFF-002. The Discharger must also perform the routine monitoring and loading calculations for each discrete irrigation area within the Land Application Area. Data shall be collected and presented in tabular format in accordance with Table 2. For the requested loading calculations, the volume of wastewater shall be expressed in acre feet as indicated in Table 2.

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	acre feet	Meter

In addition, the Discharger shall inspect the Land Application Area, at a minimum of, on a weekly basis. Evidence of erosion, field saturation, runoff, and the presence of nuisance conditions (i.e., flies, ponding, etc.) shall be noted in field logs and included as part of the quarterly monitoring reports.

REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

First Quarter Monitoring Report: **1 May**

Second Quarter Monitoring Report: **1 August**

Third Quarter Monitoring Report: **1 November**

Fourth Quarter Monitoring Report: **1 February**.

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred 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 or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory. Reports shall be submitted whether or not there is a discharge.

The following information is to be included on all monitoring reports, as well as report transmittal letters:

California Department of State Hospitals
Coalinga State Hospital
MRP R5-2013-0055
Contact Information (telephone and email)

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.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

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 calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall be indicated on the Discharge Monitoring Report Form.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. All monitoring reports 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.

A. All Quarterly Monitoring Reports shall include the following:

Wastewater Reporting:

1. The results of influent, effluent, and pond monitoring specified on pages 2 and 3.
2. For each month of the quarter, calculation of the maximum daily flow and the monthly average flow.

3. For each month of the quarter, calculation of the 12-month rolling average EC of the discharge using the EC value for that month averaged with the EC values for the previous 11 months.
4. A summary of the notations made in the effluent storage pond monitoring log during each quarter. The entire contents of the log do not need to be submitted.

Pond Monitoring Reporting

1. The results of the monitoring specified on page 3.

Land Application Area Reporting

1. The results of the routine monitoring and reporting and loading calculations specified on page 4.
2. For each month of the quarter, calculation of the monthly hydraulic load for wastewater and supplemental irrigation water (if used) in millions of gallons to each discrete irrigation area.
3. A summary of the notations made in the Land Application Area log during each quarter. The entire contents of the log do not need to be submitted.

B. Fourth Quarter Monitoring Reports, in addition to the above, by **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

Source Water Reporting

1. The results of the monthly and annual monitoring for the constituents specified on page 4.

Facility Information:

1. The names and general responsibilities of all persons employed to operate the produced water treatment systems.

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 meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.4).

4. A statement certifying 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 revised and last reviewed for adequacy.

Sludge/biosolids monitoring shall be performed per the requirements listed on page 4. Should sludge removal be required, the Discharger shall provide the information listed below. Sludge/biosolids sampling records shall be retained for a minimum of five years in accordance with 40 CFR, Part 503.17. A log shall be kept of sludge/biosolids quantities generated and of handling, application, and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis to report sludge monitoring. Sludge/biosolids reporting shall include:

1. The amount of sludge generated that year, in dry metric tons, and the amount accumulated from previous years.
2. Demonstrations of pathogen reduction methods and vector attraction reduction methods, as required in 40 CFR, Parts 503.17 and 503.27, and certifications.
3. 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.
   a. For landfill disposal, include: the name and location of the landfill receiving the sludge, and the Order number of WDRs that regulate it.
   b. For land application, include: the location of the site, and the Order number of any WDRs that regulate it.
   c. For incineration, include: the name and location of the site where sludge incineration occurs, the Order number of WDRs that regulate the site, the disposal method of ash, and the name and location of the facility receiving ash (if applicable).
   d. For composting, include: the location of the site, and the Order number of any WDRs that regulate it.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: *Original signed by:*

PAMELA C. CREEDON, Executive Officer

31 May 2012

(Date)

GLOSSARY

BOD_5	Five-day biochemical oxygen demand
CBOD	Carbonaceous BOD
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-Hour Composite	Unless otherwise specified or approved, samples shall be a flow-proportioned composite consisting of at least eight aliquots.
Daily	Samples shall be collected every day.
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.
Weekly	Samples shall be collected at least once per week.
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.
Monthly	Samples shall be collected at least once per month.
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in April and October.
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.
mg/L	Milligrams per liter
mL/L	Milliliters [of solids] per liter
µg/L	Micrograms per liter
umhos/cm	Micromhos per centimeter
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
General Minerals	Analysis for General Minerals shall include at least the following:

Alkalinity	Chloride	Sodium
Bicarbonate	Hardness	Sulfate
Calcium	Magnesium	TDS
Carbonate	Potassium	

General Minerals analyses shall be accompanied by documentation of cation/anion balance.

