

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-0162

WASTE DISCHARGE REQUIREMENTS

FOR
CITY OF FRESNO
AND
CONSOLIDATED LAND COMPANY AND CONSOLIDATED INDUSTRIES, INC.
NORTH FRESNO WASTEWATER RECLAMATION FACILITY
FRESNO COUNTY

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

1. On 5 May 2011, the City of Fresno submitted a Report of Waste Discharge (RWD) to apply for revised Waste Discharge Requirements (WDRs), for the existing North Fresno Wastewater Reclamation Facility (WWRF).
2. Copper River Ranch, LLC, built the WWRF and transferred ownership and operation to the City of Fresno on 25 November 2008. The Consolidated Land Company and Consolidated Industries, Inc., own and operate the Copper River Country Club golf course where treated effluent from the WWRF is discharged. The City of Fresno and Consolidated Land Company and Consolidated Industries, Inc., are collectively referred to as Dischargers and are responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The WWRF is at 1660 East Copper Avenue in Fresno (Section 11, Township 12 South, Range 20 East, Mount Diablo Base & Meridian). The WWRF occupies Assessor's Parcel Number (APN) 579-220-12ST. The Copper River Country Club golf course is at 2140 East Clubhouse Drive in Fresno (Sections 11 and 12, Township 12 South, Range 20 East, Mount Diablo Base & Meridian). The golf course occupies APN's 579-074-08S, 579-074-11S, 579-074-20S, 579-074-35S, 579-074-36S, 579-074-39S, 579-074-41S, 579-074-43S, 579-074-51S, 579-074-53, 579-074-60, and 579-074-61. The WWRF and golf course are shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. WDRs Order R5-2006-0090-01 [National Pollutant Discharge Elimination System (NPDES) Permit No. CA0085189], adopted by the Central Valley Water Board on 10 December 2009, prescribes requirements for the WWRF. Order R5-2006-0090-01 allows an average monthly flow of up to 0.71 million gallons per day (mgd) and a maximum daily flow up to 1.07 mgd to either the Fresno Metropolitan Flood Control District Basin DE (with hydraulic connection to the San Joaquin River, a water of the United States) or the Copper River Country Club golf course. However, the NPDES requirements of Order R5-2006-0090-01 expired on 21 September 2011 and the City of Fresno has eliminated the discharge to Basin DE. Therefore, neither the NPDES portion of Order R5-2006-0090-01, nor including FMFCD as a Discharger is necessary. Also, since Copper River Ranch, LLC transferred ownership and

operation of the WWRF to the City of Fresno, including Copper River Ranch, LLC as a Discharger is no longer necessary. Order R5-2006-0090-01 will be rescinded and replaced with this Order.

Existing Facility and Discharge

5. Start-up activities and operational trials began in January 2009. Treated effluent was cycled back to the collection system during the first 18 months of operation for further treatment at the Fresno-Clovis Metropolitan Regional Wastewater Reclamation Facility (Regional Facility), which currently operates under WDRs Order 5-01-254. In July 2010, the WWRF began discharging periodically either to the Copper River Country Club golf course or to the Regional Facility collection system until the WWRF was shut down in October 2013 to facilitate construction of the ultraviolet (UV) light disinfection system.
6. The WWRF treats domestic and commercial wastewater from Copper River Ranch, a 760-acre community development, plus flows generated from approximately 160-acres of neighboring residential/commercial area south of Copper Avenue.
7. The WWRF is designed to treat up to a monthly average of 0.71 mgd and a daily maximum of 1.07 mgd of municipal wastewater to disinfected tertiary recycled water standards as defined by Title 22 of the California Code of Regulations (hereafter Title 22). The WWRF's treatment process, in order of operation, consists of influent pumps, an in-line influent flow meter, mechanical screening, sequencing batch reactors for nitrogen removal, a flow equalization tank, chemical coagulation, cloth media filtration, and disinfection.
8. Treated effluent from the WWRF is discharged to a 12-acre-foot, on-site storage pond, which is lined with a single layer of 60-mil high density polyethylene. From the lined storage pond, effluent is pumped via closed conduit pipe to an effluent distribution box adjacent to Lake F at the golf course, where it is distributed during the night hours to the golf course through the sprinkler irrigation system and to buffer vegetation adjacent to the golf course through drip irrigation systems.
9. Sludge is conveyed from the sequencing batch reactors to an approximately 41,000-gallon aerated sludge holding tank. Sludge is then pumped to the collection system for further treatment at the Regional Facility.
10. If needed, effluent wastewater from the sequencing batch reactors and wastewater from the lined storage pond can be pumped back to the sludge holding tank and discharged to the collection system for further treatment at the Regional Facility. A process flow diagram of the WWRF is shown in Attachment B, which is attached hereto and made part of this Order by reference.
11. The Discharger has an approved Pretreatment Program for the Regional Facility that it also incorporates into the operation of the WWRF. This Pretreatment Program is necessary to protect the collection and treatment systems and prevent disruption of

the treatment processes at the WWRF. This Order requires the Discharger to continue to implement its existing Pretreatment Program at the WWRF, as it did under Order R5-2006-0090-01, and as it committed to in the May 2011 RWD.

12. Influent and effluent samples are required by Monitoring and Reporting Program R5-2006-0090-01 and are summarized in the table below:

Influent and Effluent Data (2010 through 2013)

Parameter	Units	Influent		Effluent	
		# of Samples	Average Result	# of Samples	Average Result
Total Coliform	MPN/100mL	--	--	588	<2
Settleable Solids	ml/L	619	23	579	<0.1
BOD 5-day @ 20°C	mg/L	271	279	235	2.4
Total Suspended Solids	mg/L	277	244	258	<5
pH	standard units	499	¹	500	²
Electrical Conductivity	umhos/cm	277	653	259	544
Total Dissolved Solids	mg/L	276	342	259	326
Ammonia as Nitrogen	mg/L	277	33	54	1.9
Nitrate as Nitrogen	mg/L	--	--	165	3.2
Total Nitrogen	mg/L	--	--	154	4.7

¹ Influent pH values ranged from 6.3 to 8.4 standard units.

² Effluent pH values ranged from 6.2 to 7.8 standard units.

Planned Changes in the Discharge

13. The City of Fresno has eliminated the point of discharge to Basin DE, which is hydraulically connected to the San Joaquin River. The original intent of this discharge option was to provide the WWRF with an alternative discharge point when wet weather precludes the use of recycled water at the Copper River Country Club golf course. Due to slower than predicted population growth in the service area, wastewater flows have not reached the level in which discharge to Basin DE is needed.
14. The City of Fresno replaced the chlorine disinfection system with a TrojanUVFit™ 18AL40 UV disinfection system. The UV disinfection system includes two duty reactors and one stand-by reactor. In July 2014, the City of Fresno conducted a spot-check bioassay validation test on flow rates up to 150 gallons per minute (gpm) per reactor in order to demonstrate conformance with design and proper installation and operation of the validated UV system. In a letter dated 25 August 2014, the State Water Resources Control Board, Division of Drinking Water (DDW) (formerly the California Department of Public Health, Drinking Water Program), approved the spot-check bioassay validation test report. The former chlorine contact basin will be utilized for flow equalization prior to UV disinfection. Since the UV disinfection system was validated up to a total flow rate of 300 gpm (two duty reactors up to 150 gpm each), this Order limits the effluent flow rate from the WWRF to 0.43 mgd (equivalent to 300 gpm) until the UV disinfection system can be approved by DDW at higher flow rates.

15. The City of Fresno submitted a letter, dated 5 September 2014, requesting to operate the UV disinfection system in accordance with the 2003 National Water Research Institute (NWRI)/Water Resource Foundation *Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse* (UV Guidelines) until the control system can be reprogrammed in accordance with the 2012 NWRI UV Guidelines. The City of Fresno indicated it may take two to three months to complete reprogramming of the control system. In an email dated 15 September 2014, DDW indicated it had no objections to the Discharger's submitted control proposal.

