

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0100

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF SAN JOAQUIN
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

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

1. The City of San Joaquin (hereafter City or Discharger) submitted a Report of Waste Discharge (RWD), dated 23 January 2007, for a modification and expansion (hereafter Expansion Project) of its wastewater treatment facility (WWTF). The RWD proposes to expand the existing WWTF from a monthly average discharge flow of 0.252 million gallons per day (mgd) to 0.5 mgd. The WWTF provides services for about 3,800 residents and limited light industry.
2. The WWTF is along Springfield Avenue, appropriately 1.5 miles southwest of the City, and 12 miles south of the City of Kerman, in Section 27, T15S, R16E, 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. R5-2002-0103 adopted on 7 June 2002, restricted the monthly average discharge flow to 0.252 mgd. The WDRs prescribed effluent limitations on a quarterly average basis for 5-day biochemical oxygen demand (BOD₅), and settleable solids (SS). Cease and Desist Order No. R5-2002-0104 (CDO), adopted on 7 June 2002, required the Discharger to perform a series of tasks according to a time schedule to complete the expansion of the WWTF. The Discharger has not completed all the tasks of the CDO. An updated enforcement order to be considered separately requires the Discharger to complete the Expansion Project.
4. The purpose of this Order is to rescind WDRs Order No. R5-2002-0103 and prescribe requirements that reflect the Discharger's Expansion Project.
5. The RWD presents information on site conditions, the existing wastewater treatment process and quality, and the conceptual design of the Expansion Project. Attachment B, which is attached hereto and made part of this Order by reference, depicts a plan view of the existing WWTF and Expansion Project, as depicted in the RWD.

Existing Wastewater Treatment Facility

6. The existing WWTF consists of three lift stations (one with headworks), an unlined aerated pond (Pond 1), two sedimentation ponds (Ponds 2 and 3), and three evaporation and percolation ponds (Ponds 4 through 6). Attachment C of this Order, which is attached

hereto and made part of this Order by reference, depicts a process flow diagram of the existing WWTF.

7. The WWTF's collection system is composed of 10 miles of gravity sewer lines, about one-half mile of 8-inch force main and two lift stations, which converge to a terminal lift station at Manning Avenue. The headworks is contained at the Manning lift station and consists of a 3-inch Parshall flume and a manually-cleaned bar screen immediately upstream of the lift station. Effluent is pumped from the Manning lift station to the WWTF one half mile to the west.
8. Wastewater from the Manning lift station is discharged to Pond 1. Pond 1 is approximately 6 ft deep with one foot of freeboard, has a total volume of 20.9 acre-ft and an average residence time of about 25 days. Aeration is provided by two 5 horsepower surface aerators operated on timers. Wastewater from Pond 1 is discharged through a splitter box into Ponds 2 and 3, which are operated in series. Ponds 2 and 3 are about 6 ft deep, and have a combined wastewater volume of 50 acre-ft. These ponds are above the initial clay layer, which helps restrict percolation.
9. Effluent from Ponds 2 and 3 discharge to evaporation/percolation Ponds 4, 5 and 6 (disposal ponds). The disposal ponds are about 12 feet deep each and have combined surface area and effluent storage capacity of about 13.3 acres and 155.3 acre-ft, respectively. These ponds are below the existing first encountered clay layer to enhance percolation. The Discharger also uses a borrow pit for emergency storage to provide additional capacity during heavy rainfall. The borrow pit will later be converted to a permanent disposal pond.
10. The Discharger currently disposes of sludge onsite by draining and drying the ponds and discing the residual sludge into soils underlying the ponds. City staff do not know the last time sludge was removed from the aeration pond.
11. Self-monitoring reports from 2006 indicate that winter flows are not higher than summer flows, demonstrating insignificant inflow and infiltration to the collection system during winter months.
12. Self-monitoring data from January 2006 to December 2006 characterize the discharge as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Influent</u>	<u>Effluent</u>	<u>% Removal¹</u>
Monthly Average Discharge Flow	mgd	0.31	NS ²	--
Conventional Pollutants				
pH (range)	s.u. ³	7.4 – 8.0	8.0 – 9.1	--
Settleable Solids	mL/L	3.4	0.1	97
BOD ⁴	mg/L	218	19	91
TSS ⁵	mg/L	144	54	63

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Influent</u>	<u>Effluent</u>	<u>% Removal</u> ¹
Salts				
Chloride	mg/L	NS	160	--
Sodium	mg/L	NS	240	--
EC ⁶	µmhos/cm	1,430	1,380	--
TDS ⁷	mg/L	NS	NS	--
Nitrogen Forms⁸				
Nitrate as Nitrogen	mg/L	NS	<0.45	--
TKN ⁹	mg/L	NS	6.8	--
Ammonia as Nitrogen	mg/L	NS	<0.04	--
Total Nitrogen ¹⁰	mg/L	NS	6.8	--
Metals				
Aluminum	mg/L	NS	0.147	--
Iron	mg/L	NS	<0.05	--
Manganese	mg/L	NS	<0.04	--

¹ Percent removal (% removal)

² Not sampled (NS)

³ Standard units (s.u.)

⁴ 5-day biochemical oxygen demand (BOD)

⁵ Total suspended solids (TSS)

⁶ Electrical conductivity at 25°C (EC)

⁷ Total dissolved solids (TDS)

⁸ Based on three sampling events

⁹ Total Kjeldahl nitrogen (TKN)

¹⁰ Calculated by summing the concentrations of nitrate as nitrogen and TKN, and assuming the concentration of nitrite is negligible.

13. In 2002, the EC of the WWTF influent was about 640 µmhos/cm over source water; however, in the last year it has increased to about 900 µmhos/cm higher than source water EC. The City is investigating the cause of the increase.

Expansion Project

14. The design of the Expansion Project is not complete; however, the conceptual design is described below. Attachment C depicts a conceptual process flow diagram of the Expansion Project.

15. The RWD describes the City's plans to upgrade the existing headworks by replacing the existing Parshall flume with an ultrasonic flow meter in the force main, which will be housed

in a new concrete vault immediately downstream of the lift station. The City will install new pumping equipment at the pump station to accommodate the increase in flow. The existing force main will also be evaluated and if necessary, replaced.

16. The RWD describes the City's plans to construct a new extended aeration biological treatment process to replace the existing mechanical surface aerated pond system. The treatment process will be operated to allow for de-nitrification. The WWTF will consist of an aeration basin, an integral clarifier, return and waste activated sludge pumps, a blower building, and sludge handling and storage facilities. The City has not determined the final placement of the primary aeration basin, which may be constructed by converting existing Pond 1, or constructing a new basin just north of Pond 1.
17. The water balance presented in the RWD indicates that the City will need approximately 40.5 acres of percolation area to dispose of 0.5 mgd. To obtain the necessary area, the City plans to convert Ponds 2 and 3 and possibly Pond 1 into disposal ponds. This will be achieved by lowering the pond bottom elevations beneath the existing clay layer to the permeable soil below, which will enhance percolation. In addition, the City intends to construct additional disposal ponds on existing City-owned land and an additional 25 acres south of the WWTF, which is not currently owned by the City. The City will purchase this property once funding is available. Attachment A depicts the locations of the existing and proposed disposal ponds.
18. The RWD indicates that the proposed discharge will achieve the following effluent quality.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
Monthly Average Discharge Flow	mgd	0.5	--
pH	s.u.	--	6.0-9.0 ¹
Settleable Solids	mL/L	0.1	0.2
BOD	mg/L	15	30
TSS	mg/L	15	30
Total Nitrogen	mg/L	10	15
EC	µmhos/cm	SW ² + 700	--

¹ Shown as a daily minimum and maximum range

² Source water

19. It is anticipated that effluent mineral and metals quality characterized in Findings 12 and 13 for the existing WWTF will be similar to the effluent quality resulting from the Expansion Project.