Table 2. Land Application Area Monitoring

					Recycled Water Monitoring Data For Year: _____					
					Parcel No. _____ of _____ acres					
		Water Application				Water Quality		Nitrogen Application		
		Water required	Effluent used	Other water used	Total irrigation water	Other Water BOD	Other Water TN	As fertilizer	As effluent*	Total nitrogen applied
Month	Crop	(AF)	(AF)	(AF)	(AF)	(mg/L)	(mg/L)	(lbs/acre)	(lbs/acre)	(lbs/acre)
October										
November										
December										
Subtotal:										
January										
February										
March										
Subtotal:										
April										
May										
June										
Subtotal:										
July										
August										
September										
Subtotal:										
Annual Total:										
* calculated as (AF effluent/acre) x (2.72) x (X mg/l total nitrogen) = lbs nitrogen/acre										

INFORMATION SHEET

ORDER R5-2013-0055
CALIFORNIA DEPARTMENT OF STATE HOSPITALS
COALINGA STATE HOSPITAL
FRESNO COUNTY

Background

The California Department of State Hospitals (Discharger) owns and operates the Coalinga State Hospital (Hospital) at 24,511 West Jayne Avenue about five miles east of the community of Coalinga in Fresno County (Attachment A). The Hospital has its own wastewater treatment facility (WWTF) to serve the needs of the patients and the staff. The Discharger submitted a November 2001 Technical Report and an April 2002 Report of Waste Discharge (RWD) in order to obtain Waste Discharge Requirements (WDRs) for the then proposed State Hospital. Currently, the Discharger has not been issued WDRs, but it has voluntarily sampled its effluent for a suite of constituents recommended by Central Valley Regional Water Quality Control Board (hereafter Central Valley Water Board) staff since 2006.

The Hospital, WWTF, and Land Application Area are on 320 acres of land. The Hospital is on the northern 160 acres, while the WWTF and Land Application Area are within the southern 160 acres as shown in Attachment A (Location Map). The WWTF consists of a headworks and bar screens, four lined aerated ponds, and two lined wastewater storage ponds. Wastewater is discharged to a 50-acre Land Application Area that is south of the WWTF.

The RWD indicates that the Land Application Area comprised 100 acres. However, only 50 acres is now used for the disposal of wastewater. The other 50 acres is a flood control basin for the area. A facilities inspection in 2010 found that wastewater was flowing preferentially towards the flood control basin and not spreading evenly over the Land Application Area. Central Valley Water Board staff sent an April 2010 letter asking the Discharger to outline measures to eliminate the comingling of the storm water and wastewater. The Discharge replied in a May 2010 letter indicating a levee or berm (12 feet wide and 2 feet high) would be constructed to separate the two discharges and the Land Application Area would be “laser leveled” to promote uniform distribution of the wastewater over the Land Application Area. Recent discussions with WWTF personnel indicate the berm was constructed, the Land Application Areas have been leveled and are planted with Bermuda grass.

The discharge of wastewater to the 50-acre Land Application Area is not considered a Title 22 recycled water project. However, certain Title 22 requirements such as identification of hose bibs used to distribute treated wastewater, setbacks from property boundaries and groundwater wells, and signs warning the public of the use of treated wastewater on the Land Application Area are prudent to protect public health.

Existing Discharge

The WWTF discharged about 0.1 million gallons per day (mgd) in 2012 to the storage ponds and the 50-acre Land Application Area. The average analytical results for the discharge of effluent from the WWTF and five nearby United States Geological Survey (USGS) wells are summarized in the following table.