Site Specific Conditions

16. Source water for the City of Fresno is obtained from a series of groundwater supply wells and the City of Fresno Surface Water Treatment Facility. The flow-weighted average electrical conductivity and total dissolved solids concentration of source water from July 2010 through March 2014 were 275 micromhos per centimeter (umhos/cm) and 201 milligrams per liter (mg/L), respectively.
17. The land surface in the vicinity of the WWRF is generally flat with a slight slope to the northwest. Elevation at the WWRF is approximately 350 feet above sea level. The San Joaquin River is approximately 1.5 miles to the west of the WWRF.
18. According to the Federal Emergency Management Agency, Flood Insurance Rate Map number 06019C1020H, the WWRF is in Zone X, an area determined to be outside the 500-year floodplain (less than a 0.2% annual chance of flooding).
19. According to the Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service, soils at the WWRF are comprised primarily of Hanford course sandy loam, which is described as well drained; negligible to low runoff, with moderately rapid permeability. Soils at the golf course are comprised primarily of Pollasky-Montpellier complex, which is described as well drained, medium to rapid runoff, with moderate permeability. Uses include annual range and dry farmed small grain, usually barley and limited sprinkler irrigated pasture.
20. The north Fresno area is characterized as semi-arid with hot dry summers and cool winters. Annual precipitation in the vicinity of the WWRF averages approximately 11.5 inches, the 100-year total annual precipitation is approximately 21.6 inches, and the reference evapotranspiration is approximately 53 inches per year.

Groundwater Conditions

21. Three groundwater monitoring wells (MW-1 through MW-3) were installed in 2006 to a depth of 180 feet below ground surface (ft. bgs.) to monitor the effects of percolation from Basin DE. According to the well installation report¹, a significant clay layer was encountered in each borehole extending from 104 to 142 ft. bgs. Groundwater was

¹ Kenneth D. Schmidt and Associates, Report on Results of Monitor Wells Installation at the Copper River Ranch WWTF, May 2006.

not encountered above the clay layer. Medium to very coarse sand, gravel, and cobbles were encountered beneath the clay layer. Because of the substantial clay layer, groundwater in the underlying coarse-grained deposits is confined.

22. Based on the fourth quarter 2013 groundwater monitoring event, depth to groundwater measured in the three groundwater monitoring wells ranged from approximately 80 to 125 ft. bgs. The associated potentiometric surface map indicates groundwater flow towards the northwest, which is consistent with historical groundwater elevation data. As such, MW-1 is upgradient of, and MW-2 and MW-3 are both cross-gradient to, Basin DE. Groundwater quality data are summarized in the table below. Treated effluent from the WWRF has never been discharged to Basin DE.

October 2013 Groundwater Monitoring Data

Parameter	Units	MW-1	MW-2	MW-3
Coliform, Total	MPN/100mL	<1.0	<1.0	<1.0
pH	pH units	7.0	7.1	7.1
Electrical Conductivity	umhos/cm	402	501	590
Total Dissolved Solids	mg/L	255	336	359
Ammonia as Nitrogen	mg/L	<0.50	<0.50	<0.50
Nitrate as Nitrogen	mg/L	1.5	2.2	3.5
Total Nitrogen	mg/L	1.8	2.3	3.6
Chloride	mg/L	49	37	29
Sulfate	mg/L	17	48	61
Bicarbonate	mg/L	97	150	180
Total Organic Carbon	mg/L	0.844	0.763	0.612
Calcium	mg/L	21.3	39.5	54
Iron	mg/L	<0.05	<0.05	<0.05
Manganese	mg/L	<0.005	<0.005	<0.005
Potassium	mg/L	4	4	6
Sodium	mg/L	42.6	41.8	39.5

23. Since the option to discharge to Basin DE has been eliminated, this Order includes a Provision requiring the City of Fresno to properly destroy the groundwater monitoring wells in accordance with state and local requirements or demonstrate it will properly maintain the wells in accordance with Section 115700 of the California Health and Safety Code.

Basin Plan, Beneficial Uses, and Regulatory Considerations

24. The *Water Quality Control Plan for the Tulare Lake Basin*, Second Edition, revised January 2004 (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.
25. The WWRF and golf course are in Detailed Analysis Unit 234 within the Kings Basin hydrologic unit. The Basin Plan designates the beneficial uses of underlying

groundwater as municipal and domestic supply (MUN), agricultural supply (AGR), and industrial service supply (IND).

26. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric objective for total coliform organisms.
27. 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 establishes several salt management requirements, including:
 - a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum electrical conductivity (EC) in the discharge shall not exceed the EC of the source water plus 500 umhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.
 - b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.
28. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.
29. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in Title 22. The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
30. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.
31. 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. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.
32. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such

as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 umhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 umhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

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

Antidegradation Analysis

34. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:
 - a. The degradation will not unreasonably affect present and anticipated future beneficial uses,
 - b. 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,
 - c. The discharger employs best practicable treatment or control (BPTC) to minimize degradation, and
 - d. The degradation is consistent with the maximum benefit to the people of the state.
35. An antidegradation analysis for groundwater was included in Order R5-2006-0090-01 and was based on a January 2005 report prepared by Kenneth D. Schmidt and Associates entitled *Antidegradation Evaluation for Copper River Ranch* (hereafter referred to as Antidegradation Evaluation). Data for first encountered groundwater was not available at the time the Antidegradation Evaluation was conducted; instead it was based on groundwater quality from deep water supply wells.

The Antidegradation Evaluation indicated the discharge would cause existing groundwater to be degraded by total dissolved solids (TDS), but it would be comparable to the impact from irrigated agriculture that existed prior to construction of the WWRF. The average TDS concentration of groundwater extracted from water supply wells in the vicinity of the WWRF was estimated to be approximately 315 mg/L. Therefore, Order R5-2006-0090-01 included a groundwater limitation for TDS of 315 mg/L (annual average). The average effluent TDS concentration of 326 mg/L

(see [Finding 12](#)) is less than the TDS concentration of first encountered groundwater of 359 mg/L (see [Finding 22](#)); therefore, the groundwater limitation is no longer appropriate.

36. Constituents of concern that have the potential to cause degradation of high quality waters include, in part, organics, nutrients, and salts.
 - a. For organics, the WWRF effectively reduces the influent BOD concentrations by approximately 99 percent (average influent BOD is 279 mg/L while the average effluent BOD is 2.4 mg/L), which is expected to prevent odor and nuisance conditions, minimize the potential for anoxic and reducing conditions in soil, and preclude iron and manganese groundwater degradation from organic loading.
 - b. For nitrogen, the sequencing batch reactors provide nitrification and partial denitrification of the wastewater. Nitrification is a biological process that converts organic nitrogen and ammonia to nitrite and converts nitrite to nitrate in an aerobic environment. Denitrification is a biological process that converts nitrate to nitrogen gas under anoxic conditions. This Order keeps the performance based effluent limitation for total nitrogen of 10 mg/L (average monthly) from the existing Order R5-2006-0090-01 for discharge to the golf course. This effluent limitation along with the requirement that application of wastewater shall be at reasonable application rates to the golf course for both nutrient and hydraulic loading should preclude degradation of groundwater to the extent it exceeds water quality objectives.
 - c. For salinity, the discharge with an average EC of 544 umhos/cm meets the Basin Plan limitation of source water plus 500 umhos/cm and the maximum EC of 1,000 umhos/cm for areas that may recharge good quality groundwater. The discharge may cause groundwater degradation with EC when compared to background groundwater quality, but the discharge will not cause degradation exceeding water quality objectives.

Treatment and Control Practices

37. The Dischargers have implemented the following treatment and control of the discharge:
 - a. Disinfected tertiary wastewater treatment utilizing sequencing batch reactors for BOD and nitrogen removal, filtration, and UV disinfection;
 - b. Application of treated wastewater at rates that will not exceed reasonable rates in the areas where effluent will be recycled;
 - c. Discharge of sludge to the sewer collection system for treatment at the Regional Facility,
 - d. Certified operators to ensure proper operation and maintenance; and
 - e. Prohibited use of water softeners within the Copper River Ranch development.

Antidegradation Conclusions

38. This Order establishes groundwater limitations that allow some degradation, but will not unreasonably threaten present and future anticipated beneficial uses of groundwater or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.
39. The treatment and control measures described above in [Finding 37](#), in combination with the requirements of this Order, represent BPTC. Adoption of this Order will result in the implementation of BPTC.
40. Degradation of groundwater by some of the typical waste constituents associated with discharges from a municipal wastewater utility, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The technology, energy, water recycling, and waste management advantages of municipal utility service far exceed any benefits derived from reliance on numerous, concentrated individual wastewater systems, and the impact on water quality will be substantially less. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.
41. The discharge and the potential for groundwater degradation allowed in this Order is consistent with the Antidegradation Policy since: (a) the limited degradation allowed by this Order will not result in water quality less than water quality objectives, or unreasonably affect present and anticipated beneficial uses of groundwater, (b) the Dischargers have implemented BPTC to minimize degradation, and (c) the limited degradation is of the maximum benefit to the people of the State.