Sanitary Sewer Overflows

20. 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.
21. 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

22. WDRs Order No. R5-2002-0103 incorporated water-recycling specifications to allow for the City to implement water recycling. However, the City’s plans for water recycling are not feasible at this time, as the City was unable to obtain long-term agreements with any of the near-by property owners.

Site-Specific Conditions

23. The WWTF is in an arid climate characterized by hot 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 10.7 inches and 68.4 inches, respectively, according to information published by California Department of Water Resources (DWR).
24. Areal soils consist of variable and nonuniform layers of sand, clay, silty sand, and clay sand, indicating stream deposition from the Fresno Slough sandy clay and sand. Soils within the WWTF and surrounding area include Merced clay according to the U.S. Soil Conservation Service (now the Natural Resources Conservation Service). The overall permeability of the surface soils exhibit slow to very slow permeability’s with values ranging from about 0.06 to 2.0 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. Land use in the WWTF vicinity is primarily agricultural, with the closest residential development approximately one mile away. The primary crops grown within five miles of the WWTF include cotton, alfalfa, corn (forage), tomatoes, and sugarbeets, according to DWR land use data published in 1994. Other crops grown northwest of the WWTF are grapes, and almonds but are not typical within the immediate vicinity of the City and WWTF. Most crops in this area are furrow irrigated, although some are sprinkler irrigated, according to the University of California Cooperative Extension. Irrigation water is supplied primarily by groundwater.

Groundwater Considerations

28. Regional groundwater is approximately 90 feet below ground surface and flows southeasterly, according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR in Spring 1996. In the discharge vicinity, the “modified E-clay” layer occurs about 550 feet bgs and is about 80 feet thick, according to *Geology of Fresh Ground-Water Basin, Central Valley, California, with Texture Maps and Sections*, by R. W. Page (U. S. Geological Survey Professional Paper 1401 – C, Washington, 1986). The extensive clay deposits that characterize area soils have caused localized perched groundwater conditions. Shallow groundwater in the discharge vicinity is characterized by high salinity (i.e., EC concentrations of 2,000 to 4,000 $\mu\text{mhos/cm}$), according to information in *Areal Distribution of Electrical Conductivity in Shallow Groundwater*, San Joaquin Valley, published by DWR in Spring 1995.

29. Groundwater quality data for the uppermost, and groundwater just above the E-clay, is limited. A groundwater monitoring well network must be established and regular groundwater monitoring conducted to establish both background and downgradient groundwater concentrations for selected constituents.

30. Although hydraulic continuity between aquifers is restricted, agricultural wells within the vicinity are likely screened within the upper and lower aquifers to maximize well production. This uppermost layer has the potential to have hydraulic continuity between the two aquifers resulting in lower quality water from the uppermost aquifer to migrate into the lower higher quality aquifers just above and below the E-clay.

31. The City obtains its source water from three wells. With the exception of sodium, iron, and manganese, source water is of good quality, as indicated by the City’s 2004 Annual Water Quality Report. Concentrations of iron and manganese exceed the drinking water secondary maximum contaminant levels (MCL) specified in Title 22 of California Code of Regulations (CCR) of 0.3 mg/L, and 0.05 mg/L, respectively. Excerpts of this report are presented below.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Range</u>	<u>Average</u>
Arsenic	mg/L	2.6 – 6.9	4.9
Bicarbonate	mg/L	102 – 138	1125

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Range</u>	<u>Average</u>
Chloride	mg/L	35.7 - 62.3	49.7
EC	µmhos/cm	400 – 620	530
Iron	mg/L	<0.002 – 2.6	0.9
Manganese	mg/L	0.153 – 0.200	0.179
Hardness	mg/L	28 – 40	23
Nitrate (as N)	mg/L	--	<2.0
pH	s.u.	7.4 – 7.6	--
Sodium	mg/L	90 - 160	90 – 160
TDS	mg/L	126 - 414	275

32. Order No. R5-2002-0103 did not require the City to monitor groundwater. The closest wells that monitor shallow groundwater in the uppermost aquifer are at the American Avenue Landfill (Landfill), which is approximately 5 miles northeast of the WWTF and upgradient of assumed groundwater flow direction. Depth to groundwater at the Landfill is about 100 to 130 feet bgs and varies in quality with respect to salts, nutrients, and metals. Water quality in the background groundwater wells at the Landfill range for the following constituents: EC (900 to 2,100 µmhos/cm), nitrate as nitrogen (9.9 to 33 mg/L), iron (<0.02 to 0.26), manganese (<0.005 to 0.03), and aluminum (<0.025 to 0.180 mg/L).

Basin Plan, Beneficial Uses, and Water Quality Objectives

33. 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.

34. 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 existing to replace an existing uses or proposed use of fresh water with recycled water. As indicated in Finding 22 above, the City has attempted to obtain long-term agreements from area farmers for use of recycled water. The City will periodically investigate the possibility of recycling effluent in the future.

35. The WWTF is in Detailed Analysis Unit (DAU) No. 237 within the Kings Basin hydrologic unit. The Basin Plan designates the beneficial uses of groundwater in this DAU as municipal and domestic supply, agricultural supply, and industrial service supply.

36. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, requires waters designated as domestic or municipal supply to meet the MCLs specified in Title 22. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that that the Regional 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.
37. 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.
38. 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, or limited to a maximum of 1,000 $\mu\text{mhos/cm}$. The maximum EC shall not exceed the EC of the source water plus 500 $\mu\text{mhos/cm}$. 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 $\mu\text{mhos/cm}$, 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).
39. 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. Based on climate, and soil type, it is not likely that crops sensitive to salt and boron will be capable of being grown in the area; however, further information regarding the types of crops grown, background groundwater conditions, and overall effluent quality is necessary to make a final determination.
40. The Basin Plan requires municipal WWTFs that discharge to land to comply with treatment performance standards for BOD₅ and TSS. WWTFs that preclude public access and discharge less than 1 mgd must provide removal of 80 percent or reduction to 40 mg/L, whichever is more restrictive, of both BOD₅ and TSS.

Antidegradation Analysis

41. 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.
42. Constitutes of concern that have the potential to degrade groundwater include, in part, salts and nutrients. Groundwater underlying the WWTF has not been characterized; however, the Discharge will likely not degrade the beneficial uses of groundwater because:
- a. In general, groundwater within the vicinity of the discharge typically contains elevated concentrations of salinity, as measured by EC. Monitoring of shallow groundwater underlying the WWTF and a salinity source control study will provide information to confirm the discharge’s consistency with Resolution No. 68-16 and the Basin Plan with respect to salinity.
 - b. Concentrations of nitrate as nitrogen and total nitrogen in the effluent characterized in Finding 12 are less than the water quality objective for nitrate as nitrogen of 10 mg/L. The proposed discharge characterized in Finding 18 will also contain nitrogen concentrations less than 10 mg/L and therefore not unreasonably degrade the beneficial uses of groundwater for nitrate.