Parameter[1]	USGS Wells	Effluent
EC, umhos/cm	1230 - 2320	846
TDS, mg/L	858 - 1720	528
Chloride mg/L	34 - 120	142
Sodium mg/L	130 - 280	109
Nitrate as Nitrogen mg/L	1.4 – 5.2	~1.0 – 3.4
Total Nitrogen mg/L	na	~ 6.0 to 8.4

1. EC = electrical conductivity; umhos/cm = micromhos per centimeter; TDS = total dissolved solids; mg/L = milligrams per liter

Comparing the two sets of results shows that the effluent from the WWTF is of better quality than is the underlying first encountered groundwater quality for all constituents but chloride. The average chloride result in effluent is higher than that reported for the groundwater, but just slightly and it is still less than the Basin Plan effluent limit of 175 mg/L and the secondary MCL of 250 mg/L. The average chloride result exceeds the agricultural goal of 106 mg/L, but first encountered groundwater exceeds the limit in at least one of the five USGS wells used to assess water quality for the region. Additionally, chloride sensitive crops like citrus, stone fruit, avocados, and strawberries are not grown in the area. Agricultural water for the region is primarily surface water and groundwater that is used is extracted from deeper wells that are set below the poor quality first encountered groundwater. This Order includes Provision G. 13 that requires the Discharger to submit a Salinity Analysis Plan in an effort to reduce the amount of salt (including chloride) in its discharge. Total nitrogen in effluent is not anticipated to degrade the underlying groundwater as the concentration in the effluent is less than 10 mg/L and the depth to groundwater is greater than 250 feet below the ground surface (bgs). The Discharger grows Bermuda grass in the Land Application Area, but it is not harvested. Rather, it is cut and left to dry. While a portion of the dry grass is tilled back into the soil each season, a good portion of the nitrogen is lost to volatilization as the grasses dry and the nitrogen is kept at the surface and is not leaching into the underlying vadose zone and groundwater.

Groundwater Conditions

First encountered groundwater in the vicinity of the Hospital is unconfined and is present at about 250 to 285 feet below the ground surface in the vicinity of the Hospital. The Discharger does not monitor groundwater due to the depth to groundwater and its poor water quality. The direction of groundwater flow is to the northeast according to groundwater elevation contour maps prepared by the DWR.

Regional/historical groundwater quality data is available on the Water Quality Portal web site, a cooperative service provided by the USGS, the Environmental Protection Agency, and the National Water Quality Monitoring Council. Twenty five USGS wells are within five miles of the WWTF, and five were identified as monitoring groundwater above 500 feet below the ground surface. Water quality information obtained from the USGS wells substantiates the poor water quality as represented in the above table. EC and TDS concentrations are range from 1,230 to 2,320 umhos/cm, and from 858 to 1,720 mg/L, respectively.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Basin Plan identifies the greatest long-term water quality problem facing the entire Tulare Lake Basin as 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. Until then, the Basin Plan establishes several salt management requirements, including the following limits:

a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC of the effluent discharged to land shall not exceed the EC of the source water plus 500 umhos/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 what may recharge good quality groundwater shall not exceed and EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

The *Water Quality Control Plan for the Tulare Lake Basin*, Second Edition, revised January 2004 (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan designates the following beneficial uses for the underlying groundwater: municipal and domestic supply (MUN), agricultural supply (AGR), and industrial process supply (PRO).

Antidegradation

Constituents of concern in the discharge that have the potential to degrade groundwater include salts and nutrients. Ambient water quality in the vicinity of the Hospital is of poor quality dating back to 1951, prior to the construction of the Hospital and/or the WWTF. The wastewater quality is lower in concentration to that of the nearby first encountered groundwater quality.

The Basin Plan incorporates the State's Antidegradation Policy. The Antidegradation Policy requires the Regional Water Board in regulating discharges of waste to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the constituents contributing to degradation be regulated to meet best practicable treatment or control (BPTC) to assure that pollution or nuisance will not occur and that the highest water quality consistent with the maximum benefit to the people of the State will be maintained.