Water Recycling Regulatory Considerations

42. Undisinfected domestic wastewater contains human pathogens that are typically measured using total or fecal coliform organism as indicator organisms. Title 22, California Code of Regulations, section 60301 et seq., establishes statewide criteria for the use of recycled water.
43. On 3 February 2009, the State Water Resources Control Board adopted Resolution 2009-0011, *Adoption of a Policy for Water Quality Control for Recycled Water* (Recycled Water Policy). The Recycled Water Policy promotes the use of recycled water to achieve sustainable local water supplies and reduce greenhouse gases.
44. On 23 April 2009, the Central Valley Water Board adopted Resolution R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants*. Resolution R5-2009-0028 encourages water recycling, water conservation, and regionalization of wastewater treatment facilities. It requires the municipal wastewater treatment agencies to document:

- a. Efforts to promote new or expanded wastewater recycling opportunities and programs;
- b. Water conservation measures; and
- c. Regional wastewater management opportunities and solutions (e.g., regionalization).

The distribution of disinfected tertiary recycled water by the Dischargers is consistent with the intent of State Board Resolution 2009-0011 and Central Valley Water Board Resolution R5-2009-0028.

45. Title 22, Section 60323, requires recyclers of treated municipal wastewater to submit an engineering report detailing the use of recycled water, contingency plans, and safeguards. The Dischargers submitted a Title 22 Engineering Report to DDW, which was later revised based on DDW's comments. In a letter dated 20 January 2005, DDW conditionally approved the engineering report. On 4 August 2014, the Dischargers submitted an addendum to the Title 22 Engineering Report to reflect the change from chlorine to UV disinfection. The DDW approved the addendum to the Title 22 Engineering Report in a letter dated 3 October 2014.

Title 27

46. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Title 27, section 20090 states in part:

The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:

* * *

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

- (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and
- (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

* * *

47. The discharge authorized herein and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27 as follows:

The lined storage pond and the golf course are exempt pursuant to Title 27, section 20090(b) because:

- a. The Central Valley Water Board is issuing WDRs.
- b. The discharge is in compliance with the Basin Plan, and;
- c. The treated effluent discharged to the ponds does not need to be managed as hazardous waste.

California Environmental Quality Act

48. A Mitigated Negative Declaration (EA No. C-03-193) was prepared by the City of Fresno in 2004 for the construction and operation of the WWRF. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.

Other Regulatory Considerations

49. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
50. Based on the threat and complexity of the discharge, the facility is determined to be classified as 2B as defined below:
- a. Category 2 threat to water quality: "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."
 - b. Category B complexity, defined as: "Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units."
51. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order 2006-0003-DWQ (the 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 City of Fresno's collection system exceeds one mile in length and the City of Fresno is enrolled under the General Order.

52. Water Code section 13267(b)(1) states:

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.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2014-0162 are necessary to ensure compliance with these waste discharge requirements. The Dischargers own and operate the facility that discharges the waste subject to this Order.

53. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 74-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.
54. The United States Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.
55. The Central Valley Water Board is not the implementing agency for 40 CFR 503 regulations. The Dischargers may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.
56. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.
57. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

Public Notice

58. 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.
59. The Dischargers and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.
60. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order R5-2006-0090-01 (NPDES Permit No. CA0085189) is rescinded, except for purposes of enforcement, and, pursuant to Water Code sections 13263 and 13267, the City of Fresno and The Consolidated Land Company and Consolidated Industries, Inc., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of wastes classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.
3. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by Standard Provision E.2 of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*.
4. Discharge of waste at a location or in a manner different from that described in the RWD and Findings herein, is prohibited.
5. Discharge of toxic substances into the wastewater treatment system or land application areas such that biological treatment mechanisms are disrupted is prohibited.

B. Discharge Specifications

1. As determined by measuring flow at monitoring location M-002¹, the maximum daily discharge shall not exceed 0.43 mgd. The effluent flow

¹ Monitoring location M-002 is described in Monitoring and Reporting Program R5-2014-0162

rate can be increased in accordance with [Provision I.5](#), but the effluent flow rate shall not exceed the monthly average design flow rate of 0.71 mgd and the daily maximum design flow rate of 1.07 mgd.

2. No waste constituent shall be released, discharged, or placed where it will cause violation of Groundwater Limitations of this Order.
3. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by Water Code section 13050.
4. The discharge shall remain within the permitted waste treatment/containment structures and recycled water use areas at all times.
5. The Dischargers shall operate all systems and equipment to optimize the quality of the discharge.
6. Objectionable odors originating at the WWRF shall not be perceivable beyond the limits of the waste treatment areas and effluent storage pond at an intensity that creates or threatens to create nuisance conditions.
7. All wastewater discharged shall be oxidized, coagulated (if necessary), filtered, and disinfected.
8. The maximum filtration rate shall not exceed 6 gallons per minute per square foot.
9. The Dischargers shall comply with all the terms and conditions of the most current Title 22 regulations pertaining to the production and use of recycled water.
10. When coagulation is used, the effluent turbidity measured at F-002¹ shall not exceed any of the following:
 - a. An average of 2 NTU within a 24-hour period;
 - b. 5 NTU more than 5 percent of the time within a 24-hour period; and
 - c. 10 NTU anytime.
11. When coagulation is not used (i.e., direct filtration mode):
 - a. The turbidity of the influent to the filtration unit measured at F-001¹ shall not exceed 5 NTU for more than 15 minutes and never exceed 10 NTU. If the turbidity of the influent to the filtration unit at F-001¹ exceeds 5 NTU for more than 15 minutes or 10 NTU at any time, coagulation must be initiated.

¹ Monitoring locations F-001 and F-002 are described in Monitoring and Reporting Program R5-2014-0162.

- b. The effluent turbidity measured at F-002¹ shall not exceed 2 NTU at any time.
12. The effluent storage pond shall be managed to prevent the breeding of mosquitos. In particular,
- a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
13. Vegetation management operations in areas 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.

C. Effluent Limitations

As determined by collecting samples from monitoring location M-002¹, effluent discharged to the storage pond shall not exceed the following limitations:

- 1. The BOD 5-day @ 20°C, total suspended solids, settleable solids, pH, and total nitrogen limitations shown in the following table:

Effluent Limitations

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	10	15	20	--	--
Total Suspended Solids	mg/L	10	15	20	--	--
Settleable Solids	ml/L	--	--	0.1	--	--
pH	standard units	--	--	--	6.5	8.5
Total Nitrogen	mg/L	10	--	--	--	--

- 2. The arithmetic mean of BOD 5-day @ 20°C and total suspended solids in effluent samples collected over a monthly period shall not exceed 10 percent of the arithmetic mean of the values for influent samples (sample location M-INF¹) collected at approximately the same time during the same period (90 percent removal).
- 3. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed an MPN of 2.2 per 100 milliliters utilizing the

¹ Monitoring locations F-002, M-002, and M-INF are described in Monitoring and Reporting Program R5-2014-0162.

bacteriological results of the last seven days for which analyses have been completed. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

4. The 12-month rolling average EC of the discharge shall not exceed the 12-month rolling average EC of the source water plus 500 umhos/cm or a maximum of 1,000 umhos/cm, whichever is more stringent. When source water is from more than once source, the EC shall be a flow-weighted average of all sources.

D. Ultraviolet Disinfection System Operating Specifications

The following Specifications are based on the TrojanUVFit™ 18AL40 UV disinfection system cited in the spot-check bioassay test report. No equivalents or substitutions will be accepted without DDW and Executive Officer approval of equivalent disinfection performance. The UV dose equations listed in D.4 below are in accordance with the 2012 NWRI UV Guidelines. The Discharger may operate the UV disinfection control system in accordance with the UV dose equations in accordance with the 2003 NWRI UV Guidelines until it can reprogram the control system in accordance with the 2012 NWRI UV Guidelines:

1. The minimum UV dose in the UV reactor shall be 100 millijoules per square centimeter (mJ/cm²) at all times.
2. The minimum UV transmittance (UVT) (at 254 nanometers) in the wastewater measured at U-001¹ shall not fall below 55 percent.
3. The UV sensor intensities shall operate in a range from 0.63 to 6.69 milliwatts per square centimeter (mW/cm²).
4. The following two equations must be used as part of the automatic UV disinfection control system for calculating UV dose:

$$S_{\text{pred}} = ([9.6858 \times 10^{-6} \times \text{BPL}] - 3.0248 \times 10^{-4}) \times \text{UVT}^{2.096}$$

$$\text{RED}_{\text{calc}} = \text{CR} \times \text{UVA}_{254}^{[-1.4033 - 5.1978 \times \text{UVA}]} \times [\text{S}/\text{S}_0]^{0.7796} \times \text{Q}^{-0.7307} \times \text{R}$$

Where:

BPL = Ballast power level setting (percent)

UVT = UV transmittance at 254 nm, at or above 55 percent²,

S_{pred} = Predicted UV sensor value (mW/cm²)

S = Measured UV sensor value (mW/cm²)

¹ Monitoring location U-001 is described in Monitoring and Reporting Program R5-2014-0162.