Treatment and Control Practices

43. The Expansion Project described in Findings 14 through 19, once completed, provides treatment and control of the discharge that incorporates:
- a. secondary treatment;
 - b. a nitrogen removal treatment process;
 - c. appropriate biosolids storage and disposal practices;
 - d. an operation and maintenance (O&M) manual; and
 - e. certified operators to ensure proper operation and maintenance.

44. This Order establishes groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains requirements for a groundwater investigation for assuring that the highest water quality consistent with the maximum benefit to the people of the State will be achieved.

Other Regulatory Considerations

45. 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 RWD states that all biosolids will be hauled to a separate permitted facility.

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

CEQA

47. The Discharger, as the lead agency for purposes of 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), adopted a mitigated negative declaration (MND) on 11 April 2007. The MND indicates that the discharge will comply with Regional Water Board regulations, which will mitigate any groundwater impacts. The Regional Water Board is a responsible agency pursuant to CEQA. The Regional Water Board reviewed and considered the MND prepared by the Discharger. This Order contains requirements that will mitigate or avoid environmental effects on water quality.

48. This Order implements measures necessary to mitigate any adverse impacts to groundwater from the Expansion Project to less than significant levels, including:

- a. Effluent Limitation B.1, which restricts flow to 0.252 mgd until the Discharger can treat and dispose of the proposed increase in discharge flow in accordance with the terms and conditions of this Order and the CWC.
- b. Effluent Limitations B.2 and B.3, which establish effluent limitations consistent with the Basin Plan's performance standards.

- c. Discharge Specification C.7, which stipulates waste constituents cannot be released or discharged in a concentration or mass that causes violation of the Order's groundwater limitations.
- d. Provision G.5, which requires the City to implement groundwater monitoring.

General Findings

- 49. 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.
- 50. The Regional Water Board will review this Order periodically and will revise requirements when necessary.
- 51. 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."
- 52. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2007-0100 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the Facility that discharges the waste subject to this Order.
- 53. 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

- 54. 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.

55. 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.

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

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order No. R5-2002-0103 is rescinded and that, pursuant to Sections 13263 and 13267 of the CWC, the City of San Joaquin 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 Provision E.2 of Standard Provisions and Reporting Requirements, 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.

B. Effluent Limitations

1. The monthly average discharge flow shall not exceed:
 - a. 0.252 mgd until the Expansion Project is complete
 - b. 0.5 mgd after Expansion Project is complete
2. Until the Expansion Project is complete, the effluent discharge to the disposal ponds shall not exceed the following limitations:

<u>Constituent</u>	<u>Units</u>	<u>Quarterly Average</u>	<u>Daily Maximum</u>
BOD ₅	mg/L	40	80

3. After the Expansion Project is complete, the effluent discharge to the disposal ponds shall not exceed the following limitations:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD ₅	mg/L	40	80
TSS ¹	mg/L	40	80

¹ total suspended solids

4. After the Expansion Project is complete, the arithmetic mean of BOD₅ 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).
5. The interim annual flow-weighted average EC of the discharge shall not exceed 1,500 µmhos/cm calculated on a monthly basis. This performance-based limit will be re-opened based upon completion of Provisions G.5 and G.6.

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 shall be precluded through such means as fences, signs, 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. 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 quality control board will satisfy this specification.
5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board or State Water Board or a local (e.g., county) program authorized by a regional water quality control 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.

E. Pretreatment Requirements

1. The Discharger shall implement the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
 - a. Wastes that create a fire or explosion hazard in the treatment works;
 - b. Wastes that will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
 - c. Solid or viscous wastes in amounts that cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
 - d. Any waste, including oxygen demanding pollutants (BOD₅, 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. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the treatment works is designed to accommodate such heat;
 - f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - g. Pollutants that result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and
 - h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.
2. The Discharger shall implement the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:
 - 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.

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 constituent concentrations in excess of the concentrations specified below or natural background quality (as determined by Provision G.4 and updated as appropriate as a result of ongoing monitoring), whichever is greater:
 - (i) Nitrate as nitrogen of 10 mg/L.
 - (ii) Total coliform organisms of 2.2 MPN/100 mL.
 - (iii) For constituents identified in Title 22, the MCLs quantified therein.
 - b. Containing taste or odor-producing constituents, or toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses.

G. 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 Provisions(s).
2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2007-0100, 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. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16, CCR, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
4. For authorization to discharge monthly discharge flow of 0.5 mgd, the Discharger shall submit certification from a California registered civil engineer that the Expansion Project

is complete and the WWTF can treat and dispose of these flows. Satisfaction of this provision is subject to written Executive Officer approval.

5. **Groundwater Investigation.** The Discharger shall conduct a groundwater investigation to establish background groundwater quality, and determine if the existing discharge has impacted or has the potential to adversely impact the beneficial uses of groundwater.

Groundwater Work Plan. The Discharger shall submit a Groundwater Work Plan (Work Plan) for the installation of groundwater monitoring wells necessary to investigate the areas affected and potentially affected by the WWTF and its discharge(s) to land. The Work Plan shall satisfy the information needs specified in the monitoring well installation section of Attachment D, *Standard Monitoring Well Provisions for Waste Discharge Requirements*. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC §13801.

The Work Plan must also include:

- A description of the area's hydrogeology, existing wells (active and otherwise), local well construction practices and standards, well restrictions, and groundwater extraction and recharge patterns.
- A discussion of the potential horizontal and vertical extent of percolated effluent and adverse effects on receiving groundwater from the WWTF and its discharge(s) to land.
- A proposed groundwater well network that includes one or more background monitoring wells and sufficient number of downgradient monitoring wells to evaluate the performance of the WWTF and its ability to comply with the groundwater limitations set forth in this order.
- A proposed groundwater monitoring program to characterize groundwater for the constituents identified in the monitoring and reporting program. The program must identify the statistical methods that will be used to characterize groundwater **within one year** after groundwater well installation. Determination of groundwater quality shall be made using an appropriate statistical method [e.g., Title 27, Section 20415(e)(10)], and shall be based on representative data (typically from at least eight data points).

Technical Evaluation. Once representative data have been collected and groundwater characterized, the Discharger shall submit a technical report evaluating those constituents that threaten to degrade groundwater. The technical report shall also demonstrate that the treatment facilities, sludge handling and storage facilities, and effluent disposal resulting from the Expansion Project will not unreasonably degrade

groundwater in accordance with Regional Water Board plans and policies and the CWC. This includes, in part, a comprehensive analysis of existing and anticipated crop patterns, soil, and climatic conditions, and potential impacts, if any, resulting from the percolation of or recycling with effluent EC values greater than 1,000 $\mu\text{mhos/cm}$.

The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

<u>Task</u>	<u>Compliance Date</u>
a. Submit Groundwater Work Plan	15 November 2007
b. Implement Work Plan	15 February 2008
c. Complete monitoring well installation and commence groundwater monitoring	15 April 2008
d. Submit technical report: monitoring well installation report of results and initial analytical data	15 May 2008
e. Complete first year of groundwater sampling	15 May 2009
f. Submit Technical Evaluation for characterizing background groundwater quality and evaluation of discharge	15 July 2009

Technical reports and Work Plans submitted pursuant to this Provision shall be subject to the requirements of Provision G.3.