The discharge of wastewater is not anticipated to degrade the underlying first encountered groundwater due to its existing poor quality (noted above as having been documented since 1951). With the exception of chloride, any degradation that does occur will not cause exceedance of water quality objectives or adversely affect beneficial uses. As previously discussed, effluent chloride results exceed the agricultural goal of 106 mg/L to protect chloride

sensitive crops, but chloride sensitive crops are not grown in the area and chloride exceeds the agricultural goal in one of the USGS wells used to assess water quality of the region. Any chloride degradation that might occur is not expected to cause exceedance of water quality objective or adversely affect beneficial uses.

Nitrogen as nitrogen is not part of the current sampling program, but it has been sampled in the past. The previous results indicate the concentrations in effluent are low with nitrate as nitrogen concentrations averaging about 3 mg/L. With TKN readings averaging about 5 mg/L, the resulting total nitrogen concentration is less than 10 mg/L. Additionally, the Discharger plants the Land application Areas with Bermuda grass that utilizes nitrogen in the root zone. The grass is not harvested, but it still uses some nitrogen. Some nitrogen will also be lost to the atmosphere due to transformations in the soil column. Considering the low total nitrogen concentration in effluent (less than 10 mg/L), the expected nitrogen uptake and losses, the depth to groundwater being greater than 250 feet bgs, and the soils being clayey loams with low percolation values, the discharge of wastewater will not degrade the underlying groundwater with respect to nitrogen.

CEQA

The Discharger circulated a Draft EIR in February 2000 and a Final EIR in October 2000 for the application of domestic waste to the Land Application Area. This Order does not increase the discharge volume, the irrigated acreage, and does not authorize any additional construction activities. The Order imposes regulatory requirements that are protective of the underlying groundwater quality; therefore, the existing discharge is exempt from the requirements of CEQA in accordance with California Code of Regulations, title 14, section 15301.

Title 27

Title 27 of the California Code of Regulations 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.

Unless exempt, release of designated waste is subject to full containment pursuant to Title 27 requirements. Title 27, section 20090(b) exempts the discharge of wastewater to land from Title 27 containment standards and other Title 27 requirements, provided the following conditions are met:

a. The applicable regional water board has issued waste discharge requirements, or waived such issuance;

b. The discharge is in compliance with the applicable basin plan; and

c. The wastewater does not need to be managed as a hazardous waste, as that term is defined in California Code of Regulations, title 22, section 66261.1 *et seq*.