² At UVT values above 69 percent, the value (69 percent UVT, or A₂₅₄=0.161) should be used as the default value in the RED calculation.

S_o = Calculated intensity from new lamp at full power (at same UVT) with clean sleeves, typically expressed as a function of UVT (mW/cm^2).
 RED_{calc} = UV dose calculated with the UV dose-monitoring equation (mJ/cm^2)
CR = Confidence factor = 0.903
 A_{254} = UV absorbance at 254 nm (cm^{-1}).
Q = Flow rate, (million gallons per day [MGD])
R = Number of operating reactor

5. These UV dose equations assume that the intensity sensors would measure the decline as the lamps age. Since there is one UV Intensity sensor for 18 lamps, the lamps should be rotated once a quarter to detect any decline in intensity due to aging. The lamp with the lowest intensity value should be closest to the UV sensor. If all of the lamp ages vary by less than 20 percent, the oldest lamp should be placed in the position nearest the UV sensor.
6. On-line monitoring of UV intensity, flow, UVT, and power must be provided at all times.
7. Flow meters, UV intensity sensors, and UVT monitors must be properly calibrated to ensure proper disinfection.
8. At least monthly, all duty UV intensity sensors must be checked for calibration against a reference UV intensity sensor.
9. For all UV intensity sensors in use, the ratio of the duty UV sensor intensity to the reference UV sensor intensity must be less than or equal to 1.2. If the calibration ratio is >1.2 , the failed duty UV sensor must be replaced by a properly calibrated sensor and recalibrated by a qualified facility. The reference UV intensity sensors shall be recalibrated at least annually by a qualified facility using a National Institute of Standards and Technology (NIST) traceable standard.
10. UVT meters shall be inspected and checked against a reference bench-top unit weekly to document accuracy.
11. If the on-line analyzer UVT reading varies from the bench-top spectrophotometer UVT reading by 2% or more, the on-line UVT analyzer must be recalibrated by a procedure recommended by the manufacturer.
12. Flow meters measuring the flow through a UV reactor must be verified to determine accuracy at least monthly via checking the flow reading against other flow determination methods.
13. The WWRF UV system must be designed with built-in automatic reliability features that must be triggered by critical alarm set points. Conditions triggering an alarm and startup the redundant reactor include the following:
 - a. The UV dose falls below $105 \text{ mJ}/\text{cm}^2$;

- b. Ballast failure; and
 - c. Multiple lamp failure.
14. Conditions that shall divert effluent to waste include the following:
- a. UV dose is below the minimum UV dose of 100 mJ/cm²;
 - b. UVT is below the minimum UVT commissioned of 55%;
 - c. UV intensity below the minimum validated of 0.63 mW/cm²;
 - d. Complete UV reactor failure; and
 - e. Flow above the maximum flow per reactor approved by the State Water Resources Control Board, Division of Drinking Water and the Executive Officer.
15. The WWRF shall be operated in accordance with an approved operations plan (see [Provision I.4](#)), which specifies clearly the operational limits and responses required for critical alarms. A copy of the approved operations plan should be maintained at the WWRF and be readily available to operations personnel and regulatory agencies. A quick reference operations data sheet should be posted at the WWRF and include the following information:
- a. The alarm set points for flow, UV dose, UV intensity, UVT, and power;
 - b. The values of flow, UV dose, UV intensity, and UVT when effluent must be diverted to waste;
 - c. The required frequency of verification and calibration for all meters/analyzers measuring flow, UV intensity, and UV transmittance;
 - d. The required frequency of mechanical cleaning and equipment inspection; and
 - e. The UV lamp tracking procedures and replacement intervals.

E. Recycled Water Use Area Specifications

1. For the purpose of this Order, "use area" means the Copper River Country Club golf course where recycled water is used or discharged.
2. Notwithstanding the following requirements, the production, distribution, and use of recycled water shall conform to an Engineering Report prepared pursuant to Title 22, section 60323 and approved by the State Water Resources Control Board, Division of Drinking Water.
3. The recycled water shall be at least disinfected tertiary recycled water as defined in Title 22, section 60301.

4. Recycled water shall be used in compliance with Title 22, section 60304. Specifically, uses of recycled water shall be limited to those set forth in Title 22, section(s) 60304(a), 60304(b), 60304(c), and 60304(d).
5. Grass shall be grown on the use areas, and cropping activities shall be sufficient to take up all of the nitrogen applied, including any fertilizers.
6. The volume of recycled water applied to the use areas shall not exceed reasonable application rates based on the vegetation grown, pre-discharge soil moisture conditions, and weather conditions.
7. Hydraulic loading of recycled water and supplemental irrigation water (if any) shall be at reasonable application rates designed to:
 - a. Maximize turf nutrient uptake;
 - b. Maximize breakdown of organic waste constituents in the root zone; and
 - c. Minimize the percolation of waste constituents below the root zone.
8. Use areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.
9. Irrigation of the recycled water use area shall only occur between 9:00 p.m. and 6:00 a.m. and when weather conditions and application needs dictate. Hand watering of the golf course, with a hose, using recycled water in conjunction with typical irrigation and irrigation system testing activities may be permitted during the day, provided that applications are supervised by appropriate golf course personnel and all golfers, pedestrians, and other members of the general public are precluded from entering irrigated areas until all applied recycled water has infiltrated the soil.
10. Discharge to the use areas shall not be performed during rainfall or when the ground is saturated.
11. The irrigation with recycled water shall be managed to minimize erosion within the use areas.
12. The use areas shall be managed to prevent breeding of mosquitoes. In particular:
 - a. There shall be no standing water 48 hours after irrigation ceases;
 - b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
 - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.

13. Irrigation with disinfected tertiary recycled water shall not take place within 50 feet of any domestic water supply well unless all of the following conditions have been met:
 - a. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from the ground and the surface.
 - b. The well contains an annular seal that extends from the surface into the aquitard.
 - c. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
 - d. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
 - e. The owner of the well approves of the elimination of the buffer zone requirement.
14. No domestic water supply well shall exist within 100 feet of the effluent storage pond.
15. Any irrigation runoff shall be confined to the recycled water use area.
16. Spray irrigation with recycled water is prohibited when wind speed (including gusts) exceeds 30 mph or cause recycled water to drift outside the use area.
17. Direct or windblown spray of recycled water shall be prevented from entering outdoor eating areas, dwellings, drinking water facilities, food handling facilities, and other locations where the public may be present.
18. Sprinkler heads shall be of the type approved for recycled water and shall create a minimum amount of mist.
19. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
20. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.
21. All drinking fountains located within the use areas shall be protected by location and/or structure from contact with recycled water spray, mist, or runoff.
22. Use areas that are accessible to the public shall be posted with signs that are visible to the public and no less than four inches high by eight inches wide. Signs shall be placed at all areas of public access and around the perimeter of all use areas and at above-ground portions of recycled water conveyances to alert the public of the use of recycled water. All signs shall display an international symbol

similar to that shown in Attachment C which is attached and forms part of this Order, and shall include the following wording:

“RECYCLED WATER – DO NOT DRINK”
“AGUA DE DESPERDICIO RECLAMADA – NO TOME”

23. All recycling equipment, pumps, piping, valves, and outlets shall be marked to differentiate them from potable water facilities. All recycled water distribution system piping shall be purple pipe or adequately wrapped with purple tape.
24. Recycled water controllers, valves, and similar appurtenances shall be affixed with recycled water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering.
25. Quick couplers, if used, shall be different than those used in potable water systems.
26. Hose bibs and unlocked valves, if used, shall not be used in areas accessible to the public.
27. No physical connection shall exist between recycled water piping and any potable water supply system (including domestic wells), or between recycled water piping and any irrigation well that does not have an approved air gap or reduced pressure principle device.
28. There shall be at least a ten-foot horizontal and a one-foot vertical separation between all pipelines transporting recycled water and those transporting domestic supply, and the domestic supply pipeline shall be located above the recycled water pipeline.
29. No physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water or auxiliary water source system.
30. A public water supply shall not be used as backup or supplemental source of water for a recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of California Code of Regulations, title 17, sections 7602(a) and 7603(a).
31. All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations shall be colored purple or distinctively wrapped with purple tape in accordance with California Health and Safety Code section 4049.54.