6. **Salinity Assessment.** By **1 September 2008**, the Discharger shall prepare and implement a control plan to reduce the salinity of its discharge. The control plan must identify and implement measures to reduce salinity in discharges from residential, commercial, industrial, and infiltration sources in an effort to meet the Basin Plan's salinity performance goal of 500 $\mu\text{mhos/cm}$ over source water. The control plan must include the following:
- An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
 - An analysis of the methods that could be used to prevent the discharge of salinity into the Facility, including application of local limits to industrial or commercial dischargers techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of salinity to the WWTF.
 - An estimate of load reductions that may be attained through the methods identified above.
 - A description of the tasks, cost, and time required to investigate and implement various elements in the salinity control plan.

- e. A statement of the Discharger's salinity prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended salinity reduction activities for the immediate future.
 - f. A description of the Discharger's existing salinity control plan programs.
 - g. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the salinity control plan.
7. Upon completion of the tasks set forth in Provisions G.4 and G.5, the Regional Water Board will consider the evidence provided regarding groundwater and the discharge and reopen the WDRs to evaluate the effluent limitations and conditions of this Order to ensure consistency with water quality policies and plans and the CWC, as appropriate.
 8. 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.
 9. 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.
 10. 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.
 11. 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.
 12. 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.

13. 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.
14. As a means of discerning compliance with Discharge Specification C.3, the dissolved oxygen content in the upper zone (1 foot) of effluent in disposal ponds shall not be less than 1.0 mg/L for three consecutive sampling events. Should the DO be below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Regional Water Board **within 7 days** and propose a remedial approach to resolve the low DO results **within 30 days**.
15. The Discharger shall apply best practicable treatment or control to comply with terms of this Order. In so doing, 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 the Order.
16. 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.

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 2 August 2007.

PAMELA C. CREEDON, Executive Officer

Order Attachments:

Monitoring and Reporting Program

A Vicinity Map – WWTF

B. Plan View – Existing WWTF and Expansion Project

C. Process Flow Diagram

D. Standard Monitoring Well Provisions for Waste Discharge Requirements
Information Sheet

Standard Provisions (1 March 1991) (separate attachment to Discharger only)

ARP/kes

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2007-0100
FOR
CITY OF SAN JOAQUIN
WASTEWATER TREATMENT FACILITY
FRESNO 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 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.

In addition to details specified in Standard Provision, Provisions for Monitoring C.9, records of monitoring information shall also include the following:

1. Method detection limit (MDL);
2. Reporting limit (RL) (i.e., a practical quantitation limit or PQL); and
3. Documentation of cation/anion balance for general minerals analysis of supply water, and groundwater samples.

All laboratory results shall be reported down to the MDL. Non-detected results shall be reported as less than the MDL (<MDL). 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.

All analyses shall be performed in accordance with the latest edition of *Guidelines Establishing Test Procedures for Analysis of Pollutants*, promulgated by EPA (40 CFR 136) or other procedures approved by the Executive Officer, provided the methods have method detection limits equal to or lower than the analytical methods specified in this MRP. In reporting data, the Discharger shall indicate whether any analysis was performed using a method not in conformance with EPA's Guidelines. Analyses may also 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 Substance 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, 2003.

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

The Discharger shall collect influent samples at the headworks of the treatment facility prior to any treatment of waste. Time of a grab sample shall be recorded. Influent monitoring shall include at least the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	mgd	Continuous	Daily ¹
Monthly Average Daily Flow	mgd	Computed	Monthly
BOD ₅ ²	mg/L	Grab	Weekly
TSS ³	mg/L	Grab	Weekly

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

² Five-day, 20°C biochemical oxygen demand (BOD₅)

³ Total suspended solids (TSS)

EFFLUENT MONITORING

The Discharger shall collect effluent samples at a point in the system following treatment and before discharge to the disposal ponds. Time of collection of a grab sample shall be recorded. Effluent monitoring shall include the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u> ¹
pH	s.u. ²	Grab	Weekly
BOD ₅			
Concentration	mg/L	Grab	Weekly
Monthly Average	mg/L	Calculated	Monthly
Percent Removal	Percent	Calculated	Monthly
TSS			
Concentration	mg/L	Grab	Weekly
Monthly Average	mg/L	Calculated	Monthly

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 FRESNO COUNTY

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u> ¹
Percent Removal	Percent	Calculated	Monthly
Salinity			
EC ³	µmhos/cm	Grab	Monthly
TDS ⁴	mg/L	Grab	Quarterly ⁵
Nitrogen Forms			
Nitrate (as N)	mg/L	Grab	Bimonthly
TKN ⁶	mg/L	Grab	Bimonthly
Total Nitrogen	mg/L	Calculated	Bimonthly
Metals ⁸	varies	Grab	Annually ⁷
General Minerals ⁹	mg/L	Grab	Annually

¹ If results of monitoring a pollutant appear to indicate either the failure to achieve the design treatment goals of the wastewater treatment facility (e.g., the monthly mean for BOD₅ or TSS exceeds 40 mg/L) 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 Electrical conductivity at 25°C (EC).

⁴ Total dissolved solids (TDS) referenced hereafter in this program shall be determined using Environmental Protection Agency (EPA) Method No. 160.1 for combined organic and inorganic TDS and EPA Method No. 160.4 for inorganic TDS or equivalent analytical procedures specified in 40 Code of Federal Regulations (CFR) Part 136.

⁵ January, April, July, and October

⁶ Total Kjeldahl Nitrogen (TKN)

⁷ In October

⁸ Metals as referred to in this program shall include aluminum, barium, copper, cadmium, chromium,, iron, lead, manganese, mercury, molybdenum, selenium, silver, zinc, and nickel. With the exception of wastewater samples, samples placed in an acid-preserved bottle must 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.

⁹ General Minerals as referred to in this program shall include the constituents in the General Minerals Analyte List presented below.

General Minerals Analyte List¹

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

General Minerals analyte lists may vary depending on the laboratory, but shall include at least the above analytes and properties. A cation/anion balance shall accompany the results.

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WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

DISPOSAL POND MONITORING

The disposal ponds shall be sampled systematically for the parameters specified below. Disposal pond monitoring shall include at least the following:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
DO ^{1,2}	mg/L	Grab ³	Weekly
Freeboard	Feet ⁴	Observation	Weekly

¹ Dissolved oxygen (DO)

² To address potential for the creation of objectionable odors, the DO content in the upper zone (one foot) of either effluent storage reservoir should not be less than 1.0 mg/L for three consecutive sampling events. If results of monitoring indicate DO concentrations less than 1.0 mg/L, 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 low concentrations of DO, if any, and aid in identification and resolution of the problem.

³ Samples shall be collected at a depth of one foot from the storage reservoirs, opposite the inlet, and analyzed for DO. Samples shall be collected between 0700 and 0900 hours.

⁴ 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 each well 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.

Prior to collecting samples and after measuring the water level, 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 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.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Frequency</u>
Depth to groundwater	Feet ¹	Measured	Quarterly ²
Groundwater elevation	Feet above mean sea level	Calculated	Quarterly ²
Salinity			
EC	µmhos/cm	Grab	Quarterly ²
TDS	mg/L	Grab	Quarterly ²
Nitrogen compounds:			
Nitrate (as N)	mg/L	Grab	Quarterly ²
Total Nitrogen	mg/L	Calculated	Quarterly ²
Total Organic Carbon	mg/L	Grab	Annually ³
General Minerals ⁴	mg/L	Grab	Annually ⁴
Iron ⁵	mg/L	Grab	Annually ⁴
Manganese ⁵	mg/L	Grab	Annually ⁴
Metals ⁶			Once per three years ⁴

¹ To the nearest hundredth of a foot.

