

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2002-0202

FOR  
TUOLUMNE UTILITIES DISTRICT  
WASTEWATER RECLAMATION SYSTEM  
TUOLUMNE COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring recycled water storage ponds, treated effluent, end-use land application areas, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities. The Tuolumne Utilities District may either perform the following monitoring program or require that a portion of the monitoring be conducted by the end-users, as appropriate. However, TUD is responsible for ensuring that the data is collected in a manner that complies with this MRP, and is responsible for submitting one comprehensive report for each reporting period.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

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

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

**STORAGE POND MONITORING**

Each of the reclaimed water storage ponds (i.e., Quartz Reservoir, the Egan Ranch pond, two Rosasco ponds, two Gardella ponds, and any storage pond constructed after the date of this Order) shall be sampled for the parameters specified below:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Dissolved Oxygen <sup>1</sup>	mg/l	Grab	Weekly	Monthly
Freeboard	0.1 feet	Measurement	Weekly <sup>2</sup>	Monthly
PH	Standard units	Grab	Weekly	Monthly
Odors	--	Observation	Weekly	Monthly
Levee condition <sup>3</sup>	--	Observation	Weekly	Monthly

- 1 Samples shall be collected at a depth of one foot from each pond in use, opposite the inlet. Samples shall be collected between 0700 and 1100 hours. Samples need not be collected if ponds do not contain reclaimed water. If this is the case, then the monitoring report must include an explanation as to how the reclaimed water was removed.
- 2 If freeboard in Quartz Reservoir is less than 2 feet, then freeboard there must be measured daily.
- 3 Pond containment levees shall be observed for signs of seepage or surfacing water along the exterior toe of the levees. If surfacing water is found, then the Discharger shall propose a method to determine the source of the surfacing water.

### LAND APPLICATION AREA MONITORING

Monitoring of the end-use land application areas shall be conducted daily when wastewater is being delivered to storage ponds or applied to land. Monitoring results shall be recorded and those records maintained by the Discharger. Evidence of erosion, field saturation, runoff, or the presence of nuisance conditions shall be noted in the monthly monitoring reports. Effluent monitoring results shall be used in calculations to ascertain loading rates at the application area. Monitoring of the land application areas shall include the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b><u>For Entire Land Application Area</u></b>				
Total Reclaimed Water Flow	Gallons	Continuous	Daily	Monthly
Rainfall <sup>1</sup>	Inches	Measurement	Daily	Monthly
Total Acres Applied	Acres	Calculated	Monthly	Monthly
Total Application Rate	Acre feet/acre/mo	Calculated	Monthly	Monthly
Total Nitrogen Loading Rate	Lbs/ac/month	Calculated	Monthly	Monthly
Total TDS Loading Rate	Lbs/ac/month	Calculated	Monthly	Monthly
<b><u>For Individual End-Use Area</u></b>				
Reclaimed Water Flow <sup>2</sup>	Gallons	Meter	Monthly	Monthly
Acreage Applied <sup>2</sup>	Acres	Calculated	Monthly	Monthly
Application Rate <sup>2</sup>	Acre feet/acre/mo	Calculated	Monthly	Monthly
Nitrogen Loading Rate <sup>2</sup>	Lbs/ac/month	Calculated	Monthly	Monthly
TDS Loading Rate <sup>2</sup>	Lbs/ac/month	Calculated	Monthly	Monthly

<sup>1</sup> Recorded at Quartz Reservoir as of July 2003. Prior to that, data from the closest weather station shall be submitted.

<sup>2</sup> For each end-use area, give the name of the end-user and the field name (if appropriate)

### GROUNDWATER MONITORING

The existing monitoring wells and piezometers previously installed by the Discharger around Quartz Reservoir, and additional wells installed pursuant to this Order, shall be monitored according to the schedule below. Prior to construction and/or sampling of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Regional Board for review and approval. Once installed, all new wells shall be added to the MRP and shall be sampled and analyzed according to the schedule below.

Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged at least three well volumes until temperature, pH and electrical conductivity have stabilized. Depth to

groundwater shall be measured to the nearest 0.01 feet. Samples shall be collected using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u>
Depth to Groundwater	0.01 feet	Measurement	Quarterly
Groundwater Elevation <sup>1</sup>	0.01 feet	Calculated	Quarterly
Gradient	feet/feet	Calculated	Quarterly
Gradient Direction	Degrees	Calculated	Quarterly
Total Dissolved Solids	mg/l	Grab	Quarterly
Nitrate as Nitrogen	mg/l	Grab	Quarterly
Total Kjeldahl Nitrogen	mg/l	Grab	Quarterly
pH	pH units	Grab	Quarterly
Trihalomethanes <sup>2</sup>	ug/l	Grab	Quarterly
Total Coliform Organisms	MPN/100 ml	Grab	Quarterly
Boron	mg/l	Grab	Quarterly
Chloride	mg/l	Grab	Quarterly
Iron	mg/l	Grab	Quarterly
Manganese	mg/l	Grab	Quarterly
Sodium	mg/l	Grab	Quarterly
Standard Minerals <sup>3</sup>	mg/l	Grab	Annually

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

<sup>2</sup> EPA Method 8010 or equivalent.

<sup>3</sup> Standard Minerals shall include, at a minimum, the following elements/compounds: Barium, Calcium, Magnesium, Potassium, Sulfate, Total Alkalinity (including alkalinity series), and Hardness.

## REPORTING

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

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

**A. Monthly Monitoring Reports**

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

1. Results of storage pond and land application area monitoring;
2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
3. If requested by staff, copies of laboratory analytical report(s);
4. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program; and
5. Whether any end-use sites have been removed from use.

**B. Quarterly Monitoring Reports**

The Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Quarterly monitoring reports shall be submitted to the Board by the **1<sup>st</sup> day of the second month after the quarter** (i.e. the January-March quarterly report is due by May 1<sup>st</sup>) and may be combined with the monthly report. The Quarterly Report shall include the following:

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

7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum; and
8. Copies of laboratory analytical report(s) for groundwater monitoring.

### C. Annual Report

An Annual Report shall be prepared as the fourth quarter monitoring report. The Annual Report will include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Regional Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the regular groundwater monitoring report for the last sampling event of the year;
2. If requested by staff, tabular and graphical summaries of all data collected during the year;
3. For each end-use site, the total volume of reclaimed water delivered, and the annual rate of reclaimed water (in acre-feet/acre), total nitrogen (in lbs/acre), and total dissolved solids (in lbs/acre) application.
4. An evaluation of the groundwater quality beneath the wastewater storage ponds and land application areas which contain groundwater monitoring wells, and using this data, an estimation of the groundwater quality beneath the non-monitored wastewater ponds and land application areas;
5. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements;
6. An evaluation and discussion of the wastewater storage and disposal capacity based on existing end-use sites, including a water balance demonstrating sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter. Design seasonal precipitation should be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

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WASTEWATER RECLAMATION SYSTEM  
TUOLUMNE COUNTY

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

Ordered by:

\_\_\_\_\_  
THOMAS R. PINKOS, Executive Officer

\_\_\_\_\_  
5 December 2002

(Date)