32. Any backflow prevention device installed to protect a public water system shall be inspected and maintained in accordance Title 17, section 7605.
33. Workers shall be informed of the potential health hazards involved with contact or ingestion of recycled water, and shall be educated regarding proper hygienic procedures to ensure personal and public safety.
34. Recycled water controllers, valves, etc., shall be affixed with recycled water warning signs, and the quick couplers and sprinkler heads shall be of a type, or secured in a manner that permits operation by authorized personnel only.
35. Score cards shall indicate that recycled water is used for irrigation.

F. Solids Disposal 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 WWRF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, horticulture, and land reclamation activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, reactors, etc., as needed to ensure optimal plant operation.
2. Treatment and storage of sludge generated by the WWRF shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations.
3. Any storage of residual sludge and solid wastes on property of the WWRF shall be temporary 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.
4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27 of the California Code of Regulations. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, WWTF, composting sites, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a regional water board will satisfy this specification.
5. Use and disposal of biosolids should comply with the self-implementing federal regulations of 40 CFR 503, which are subject to enforcement by the USEPA, not the Regional Water Board. If during the life of this Order the State accepts primacy

for implementation of 40 CFR 503, the Regional Water Board may also initiate enforcement where appropriate.

G. Groundwater Limitations

Release of waste constituents associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or in excess of natural background quality for the specified constituents, whichever is greater:

1. Nitrate as nitrogen of 10 mg/L.
2. Total coliform organisms equal to or greater than 2.2 MPN/100 mL over any 7-day period.
3. For constituents identified in Title 22 of the California Code of Regulations, the maximum contaminate levels quantified therein.

H. Pretreatment Program

1. The City of Fresno shall implement and enforce its existing, approved POTW Pretreatment Program for the cities of Fresno and Clovis to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
 - a. Wastes which create a fire or explosion hazard in the treatment works;
 - b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5, unless the works is specially designed to accommodate such wastes;
 - c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
 - d. Any waste, including oxygen demanding pollutants (BOD, 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, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - g. Pollutants which 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 pre-designated by the Dischargers.
2. The City of Fresno shall implement and enforce its existing, approved POTW Pretreatment Program for the cities of Fresno and Clovis 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.

I. Provisions

1. The Dischargers shall comply with Monitoring and Reporting Program (MRP) R5-2014-0162, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of self-monitoring reports shall be no later than the submittal date specified in the MRP.
2. The Dischargers shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provisions."
3. **By 7 December 2015**, either submit a technical report documenting the proper abandonment of the three groundwater monitoring wells in accordance with California Well Standards, Bulletin 74-90 and local requirements, or submit a plan to properly maintain the inactive wells in accordance with Section 115700 of the California Health and Safety Code. Well abandonment activities and the submittal of the technical report shall be conducted in accordance with [Provision I.7](#). The technical report or plan shall be subject to review and approval by the Executive Officer.
4. **Prior to initiating discharge** to the Copper River Country Club golf course, the Dischargers shall submit a copy of the letter from DDW approving the UV disinfection system Operations Plan. An approved copy of the Operations Plan shall also be submitted to the Executive Officer and shall contain the information outlined in [Ultraviolet Disinfection System Operating Specification D.15](#).
5. For authorization to discharge tertiary effluent in excess of the rate identified in [Discharge Specification B.1](#), but not to exceed the design flow rate of 0.71 mgd (monthly average) and 1.07 (maximum daily), the Dischargers must: (1) obtain written approval from DDW, and (2) obtain written concurrence from the Executive Officer.

6. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **1 February**.
7. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Dischargers shall bear the professional's signature and stamp.
8. The Dischargers shall maintain and operate ponds sufficiently to protect the integrity of exterior containment embankments and prevent overtopping or overflows. Unless a California registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the Dischargers shall operate ponds to maintain a minimum freeboard of two feet (measured vertically). As a means of management and to discern compliance with this Provision, the Dischargers shall install and maintain a permanent marker with calibration that indicates the water level at the design capacity and enables determination of available operational freeboard. If the measured freeboard is less than two feet (or the alternative minimum certified design freeboard), within 72 hours of the observation, the Dischargers shall notify the Central Valley Water Board of its finding, and report both short and long term plans to maintain the integrity of the embankments. Short term measures shall be effected within three weeks of observing that the freeboard was less than two feet, or the alternative design freeboard.
9. The Dischargers shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Dischargers shall proceed with all work required by the foregoing provisions by the due dates specified.
10. The Dischargers shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date,

the Dischargers shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Dischargers shall state the reasons for such noncompliance and provide an estimate of the date when the Dischargers will be in compliance. The Dischargers shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

11. The Dischargers shall 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 Dischargers to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes 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 Dischargers when the operation is necessary to achieve compliance with the conditions of this Order.
12. The Dischargers shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
13. The Dischargers shall provide certified wastewater treatment plant operators in accordance with Title 23, division 3, chapter 26.
14. As described in the Standard Provisions, the Dischargers shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.
15. The Dischargers shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."
16. The Dischargers shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
17. **At least 90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Dischargers shall notify the Central Valley Water Board in writing of the situation

and of what measures have been taken or are being taken to assure full compliance with this Order.

18. In the event of any change in control or ownership of the WWRF, the Dischargers must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
19. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.
20. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
21. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

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

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

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

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 5 December 2014.

Original signed by:

PAMELA C. CREEDON, Executive Officer

Order Attachments

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

Monitoring and Reporting Program R5-2014-0162

Information Sheet

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

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2014-0162

CITY OF FRESNO,
CONSOLIDATED LAND COMPANY AND CONSOLIDATED INDUSTRIES, INC.
NORTH FRESNO WASTEWATER RECLAMATION FACILITY
FRESNO COUNTY

This monitoring and Reporting Program (MRP) is required pursuant to Water Code Section 13267.

The Dischargers shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts or the Executive Officer issues a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with ***Standard Provisions and Reporting Requirements for Waste Discharge Requirements***, dated 1 March 1991 (Standard Provisions).

Field test instruments [such as pH, temperature, electrical conductivity (EC), and dissolved oxygen (DO)] may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer and in accordance with manufacturer instructions.

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

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

A glossary of terms used within this MRP is included on [page 9](#).

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

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	M-INF	Wastewater reclamation facility (WWRF) influent prior to any treatment.
002	M-002	After all treatment units and prior to discharge to the lined effluent storage pond.
002	M-003	After the effluent storage pond pumps and prior to discharge to the effluent distribution box at Copper River Country Club golf course Lake F.
002	F-001	After the sequencing batch reactor equalization tank and prior to entering the filtration unit.
002	F-002	After the filtration unit and prior to entering the post filtration equalization tank.
002	U-001	Ultraviolet light disinfection system.
--	S-001	The municipal water supply for the area served by the WWRF.
002	PND-001	Lined effluent storage pond.
002	UA-001	Copper River Country Club golf course where recycled water is used or discharged

INFLUENT MONITORING

The Dischargers shall monitor influent to the WWRF at M-INF. Samples shall be collected at approximately the same time as effluent samples and shall be representative of the influent. Influent monitoring shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
1/Week	BOD 5-day @20°C	mg/L	24-hour Composite ¹
1/Week	Total Suspended Solids	mg/L	24-hour Composite ¹
1/Week	Settleable Solids	ml/L	Grab
1/Day	pH	std. units	Grab
3/Week ²	Electrical Conductivity @25°C	umhos/cm	24-hour Composite ¹

¹ Composite samples shall be flow-proportioned and consist of at least eight individual aliquots.

² Only two of the three samples can be collected on consecutive days.