² January, April, July and October.

³ In October

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 Samples must be filtered prior to preservation

⁶ Metals shall include at least the constituents listed in the Effluent Monitoring section.

SOURCE WATER MONITORING

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

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Measurement</u>	<u>Frequency</u>
EC ¹	µmhos/cm	Grab	Quarterly ²
Iron ³	mg/L	Grab	Annually ⁴

Manganese ³	mg/L	Grab	Annually ⁴
General Minerals ⁵	mg/L	Grab	Annually ³

¹ EC shall be reported as a flow-weighted average from all supply wells. Include copies of supporting calculations with monitoring reports.

² January, April, July and October.

³ Samples shall be filtered prior to preservation.

⁴ In October.

⁵ General minerals shall include at least the constituents listed in the General Minerals Analyte List included herein in the Effluent Monitoring section. An anion/cation balance demonstrating that analyses are complete shall accompany the results.

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.

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 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 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 water supply report including laboratory data;
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.

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.

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.

MONITORING AND REPORTING PROGRAM NO. R5-2007-0100
CITY OF SAN JOAQUIN
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

-11-

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

2 August 2007

(Date)

ARP/kes

INFORMATION SHEET

ORDER NO. R5-2007-0100
CITY OF SAN JOAQUIN
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

Background

The City of San Joaquin (Discharger or City) operates a wastewater collection, treatment, and disposal facility (WWTF) for the residents and small industry of the City of San Joaquin. The WWTF has an average daily flow of 0.3 million gallons per day (mgd).

The Discharger submitted a report of waste discharge (RWD) dated 23 January 2007 in support of a modification and expansion (hereafter Expansion Project) of the City WWTF. The existing WWTF provides secondary treatment of the wastewater stream. Treatment includes screening to remove large solids, aeration, and sedimentation. Effluent is discharged to 13.5 acres of unlined disposal ponds. The Discharger also uses an onsite "borrow pit" as an emergency effluent storage pond. The emergency storage pond is below grade, and will later be converted to a disposal pond.

Waste Discharge Requirements (WDRs) Order No. R5-2002-0103, adopted by the Regional Water Board on 7 June 2002, limits the discharge flow to 0.252 million gallons per day (mgd). The WDRs also establish quarterly effluent limitations for settleable solids (SS) and 5-day biological oxygen demand (BOD) of 0.2 mL/L and 40 mg/L, respectively. WDRs Order No. R5-2002-0103 does not reflect the configuration of the Expansion Project.

The Expansion Project consists of a new extended aeration treatment process that incorporates nitrogen removal. The Expansion Project will also include a modified pump station and headworks, a new blower building, sludge handling and storage facilities, modification of existing ponds, and construction of new disposal ponds.

Solids and Biosolids Disposal

Screenings from the headworks is placed in a dumpster prior to disposal at an offsite landfill. The City does not remove accumulated solids from the effluent disposal ponds, but instead occasionally drains and dries the ponds and disks the accumulated sludge in the pond bottom soils.

The City has not designed the sludge handling and storage facilities for the Expansion Project, but is considering installing sludge drying beds or mechanical dewatering equipment.

Groundwater Conditions

Regional groundwater flows southeasterly and the depth of water occurs about 90 feet below ground surface (bgs), according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by DWR in Spring 1996. In the discharge vicinity, the "modified E-clay" layer occurs about 550 feet bgs and is about 80 feet thick, according to *Geology of Fresh Ground-Water Basin, Central Valley, California, with Texture Maps and Sections*, by R. W. Page (U. S. Geological Survey Professional Paper 1401 – C, Washington, 1986). The extensive clay deposits that characterize area soils have caused localized perched

groundwater conditions. Shallow groundwater in the discharge vicinity is characterized by high salinity (i.e., EC concentrations of 2,000 to 4,000 $\mu\text{mhos/cm}$), according to information in *Areal Distribution of Electrical Conductivity in Shallow Groundwater, San Joaquin Valley*, published by DWR in Spring 1995.

Generally, water quality is better in the confined aquifer below the E-clay with the exception of iron, and manganese, which exceed the drinking water secondary maximum contaminant levels (MCL) specified in Title 22 of California Code of Regulations (CCR) of 0.3 mg/L, and 0.05 mg/L, respectively. Most domestic wells in the area are perforated below the E-clay, but some irrigation wells within the immediate vicinity of the WWTF are likely perforated above and below the E-clay to maximize well production.

The City is currently not required to monitor groundwater, so water quality data within the immediate vicinity of the WWTF in the uppermost groundwater and groundwater just above the E-clay layer is limited. Shallow groundwater in the uppermost aquifer is monitored at the American Avenue Landfill (Landfill), which is approximately five miles of the WWTF. Water quality data from background wells at the Landfill shows that it varies in quality with respect to salts, nutrients and metals.

Compliance History

In general, the City has failed to consistently comply with the flow limit of 0.252 mgd specified in WDRs Order No. R5-2002-0103. As a result, the Regional Water Board adopted Cease and Desist Order (CDO) No. R5-2002-0104 on 7 June 2002. Relevant Tasks required in the CDO are as follows:

<u>Task</u>	<u>Due Date</u>	<u>Description</u>
a.	15 November 2002	Submit a technical report and implementation schedule for increasing WWTF treatment capacity.
b.	15 November 2002	Submit a technical report containing a Title 22 Engineering Report for the recycling effluent.
c.	15 December 2002	Satisfy CEQA for the WWTF expansion and increased discharge flow.
d.	15 January 2003	Begin Construction of modifications to increase WWTF treatment capacity.
e.	15 June 2003	Complete Construction

The existing WWTF has a rated treatment and disposal capacity of 0.252 mgd. At the time CDO Order No. R5-2002-0104 was issued, the City planned to increase overall WWTF to 0.3 mgd; however, to obtain funding and to ensure adequate capacity for a 20 year planning period, the City later proposed a discharge flow increase to 0.5 mgd. The City's existing flows

are 0.3 mgd, which exceeds the 0.252 mgd rated treatment capacity. The City has submitted water balances showing that it can accommodate existing discharge flows during average rainfall years with the use of the emergency storage pond. These conditions will be temporary. Once the Expansion Project is complete, the Discharger will have sufficient storage capacity for annual rainfall with a 100-year return period.

Regarding Task 2.a, the Discharger submitted a RWD in January 2007 in support of an expansion of the WWTF; however, the final design is not complete.

Regarding Task 2.b, the City originally proposed to recycle effluent on adjacent properties; however, the City was unable to obtain long-term agreements with the landowners. Therefore, Task 2.b. no longer applies; as the City no longer propose to recycle effluent.

Regarding Task 2.c, the City has completed CEQA for its expansion and increase in discharge flow.

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 $\mu\text{mhos/cm}$ or a maximum of 1,000 $\mu\text{mhos/cm}$, 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 $\mu\text{mhos/cm}$, 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 (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.

Constituents typically elevated in domestic wastewater threaten the beneficial uses of groundwater if not adequately controlled by a treatment process or attenuated in the soil profile prior to discharge to first encountered groundwater. Discharges that rely on percolation for disposal may result in the percolation of excess organic carbon, and the mobilization of other constituents.