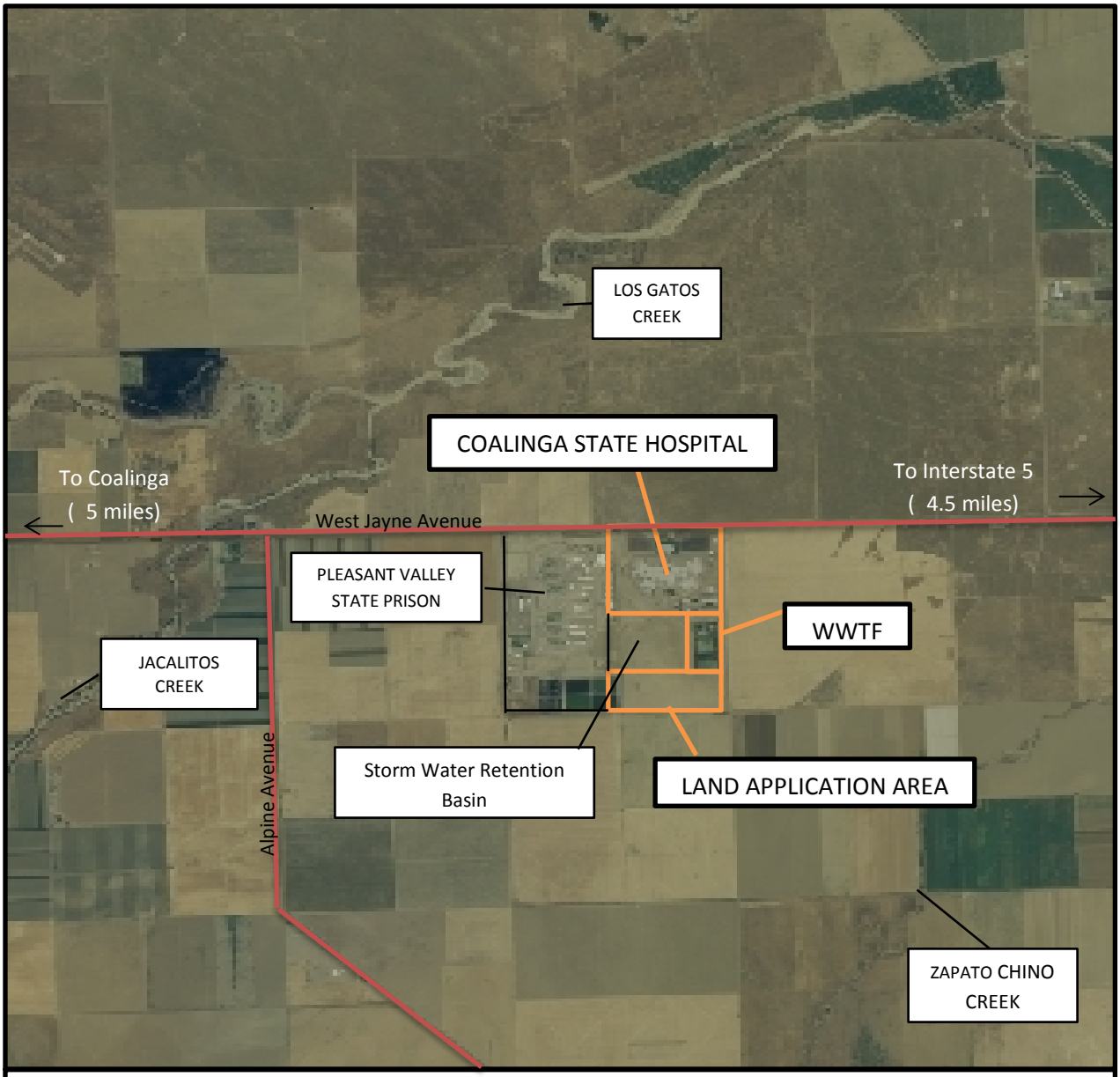
The discharge of effluent and the operation of treatment or storage facilities associated with a domestic WWTF is exempt from Title 27, provided any resulting degradation of groundwater is in accordance with the Basin Plan and the waste need not be managed as a hazardous waste. The discharge from the WWTF will not degrade groundwater and none of the waste regulated by the proposed Order is hazardous waste nor required to be treated as hazardous waste. The discharge is therefore exempt from Title 27.

Monitoring Requirements
Water Code section 13267 authorizes the Central Valley Water 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 an 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. Water Code section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes influent, effluent, pond, sludge/biosolids, source water, and Land Application Area monitoring. The monitoring requires the Discharger to report on the overall quality of the effluent discharged to the Land Application Area and the quality of the source water provided to the WWTF.

Provisions
Provisions require the Discharger to comply with the requirements contained in the attached Monitoring and Reporting Program. Provision G. 13 requires the submittal of a Salinity Management Plan.

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. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.



LOCATION MAP

ORDER R5-2013-0055
WASTE DISCHARGE REQUIREMENTS
FOR
CALIFORNIA DEPARTMENT OF STATE HOSPITALS
COALINGA STATE HOSPITAL
FRESNO COUNTY

0 0.5 1.0 1.5
Scale in Miles

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ATTACHMENT A

ATTACHMENT B

WASTEWATER SIGNAGE
WASTE DISCHARGE REQUIREMENTS
ORDER R5-2013-0055
CALIFORNIA DEPARTMENT OF STATE HOSPITALS.
COALINGA STATE HOSPITAL
FRESNO COUNTY