EFFLUENT MONITORING

The Dischargers shall monitor effluent flow from the WWRF at M-002 and M-003 and all other Constituents/Parameters at M-002. Samples shall be collected at approximately the same time as influent samples and shall be representative of the effluent. Effluent monitoring shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow ¹	mgd	Meter
1/Day	Total Coliform	MPN/100mL	Grab
1/Day	Settleable Solids	ml/L	Grab
1/Day	pH	std. units	Grab
3/Week ²	BOD 5-day @20°C	mg/L	24-hour Composite ³
		% removal	Calculation
3/Week ²	Total Suspended Solids	mg/L	24-hour Composite ³
		% removal	Calculation
3/Week ²	Electrical Conductivity @25°C	umhos/cm	24-hour Composite
1/Week	Total Dissolved Solids	mg/L	24-hour Composite ³
1/Week	Ammonia as Nitrogen	mg/L	24-hour Composite ³
1/Week	Nitrate + Nitrite as Nitrogen	mg/L	24-hour Composite ³
1/Week	Total Kjeldahl Nitrogen	mg/L	24-hour Composite ³
1/week	Total Nitrogen	mg/L	Calculated
2/Year ⁴	Standard Minerals ⁵	mg/L or ug/L	Grab

1. Flow shall be monitored at monitoring locations M-002 and M-003.
2. Only two of the three samples can be collected on consecutive days.
3. Composite samples must be flow-proportioned and consist of at least eight individual aliquots.
4. November and April. If the WWRF is not operating during these months, samples shall be collected as soon as possible after the WWRF resumes operation.
5. Standard minerals shall include: alkalinity, bicarbonate, boron, calcium, carbonate, chloride, hardness, iron, magnesium, manganese, phosphate, potassium, sodium, sulfate, and verification that the analysis is complete (i.e., cation/anion balance).

FILTRATION UNIT MONITORING

The Dischargers shall monitor F-002 when coagulation is used and F-001 and F-002 when coagulation is not used as follows:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous ¹	Turbidity	NTU	Meter
Continuous	Filtration Rate	gpm/ft ²	Calculation

1. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of up to 24 hours.

ULTRAVIOLET LIGHT DISINFECTION SYSTEM MONITORING

The Dischargers shall monitor the ultraviolet light (UV) disinfection system at U-001 as follows:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
Continuous	UV Transmittance	Percent (%)	Meter
Continuous	UV Power Setting	Percent (%)	Meter

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	UV Intensity	mW/cm ²	Meter
Continuous	UV Dose	mJ/cm ²	Calculated

In addition, the Dischargers shall monitor the UV disinfection system for any additional parameters in accordance with a UV disinfection system Operations Plan approved by the State Water Resources Control Board, Division of Drinking Water.

WATER SUPPLY MONITORING

The Dischargers shall monitor the municipal water supply at S-001 for the area served by the WWRF. Sampling stations shall be established where representative samples of each municipal water supply source can be obtained (i.e., faucet from on-site laboratory). The water supply monitoring shall include at least the following for each sampling station:

Frequency	Constituent/Parameter	Units	Sample Type
2/Year	Electrical Conductivity @25°C ¹	umhos/cm	Grab
2/Year	Standard Minerals ^{1,2}	mg/L or ug/L	Grab

¹ If the water supply is from more than one source, the electrical conductivity and total dissolved solids shall be reported as a weighted average and include copies of supporting calculations.

² Standard minerals shall include: total dissolved solids, alkalinity, bicarbonate, boron, calcium, carbonate, chloride, hardness, iron, magnesium, manganese, phosphate, potassium, sodium, sulfate, and verification that the analysis is complete (i.e., cation/anion balance).

EFFLUENT STORAGE POND MONITORING

Pond monitoring at PND-001 shall be in effect so long as the pond contains wastewater and shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
1/Week	Freeboard	0.5 feet	Measured
1/Month	Visual Inspection ¹	--	--

¹ The Dischargers shall inspect the condition of the effluent pond once per month 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 pond surface and their location; and whether burrowing animals or insects are present. The Dischargers shall also note observations of the liner condition and any conditions that may compromise the integrity of the liner.

RECYCLED WATER USE-AREA MONITORING

The Dischargers shall perform the following routine monitoring and loading calculations for monitoring location UA-001. In addition, the Dischargers shall keep a log of routine monitoring observations for example: areas of ponding, broken irrigation pipes, odors and/or flies. Data shall be collected and presented in tabular format and shall include the following:

Frequency	Constituent/Parameter	Units	Sample Type
1/Month	Average recycled water flow	gpd	Metered
1/Month	Recycled water loading	Mgal/acre or acre-ft/acre	Calculated
1/Year	Recycled water loading	Mgal/acre or acre-ft/acre	Calculated
1/Month	Average supplemental irrigation flow	gpd	Metered
1/Month	Supplemental irrigation loading	Mgal/acre or acre-ft/acre	Calculated
1/Year	Supplemental irrigation loading	Mgal/acre or acre-ft/acre	Calculated
1/Month	Precipitation	inches	Rain gauge ¹
1/Month	Nitrogen loading from recycled water ²	lbs/acre	Calculated
1/Month	Nitrogen loading from fertilizer	lbs/acre	Calculated
1/Year	Cumulative nitrogen loading	lbs/acre-year	Calculated
1/Month	Salt loading ²	lbs/acre	Calculated
1/Year	Cumulative Salt loading	lbs/acre-year	Calculated

¹. National Weather Service data from the nearest weather station (or similar) is acceptable.

². Nitrogen and salt loading shall be calculated using the applied volume of treated wastewater, applied acreage, and the average of the four most recent concentrations of total nitrogen and TDS.

REPORTING

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

- First Quarter Monitoring Report: **1 May**
- Second Quarter Monitoring Report: **1 August**
- Third Quarter Monitoring Report: **1 November**
- Fourth Quarter Monitoring Report: **1 February**

The Dischargers shall continue to submit electronic self-monitoring reports (eSMRs) using the State Water Resources Control Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://ciwqs.waterboards.ca.gov/>). The Dischargers shall maintain sufficient staffing and resources to ensure it submits eSMRs during the effective duration of the Order. This includes provisions for training and supervision of individuals (e.g., Dischargers personnel or consultant) on how to prepare and submit eSMRs. The CIWQS web site will provide additional directions for eSMR submittal in the event there will be service interruption.

When CIWQS does not provide for entry into a tabular format within the system, the Dischargers shall electronically submit the data as an attachment under the Attachments tab. The Dischargers is not required to duplicate the submittal of data that are entered in a tabular format within CIWQS.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

Violations must be entered into CIWQS under the Violations tab for the reporting period in which the violation occurred.

The Dischargers shall attach or enter a cover letter with each eSMR. The cover letter shall include any information the Dischargers would like to convey to Central Valley Water Board staff. If violations have been entered with complete entries on corrective actions and time frames, that information does not need to be repeated in the cover letter. The following information is to be included on all monitoring and annual reports, as well as any report transmittal letters, submitted to the Central Valley Water Board:

Dischargers: City of Fresno, Consolidated Land Company and Consolidated Industries, Inc.
Facility: North Fresno Wastewater Reclamation Facility
MRP: R5-2014-0162
Contact Information (telephone number and email)

eSMRs must be submitted to the Central Valley Water Board, signed and certified as required by Standard Provision B.3., through the CIWQS web site.

In addition to the details specified in Standard Provision C.3, monitoring information, where applicable, shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the laboratory result for a given constituent is less than the RL (or PQL) but above the MDL, it shall be reported and flagged as detected but not quantified (DNQ). If the laboratory result for a given constituent is less than the MDL, it shall be reported as non-detect (ND).

All monitoring reports that involve planning, investigation, evaluation or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code Sections 6735, 7835, and 7835.1.

A. All Quarterly Monitoring Reports, shall include the following:

Wastewater Reporting

1. The results of influent and effluent monitoring specified on [pages 2 and 3](#), including the running 7-day median total coliform calculation.

Filtration Unit Reporting (if coagulation is used)

1. The maximum daily turbidity measured at F-002.
2. The daily average turbidity at F-002, which shall be determined by averaging the levels of recorded turbidity taken at four-hour intervals over a 24-hour period. The four-hour turbidity readings used to calculate daily average shall also be reported.
3. 95th percentile turbidity measured at F-002.
4. If the turbidity measured at F-002 is ever greater than 5 NTU, compliance with [Discharge Specification B.10.b](#) shall be determined by using the levels of recorded turbidity taken at intervals of no more than 1.2-hours over a 24-hour period.
5. The maximum daily filtration rate.

Filtration Unit Reporting (if coagulation is not used)

1. The maximum daily turbidity measured at F-001 and F-002.
2. If the turbidity measured at F-001 is ever greater than 5 NTU, the amount of time the turbidity is greater than 5 NTU shall be reported.
3. The maximum daily filtration rate.