Although groundwater has not been characterized at the site, the Discharge will likely not degrade the beneficial uses of groundwater. With respect to salinity (as measured by EC), groundwater within the vicinity of the discharge typically contains elevated EC. Monitoring of shallow groundwater underlying the WWTF and a salinity source control study will provide information regarding the discharge's consistency with Resolution No. 68-16 and the Basin Plan with respect to salinity. With respect to nitrate, concentrations of nitrate as nitrogen and total nitrogen in the effluent (based on three sampling events) are typically less than the water quality objective for nitrate as nitrogen of 10 mg/L. The Discharger proposes implementing treatment technology that will also result in an effluent total nitrogen concentration of less than 10 mg/L.

Treatment Technology and Control

The Expansion Project will provide treatment and control of the discharge that incorporates:

- a. Secondary treatment of the wastewater;
- b. A nitrogen removal treatment process;
- c. Appropriate biosolids storage and disposal practices;
- d. An Operation and Maintenance (O&M) manual; and
- e. Certified operators to ensure 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 a Mitigated Negative Declaration (MND) for the Expansion Project on 11 April 2007 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 MND for the Expansion Project indicates that the discharge will comply with Regional Water Board regulations, which will mitigate any groundwater impacts. The Regional Water Board, as a responsible agency under CEQA, has reviewed the MND. To mitigate the Expansion Project's groundwater quality impacts to less than significant levels, the terms and conditions of this proposed Order and accompanying enforcement order are appropriate and necessary.

Proposed Order Terms and Conditions

Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions

The proposed Order prohibits discharge to surface waters and water drainage courses.

The proposed Order would carry over the current Order's monthly average daily discharge flow limitation until the City completes the Expansion Project. The proposed Order would carry over the previous Order's effluent limits for 5-day biological oxygen demand (BOD₅) of 40 mg/L (quarterly average), and 80 mg/L (daily maximum).

Once the Expansion Project is complete, the proposed Order would prescribe effluent limitations for BOD₅ and TSS of 40 mg/L or 80 percent removal of both, whichever more restrictive. These limitations are based on Basin Plan minimum performance standards for municipal facilities. The advanced secondary treatment technology being implemented, as part of the Expansion Project will result in an effluent of much higher quality than that reflected in the effluent limitations set forth in the WDRs.

The proposed Order would establish an effluent limitation for EC that reflects the Regional Water Board policy for managing the salts within the Tulare Lake Basin. The City is unable to immediately comply with the effluent limitations set forth in the Basin Plan (an effluent EC of 1,000 µmhos/cm or 500 µmhos/cm over source water), as the WDRs Order No. 2002-0103 did not establish an effluent limitation for EC. In the interim, the proposed WDRs would establish an EC effluent limitation of 1,500 µmhos/cm, which reflects the current discharge quality (based on the 2006 influent EC values). This performance-based limit will be re-opened upon completion of the provisions required by this proposed order. These provisions require the Discharger: (a) characterize groundwater quality, and (b) conduct and implement a salinity source control program. The program would identify sources of EC in the discharge, and the

measures necessary to achieve the EC effluent limitation of 1,000 $\mu\text{mhos/cm}$ or 500 $\mu\text{mhos/cm}$ over source water.

The discharge requirements 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.

The proposed WDRs 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 greater.

The proposed WDRs would require the City to conduct a groundwater investigation. This would include the installation of groundwater-monitoring wells to establish background groundwater quality, and determine if the existing discharge has impacted or has the potential to adversely impact the beneficial uses of groundwater. The WDRs would also require the Discharger assess its discharge on a constituent-by-constituent basis for consistency with Regional Water Board plans and policies, including Resolution No. 68-16. This assessment would identify those constituents that threaten the beneficial uses of groundwater. This may result in the WDRs being reopened and additional or modified effluent limitations imposed.

Monitoring Requirements

Section 13267 of the CWC authorizes the Regional 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. Section 13268 of the CWC authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes influent and effluent monitoring requirements, pond monitoring, groundwater monitoring, sludge monitoring, and water supply monitoring. The monitoring is necessary to evaluate groundwater quality and the extent of the degradation from the discharge.

The Discharger must monitor groundwater for constituents present in the discharge that are capable of reaching groundwater and violating groundwater limitations if its treatment and control, and any dependency of the process on sustained environmental attenuation, proves inadequate. For constituents listed in Section F, Groundwater Limitations, of the WDR, the Discharger must, as a part of each monitoring event, compare concentrations of constituents found in each monitoring well (or similar type of groundwater monitoring device) to the background concentrations or to prescribed numerical limitations to determine compliance.

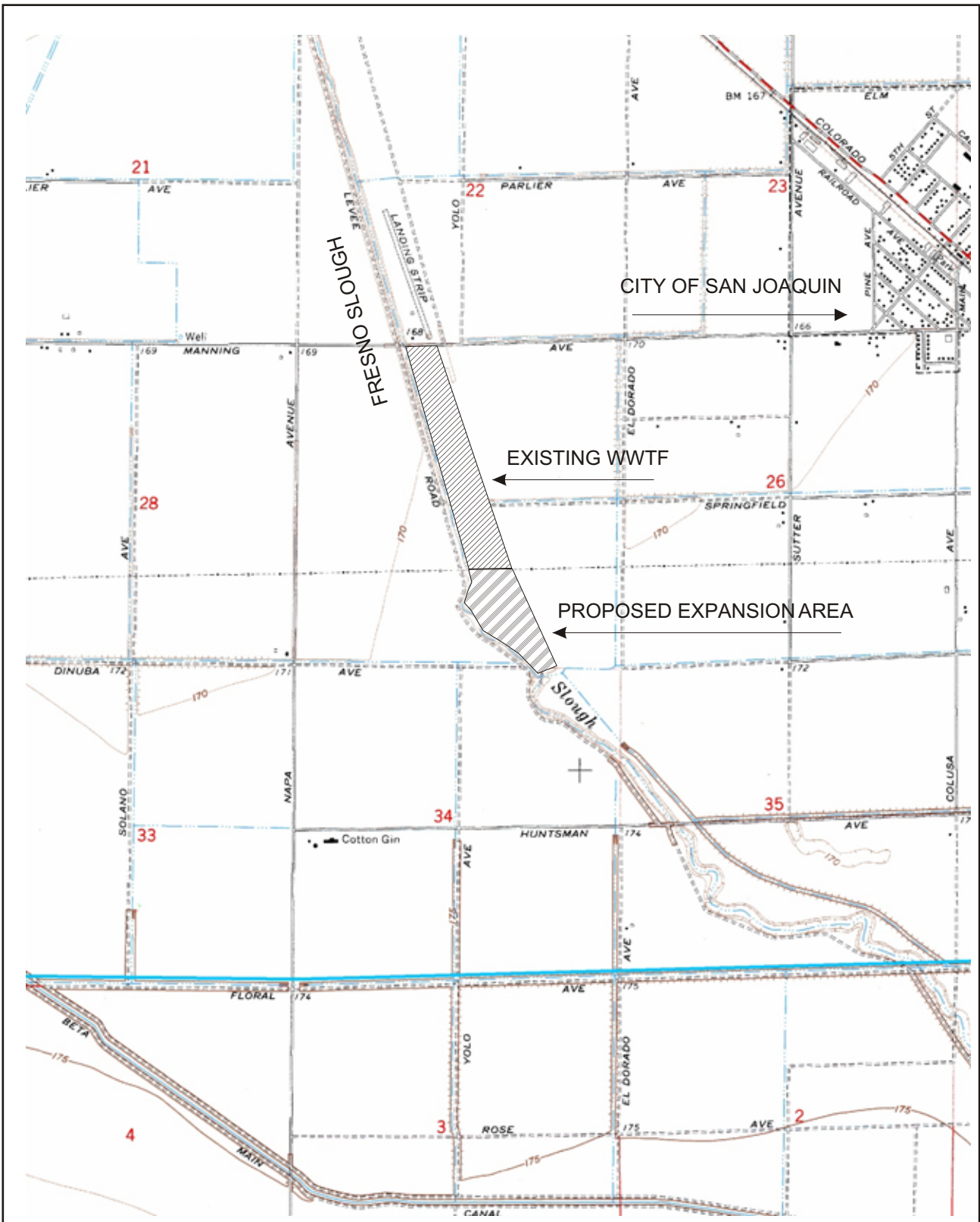
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The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed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