Ultraviolet Disinfection System Reporting

1. For each day of the month, the minimum UV operational dose and minimum UV transmittance.

Water Supply Reporting

1. The results of routine monitoring specified on [page 4](#).

Effluent Storage Pond Reporting

1. The results of the routine monitoring specified on [page 4](#).

Recycled Water Use-Area Reporting

1. The results of the routine monitoring specified on [pages 4 and 5](#).

2. A summary of the notations made in the Use Area monitoring log during each quarter. The entire contents of the log do not need to be submitted.

B. Fourth Quarter Monitoring Reports, in addition to the above, shall include the following:

Wastewater Reporting

1. The names 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 WWRF 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 summary of any changes in processing that might affect waste characterization and/or discharge flow rates.
5. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and reviewed for adequacy.

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

Original signed by:

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

5 December 2014

(Date)

GLOSSARY

BOD 5-day	Five-day biochemical oxygen demand
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-Hour Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots.
1/Day	Samples shall be collected at least every day.
1/Week	Samples shall be collected at least once per week.
1/Month	Samples shall be collected at least once per month.
2/Year	Samples shall be collected at least twice per year. Unless otherwise specified or approved, samples shall be collected in November and April.
mg/L	Milligrams per liter
ml/L	milliliters [of solids] per liter
ug/L	Micrograms per liter
umhos/cm	Micromhos per centimeter
mgd	Million gallons per day
Mgal/acre	Million gallons per acre
Acre-ft/acre	Acre-feet per acre
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
mJ/cm ²	Millijoules per square centimeter
mW/cm ²	Milliwatts per square centimeter

INFORMATION SHEET

ORDER R5-2014-0162

CITY OF FRESNO, CONSOLIDATED LAND COMPANY AND CONSOLIDATED INDUSTRIES, INC.
NORTH FRESNO WASTEWATER RECALAMATION FACILITY
FRESNO COUNTY

BACKGROUND

Copper River Ranch, LLC built the North Fresno Wastewater Reclamation Facility (hereinafter WWRF), a publicly owned treatment works. On 25 November 2008, Copper River Ranch, LLC transferred ownership and operation of the WWRF and the sanitary sewer collection system to the City of Fresno. Start-up activities and operation of the WWRF began in January 2009. Effluent from the WWRF is recycled on the Copper River Country Club golf course, which is owned by Consolidated Land Company and Consolidated Industries, Inc. During the wet-weather months when irrigation demand from the golf course is low, excess effluent was originally planned to be discharged into the Fresno Metropolitan Flood Control District (FMFCD) Basin DE (Basin DE), which is hydraulically connected to the San Joaquin River, a water of the United States. Excess effluent discharged to Basin DE was also originally planned to be used for irrigation of the park space within Basin DE. However, effluent has never been discharged to Basin DE (or the San Joaquin River). The City of Fresno submitted a Report of Waste Discharge in May 2011 for elimination of the discharge option to Basin DE, removal of Copper River Ranch, LLC, and FMFCD as Dischargers, and to provide information regarding the switch from chlorination to ultraviolet (UV) light disinfection at the WWRF.

Wastewater

The WWRF provides sewerage service for Copper River Ranch, a 760-acre community development in northwest Fresno with an estimated population of 8,500 to 10,000 residents at full build-out. The community will consist of 2,837 homes and approximately 60 acres of mixed-use commercial development. The development does not include any significant industrial users. The only anticipated pretreatment oversight will be for restaurant grease traps. The Copper River Ranch development surrounds the existing Copper River Country Club, which includes an 18-hole golf course, a clubhouse, and a tennis complex.

Source Water

The City of Fresno Surface Water Treatment Facility, which obtains its water from the Friant-Kern Canal and the Kings River via the Enterprise Canal, along with City of Fresno water supply wells, provide source water for the development.

DISPOSAL METHODS

Solids

Sludge is conveyed from the sequencing batch reactors to an approximately 41,000-gallon aerated sludge holding tank. Sludge is then pumped into the City of Fresno's existing sanitary sewer system and transported to the Fresno-Clovis Metropolitan Regional Wastewater Reclamation Facility, which currently operates under Waste Discharge Requirements Order No. 5-01-254.

Wastewater

The WWRF is designed to provide tertiary treatment up to an average monthly flow of 0.71 million gallons per day (mgd) and a maximum daily flow up to 1.07 mgd of municipal wastewater. The WWRF’s treatment process, in order of operation, consists of headworks, sequencing batch reactors, an equalization tank, a coagulation system (operated most of the time), filtration (cloth-media rotating disk filter), and UV disinfection. The WWRF is operated in a nitrification and partial denitrification mode. Effluent is stored in a 12-acre-foot, onsite storage pond, which is lined with a single layer of 60-mil high density polyethylene.

GROUNDWATER CONDITIONS

Three groundwater monitoring wells (MW-1 through MW-3) were installed in 2006 to a depth of 180 feet below ground surface (ft. bgs.) to monitor the effects of percolation from Basin DE. According to the well installation report¹, a significant clay layer was encountered in each borehole extending from 104 to 142 ft. bgs. Groundwater was not encountered above the clay layer. Medium to very coarse sand, gravel, and cobbles were encountered beneath the clay layer. Because of the substantial clay layer, groundwater in the underlying coarse-grained deposits is confined.

Based on the fourth quarter 2013 groundwater monitoring event, depth to groundwater measured in the three groundwater monitoring wells ranged from approximately 80 to 125 ft. bgs. The associated potentiometric surface map indicated groundwater flow was towards the northwest, which is consistent with historical groundwater elevation data. As such, MW-1 is upgradient of, and MW-2 and MW-3 are both cross-gradient to, Basin DE. Groundwater quality data are summarized in the table below. It should be noted that treated effluent from the WWRF has never been discharged to Basin DE.

October 2013 Groundwater Monitoring Data

Parameter	Units	MW-1	MW-2	MW-3
Coliform, Total	MPN/100mL	<1.0	<1.0	<1.0
pH	pH units	7.0	7.1	7.1
Electrical Conductivity	umhos/cm	402	501	590
Total Dissolved Solids	mg/L	255	336	359
Ammonia as Nitrogen	mg/L	<0.50	<0.50	<0.50
Nitrate as Nitrogen	mg/L	1.5	2.2	3.5
Total Nitrogen	mg/L	1.8	2.3	3.6
Chloride	mg/L	49	37	29
Sulfate	mg/L	17	48	61
Bicarbonate	mg/L	97	150	180
Total Organic Carbon	mg/L	0.844	0.763	0.612
Calcium	mg/L	21.3	39.5	54
Iron	mg/L	<0.05	<0.05	<0.05
Manganese	mg/L	<0.005	<0.005	<0.005
Potassium	mg/L	4	4	6
Sodium	mg/L	42.6	41.8	39.5

¹ Kenneth D. Schmidt and Associates, Report on Results of Monitor Wells Installation at the Copper River Ranch WWTF, May 2006.

Since the option to discharge to Basin DE has been eliminated, this Order includes a Provision requiring the City of Fresno to properly destroy the groundwater monitoring wells in accordance with state and local requirements or demonstrate it will properly maintain the wells in accordance with Section 115700 of the California Health and Safety Code.

REGULATORY CONSIDERATIONS

Basin Plan

The *Water Quality Control Plan for the Tulare Lake Basin*, Second Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan. The WWRf is in Detailed Analysis Unit 234 within the Kings Basin hydrologic unit. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, and industrial service supply.

Treatment and Control Practices

The Dischargers has implemented the following treatment and control of the discharge:

- a. Disinfected tertiary wastewater treatment utilizing sequencing batch reactors for BOD and nitrogen removal, filtration, and UV disinfection;
- b. Application of treated wastewater at rates that will not exceed reasonable rates in the areas where effluent will be recycled;
- c. Discharge of sludge to the sewer collection system for treatment at the Regional Facility,
- d. Certified operators to ensure proper operation and maintenance;
- e. Prohibited use of water softeners within the Copper River Ranch development

In combination with the requirements of this Order, these treatment and control measures represent best practicable treatment and control (BPTC).

Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16, "*Statement of Policy With Respect to Maintaining High Quality Waters in California*," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Policy and procedures for complying with this directive are set forth in the Basin Plan.

The discharge and the potential for groundwater degradation allowed in this Order is consistent with the Antidegradation Policy since: (a) the limited degradation allowed by this Order will not result in water quality less than water quality objectives, or

unreasonably affect present and anticipated beneficial uses of groundwater, (b) the Dischargers have implemented BPTC to minimize degradation, and (c) the limited degradation is of maximum benefit to people of the State.

Title 27

Unless exempt, the release of designated waste is subject to full containment pursuant to Title 27 requirements. Here, the discharge is exempt from the requirements of Title 27 pursuant to the wastewater exemption found at Title 27, section 20090(b).

California Environmental Quality Act

A Mitigated Negative Declaration (EA No. C-03-193) was prepared by the City of Fresno in 2004 for the construction and operation of the WWRF. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.

PROPOSED ORDER TERMS AND CONDITIONS

Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions

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

The proposed Order includes a discharge specification for effluent flow from the WWRF not to exceed a daily maximum of 0.43 mgd. This flow rate is based on the maximum flow rate conducted during the spot-check bioassay validation test completed on the UV disinfection system. This Order includes a Provision to allow the permitted discharge flow rate to increase, but not to exceed the design flow rate average monthly discharge of 0.71 mgd and the maximum daily discharge of 1.07 mgd, following UV disinfection system approval at the higher flow rates.

The proposed Order includes the following effluent limitations:

As determined by collecting samples from monitoring location M-002, effluent discharged to the storage pond shall not exceed the following limits:

1. The BOD 5-day @ 20°C, total suspended solids, settleable solids, pH, and total nitrogen limitations shown in the following table:

Effluent Limitations

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
BOD 5-day @ 20°C	mg/L	10	15	20	--	--
Total Suspended Solids	mg/L	10	15	20	--	--

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Settleable Solids	ml/L	--	--	0.1	--	--
pH	standard units	--	--	--	6.5	8.5
Total Nitrogen	mg/L	10	--	--	--	--

2. The arithmetic mean of BOD₅ and total suspended solids in effluent samples collected over a monthly period shall not exceed 10 percent of the arithmetic mean of the values for influent samples (sample location M-INF) collected at approximately the same time during the same period (90 percent removal).
3. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed. The number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.
4. The 12-month rolling average EC of the discharge shall not exceed the 12-month rolling average EC of the source water plus 500 umhos/cm or a maximum of 1,000 umhos/cm, whichever is more stringent. When source water is from more than once source, the EC shall be a flow-weighted average of all sources.

Application of wastewater to the Copper River Country Club golf course shall be at reasonable application rates to preclude creation of a nuisance or unreasonable degradation of groundwater, considering the soil, climate, and irrigation management system. The annual nutritive loading of the wastewater application area, including the nutritive value of organic and chemical fertilizers, and of the wastewater, shall not exceed the annual golf course turf demand.

The Dischargers shall comply with all the terms and conditions of the most current Title 22 regulations pertaining to the production and use of recycled water.

Monitoring Requirements

Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. Water Code section 13268 authorizes the assessment of administrative civil liability for failure to submit required monitoring and technical reports.

The Order includes monitoring requirements for effluent. In addition, the Order requires loading calculations to the use areas for wastewater, irrigation water, nutrients, and salts. This monitoring is necessary to characterize the discharge, and evaluate compliance with effluent limitations and discharge specifications prescribed in the Order.

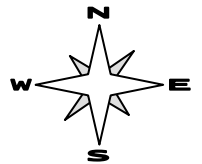
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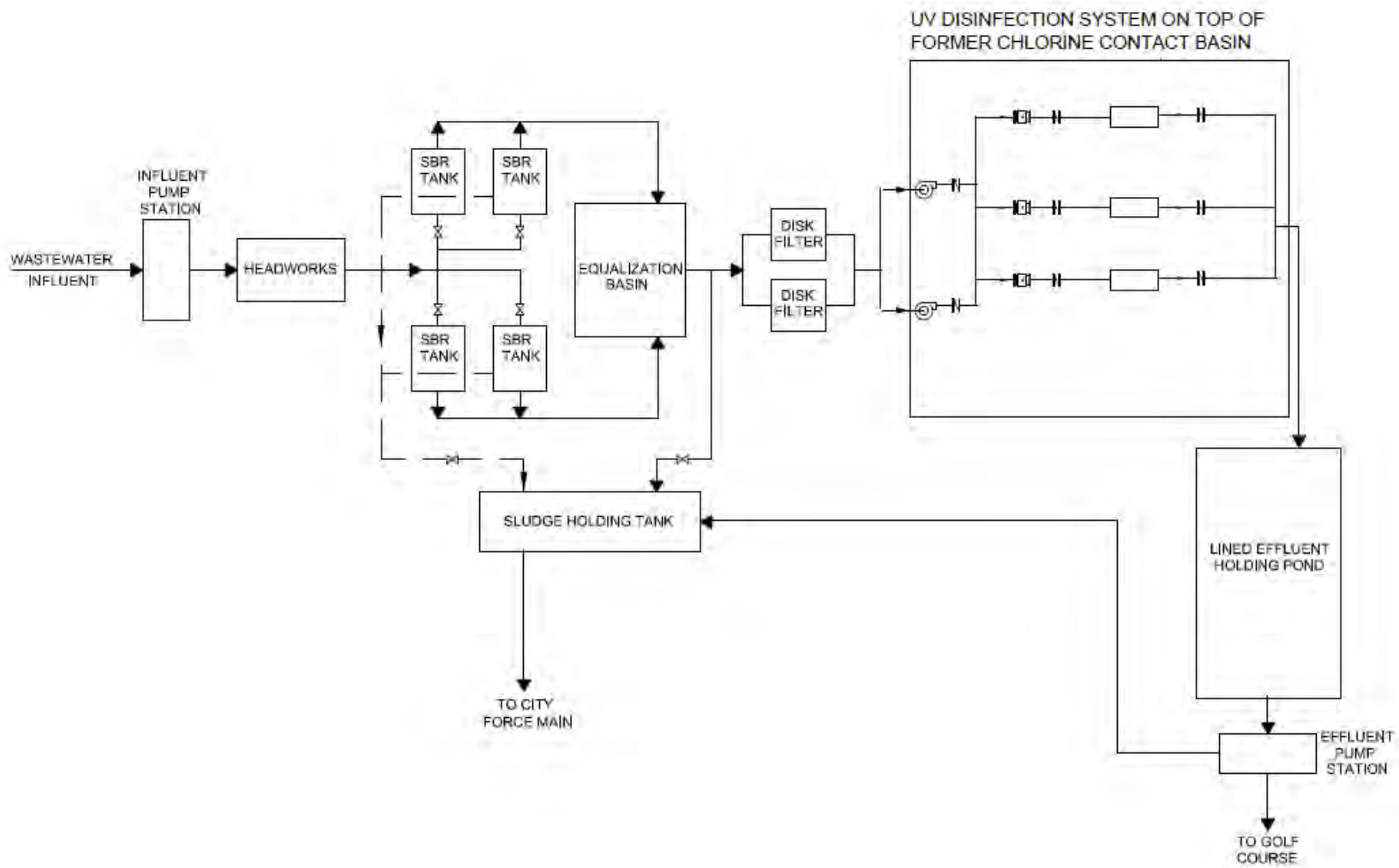
The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. It may be appropriate to reopen the Order if new technical information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



Drawing Reference:
GOOGLE MAPS
2014

ATTACHMENT A – SITE LOCATION MAP
WASTE DISCHARGE REQUIREMENTS
ORDER R5-2014-0162
CITY OF FRESNO, CONSOLIDATED LAND COMPANY AND CONSOLIDATED
INDUSTRIES, INC.
NORTH FRESNO WASTEWATER RECLAMATION FACILITY
FRESNO COUNTY





ATTACHMENT B – PROCESS FLOW DIAGRAM
 WASTE DISCHARGE REQUIREMENTS
 ORDER R5-2014-0162

CITY OF FRESNO, CONSOLIDATED LAND COMPANY AND CONSOLIDATED INDUSTRIES, INC.
 NORTH FRESNO WASTEWATER RECLAMATION FACILITY
 FRESNO COUNTY



ATTACHMENT C

RECYCLED WATER SIGNAGE
WASTE DISCHARGE REQUIREMENTS
ORDER R5-2014-0162
CITY OF FRESNO

CONSOLIDATED LAND COMPANY AND CONSOLIDATED INDUSTRIES, INC.
NORTH FRESNO WASTEWATER RECLAMATION FACILITY
FRESNO COUNTY