Proposed Enforcement Order

The Discharger cannot comply with the flow limitation in the existing Order and the proposed Order due to lack of treatment and disposal capacity. The compliance deadlines in the existing CDO have expired due, in part, to the lack of funding of the Expansion Project. Once the Expansion Project is complete, the Discharger should be able to comply with the terms and conditions of the proposed Order. An accompanying tentative Cease and Desist Order would require the Discharger to perform a series of tasks according to a time schedule to complete the Expansion Project.

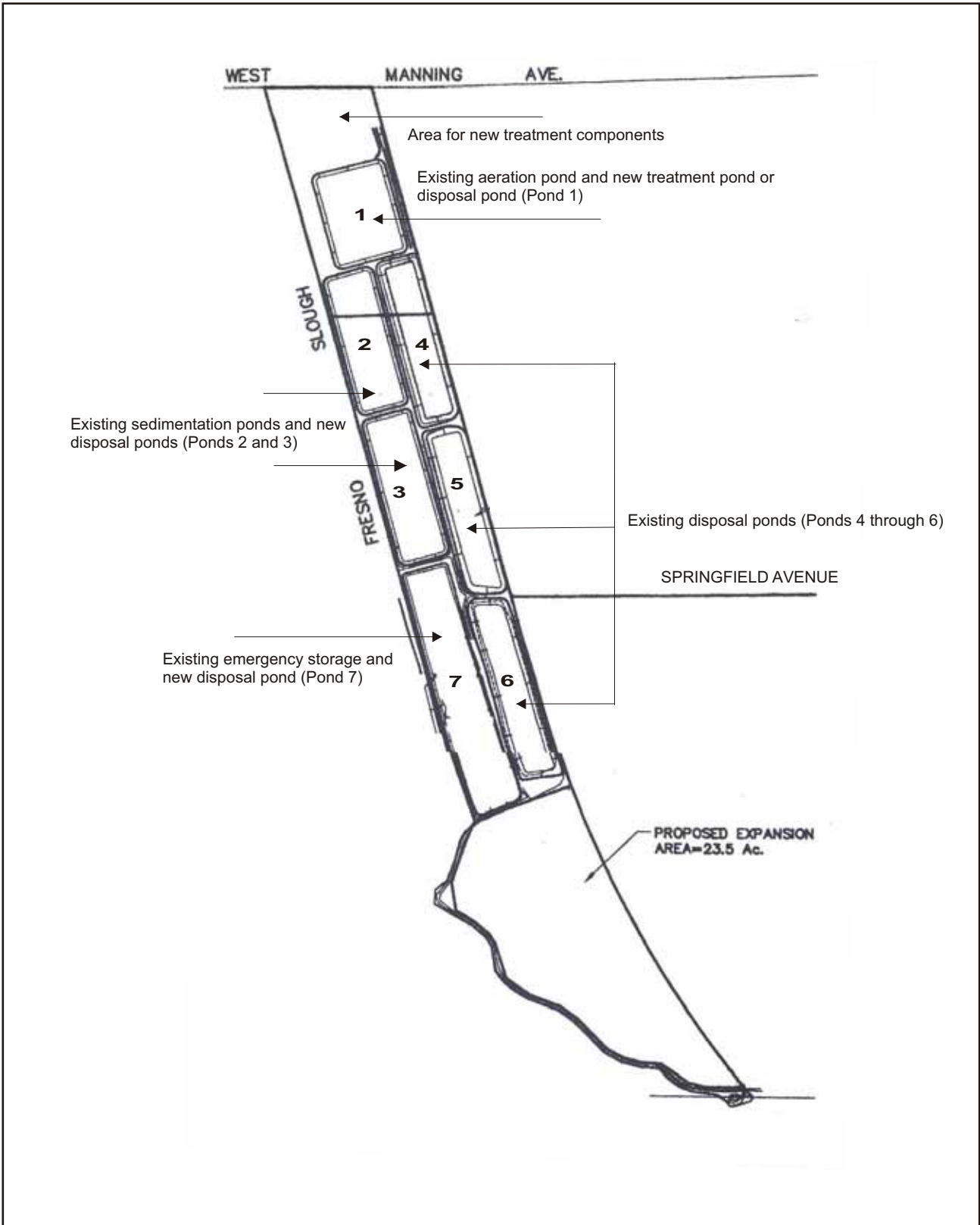
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ATTACHMENT A - VICINITY MAP
 WASTE DISCHARGE REQUIREMENTS R5-2007-0100
 CITY OF JOAQUIN
 WASTEWATER TREATMENT FACILITY
 FRESNO COUNTY
 SECTION 27 T15S, R16E, MDB&M
 USGS 7.5 SAN JOAQUIN QUADRANGLE



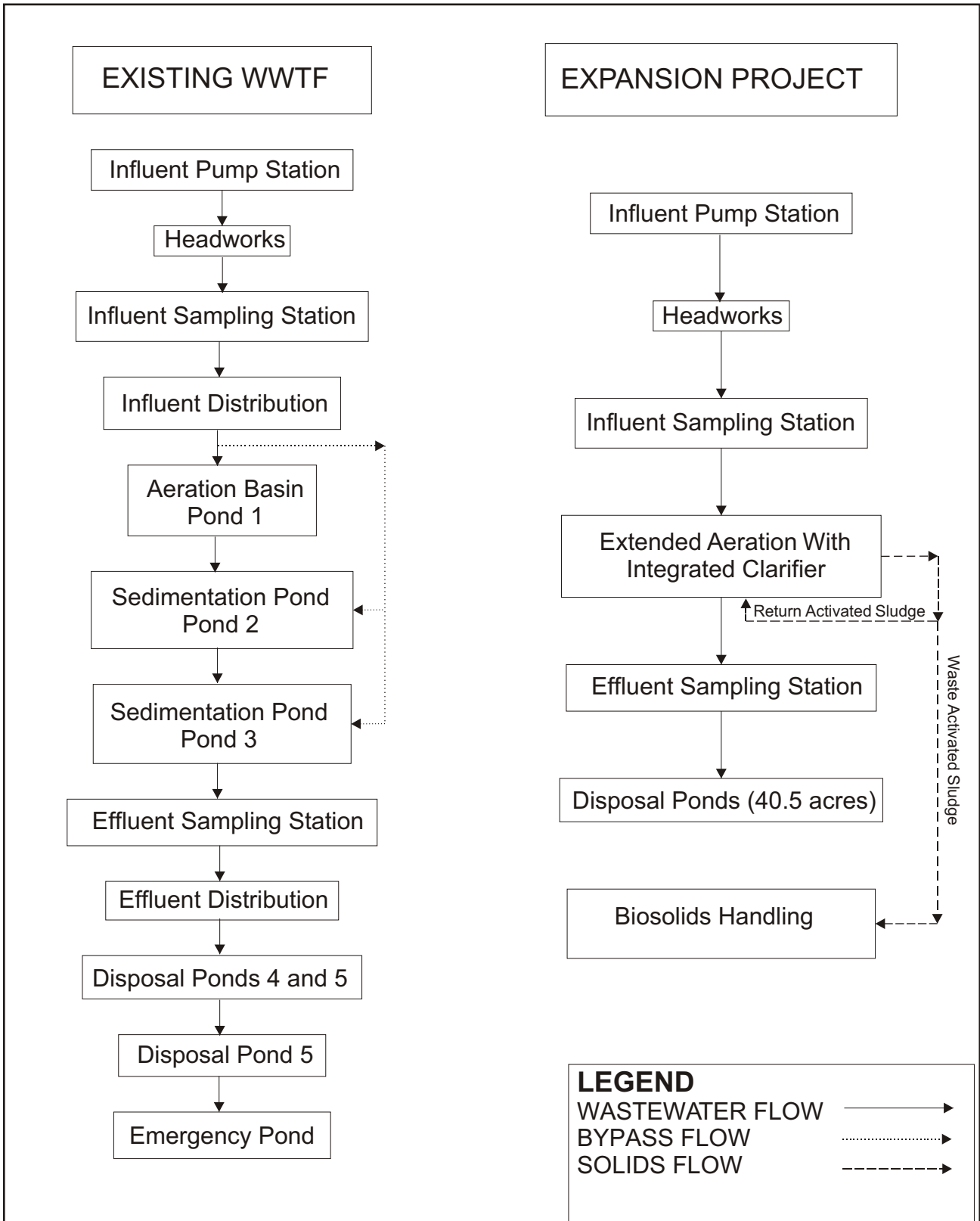
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ATTACHMENT B - PLAN VIEW
 WASTE DISCHARGE REQUIREMENTS R5-2007-0100
 CITY OF JOAQUIN
 WASTEWATER TREATMENT FACILITY
 FRESNO COUNTY
 Portion of Figure Yamabe & Horn Engineering



Not to Scale



ATTACHMENT C - PROCESS FLOW DIAGRAM
WASTE DISCHARGE REQUIREMENTS R5-2007-0100
EXISTING WWTF AND EXPANSION PROJECT
CITY OF JOAQUIN
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

WDRs ORDER NO. R5-2007-0100
ATTACHMENT D
STANDARD REQUIREMENTS FOR
MONITORING WELL INSTALLATION WORK PLANS AND
MONITORING WELL INSTALLATION REPORTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a work plan containing, at a minimum, the information listed in Section 1, below. Wells may be installed after staff approve the work plan. Upon installation, the Discharger shall submit a well installation report that includes the information contained in Section 2, below. All work plans and reports must be prepared under the direction of, and certified by, a California registered geologist or civil engineer.

SECTION 1 - Monitoring Well Installation Work Plan and
Groundwater Sampling and Analysis Plan

The monitoring well installation work plan shall contain, at a minimum, the following information:

A. General Information:

- Purpose of the well installation project
- Brief description of local geologic and hydrogeologic conditions
- Proposed monitoring well locations and rationale for well locations
- Topographic map showing facility location, roads, and surface water bodies
- Large-scaled site map showing all existing on-site wells, proposed wells, surface water bodies and drainage courses, buildings, waste handling facilities, utilities, and major physical and man-made features

B. Drilling Details:

- On-site supervision of drilling and well installation activities
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Cuttings disposal methods
- Soil sampling intervals (if appropriate); logging methods; number and location of soil samples and rationale; and sample collection, preservation, and analytical methods

C. Monitoring Well Design (in graphic form with rationale provided in narrative form):

- Diagram of proposed well construction details
 - Borehole diameter
 - Casing and screen material, diameter, and centralizer spacing (if needed)
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws)
 - Anticipated depth of well, length of well casing, and length and position of perforated interval
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack
 - Anticipated screen slot size and filter pack

- D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):
Method of development to be used (i.e., surge, bail, pump, etc.)
Parameters to be monitored during development and record keeping technique
Method of determining when development is complete
Disposal of development water
- E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Datum for survey measurements
List well features to be surveyed (i.e., top of casing, horizontal and vertical coordinates, etc.)
- F. Schedule for Completion of Work
- G. Appendix: Groundwater Sampling and Analysis Plan (SAP)
The Groundwater SAP, a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities, shall contain, at a minimum, a detailed written description of standard operating procedures for:
- Equipment to be used during sampling
 - Equipment decontamination procedures
 - Water level measurement procedures
 - Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
 - Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
 - Purge water disposal
 - Analytical methods and required reporting limits
 - Sample containers and preservatives
 - Sampling
 - General sampling techniques
 - Record keeping during sampling (include copies of record keeping logs to be used)
 - QA/QC samples
 - Chain of Custody
 - Sample handling and transport

SECTION 2 - Monitoring Well Installation Report

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

A. General Information:

- Purpose of the well installation project
- Number of monitoring wells installed and identifying label(s) for each
- Brief description of geologic and hydrogeologic conditions encountered during well installation
- Topographic map showing facility location, roads, surface water bodies
- Large-scaled site map showing all previously existing wells, newly installed wells, surface water bodies and drainage courses, buildings, waste handling facilities, utilities, and other major physical and man-made features.

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

- On-site supervision of drilling and well installation activities
- Drilling contractor and driller's name
- Description of drilling equipment and techniques
- Equipment decontamination procedures
- Well boring log (provide for each well)
 - Well boring number and date drilled
 - Borehole diameter and total depth
 - Total depth of open hole (i.e., total depth drilled if no caving or back-grouting occurs)
 - Depth to first encountered groundwater and stabilized groundwater depth
 - Detailed description of soils encountered, using the Unified Soil Classification System

C. Well Construction Details (provide for each well):

- Well construction diagram including:
 - Monitoring well number and date constructed
 - Casing and screen material, diameter, and centralizer spacing (if needed)
 - Length of well casing
 - Length and position of slotted casing and size of perforations
 - Thickness, position and composition of surface seal, sanitary seal, and sand pack
 - Type of well caps (bottom cap either screw on or secured with stainless steel screws)

E. Well Development (provide for each well):

- Date(s) and method of development

How well development completion was determined
Volume of water purged from well and method of development water disposal

F. Well Survey (provide for each well):

Reference elevation at the top rim of the well casing with the cap removed (feet above mean sea level to within 0.01 foot)

Ground surface elevation (feet above mean sea level to within 0.01 foot)

Horizontal geodetic location, where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum, or acceptable alternative (provide rationale)

Present the well survey report data in a table

G. Water Sampling:

Date(s) of sampling

Sample identification

How well was purged

Analytical methods used

How many well volumes purged

Laboratory analytical data sheets

Levels of temperature, EC, and pH at stabilization

Water level elevation(s)

Sample collection, handling, and preservation methods

Groundwater contour map

H. Soil Sampling (if applicable):

Date(s) of sampling

Sample collection, handling, and preservation methods

Sample identification

Analytical methods used

Laboratory analytical data sheets

Present soil sampling data in a table

I. Well Completion Report(s) (as defined in California Water Code §13751). Blank forms are available from California Department of Water Resources' website www.water.ca.gov. Submit this section under separate cover.

J. Appendix - include, at a minimum, copies of the following:

County-issued well construction permits

Registered engineer or licensed surveyor's report and field notes

Field notes from well development