JRM:12/5/02

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0202

WASTE DISCHARGE REQUIREMENTS  
AND  
MASTER RECLAMATION PERMIT  
  
FOR  
TUOLUMNE UTILITIES DISTRICT  
WASTEWATER RECLAMATION SYSTEM  
TUOLUMNE COUNTY

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

1. On 16 October 2000, Tuolumne Utilities District (TUD) (hereafter also referred to as “Discharger”) submitted a Report of Waste Discharge (RWD) for its wastewater reclamation system, which recycles treated wastewater generated by TUD’s Sonora Regional Wastewater Treatment Plant (WWTP) and Jamestown Sanitary District’s (JSD’s) WWTP. The Discharger submitted additional information related to its wastewater reclamation system on 23 August 2000, 1 December 2000, 1 March 2001, 21 July 2001, 23 October 2001, and 20 February 2002.
2. The Discharger operates a reclaimed water distribution system, consisting of the main storage reservoir (Quartz Reservoir), pumping facilities, distribution pipelines, and smaller storage reservoirs which are used to provide secondary treated and disinfected reclaimed water to land application areas. A map showing the basic components of the reclaimed water distribution system is shown on Attachment A, which is attached hereto and made part of this Order by reference.
3. For the purposes of this Order, the Discharger’s wastewater reclamation system shall mean Quartz Reservoir, the reclaimed water distribution system (including the delivery lines described in Findings No. 8 & 9), reclaimed water storage ponds within land application areas, and the land application areas themselves.
4. The wastewater reclamation system is in Sections 1, 10, 11, 14, 15, 21, 22, 23, 27, 28, 29, 32, and 33, T1N, R14E, MDB&M. The areas which receive reclaimed water lie within an area generally bounded by Jamestown on the north, Highway 49/108 on the west, Highway 120 on the south, and Campo Seco and Algerine Roads on the east.
5. Water Reclamation Requirements Order No. 94-200, adopted by the Regional Board on 28 June 1994, prescribes requirements for the Discharger's distribution of reclaimed water and for the use and application of the reclaimed water by end-users. However, the Order does not reflect current Regional Board plans and policies, and is therefore in need of update.
6. This Order shall serve as waste discharge requirements (pursuant to California Water Code Section 13263) and as a master reclamation permit (pursuant to California Water Code Section 13523.1). The Discharger is responsible for the production and distribution of reclaimed water in accordance with the requirements prescribed in this Order. The Discharger is also responsible for processing

individual end-users’ applications, inspecting point-of-use facilities, and ensuring end-users’ compliance with the water reclamation requirements contained in this Order.

**Existing Treatment and Water Reclamation Facilities**

7. TUD’s Sonora Regional WWTP and Jamestown Sanitary District’s WWTP treat wastewater to a disinfected secondary standard. The TUD plant is regulated by Waste Discharge Requirements (WDRs) Order No. 94-192, and the JSD plant is regulated by WDRs Order No. 5-01-062.
8. The Sonora plant provides sewer service to about 23,000 people and has a design capacity of 2.6 million gallons per day (mgd). The transport of TUD’s effluent from the Sonora plant is accomplished by a gravity flow line that exits from the plant chlorination facility. This line transports reclaimed water to Quartz Reservoir, and, prior to delivery to Quartz Reservoir, supplies a limited number of end-users by means of turnouts along the line. For the purposes of this Order, this reclaimed water line is considered a portion of TUD’s wastewater reclamation system.
9. The Jamestown plant provides sewer service to about 3,000 people and has a design capacity of 0.28 mgd. JSD has no facilities for effluent disposal, and instead has contracted for its effluent disposal with TUD. The transport of JSD’s effluent is accomplished by a pumping system. The pumping system is owned and operated by TUD and includes a wet well and pump station located on the JSD WWTP property and a force main to Quartz Reservoir. For the purposes of this Order, this entire pumping system is considered a portion of TUD’s wastewater reclamation system, and is regulated under this Order. Both TUD and JSD are considered the producers of the reclaimed water generated at their facilities and are responsible for compliance with the statewide water reclamation criteria found in Title 22 California Code of Regulations (CCR) Section 60301 et. seq., (Title 22 CCR) and must treat their wastewater to secondary standards and disinfect to the secondary effluent per current Title 22 CCR requirements.
10. Based on data contained in self-monitoring reports, the current average daily dry weather flow (ADDWF) to the Sonora WWTP is approximately 1.6 mgd, and the ADDWF to the Jamestown plant is approximately 0.20 mgd. The average effluent quality data for the two plants since July 2001 is summarized below:

<u>Constituent</u> <sup>1</sup>	<u>Sonora WWTP</u>	<u>Jamestown WWTP</u>
Biochemical oxygen demand (mg/l)	17	20
Total suspended solids (mg/l)	17	12
Total dissolved solids (mg/l)	340	260
Total coliform organisms (MPN/100ml)	9.5	<2
Total nitrogen (mg/l)	13.7	18
Ammonia	14.7	

<sup>1</sup>“mg/l” denotes milligrams per liter and “MPN/100 ml” denotes most probable number per 100 milliliters.



**Reclaimed Water System**

11. The Discharger’s main reclaimed water storage facility is Quartz Reservoir, a 1,500 acre-foot pond. Although a minor amount of reclaimed water is distributed directly to end-users through the gravity mainline which transport water from the treatment plants to Quartz Reservoir, the majority of the reclaimed water is stored in Quartz Reservoir prior to distribution to land application areas.
  
12. Reclaimed water is delivered to end-use land application areas through 18 turnouts along 9 miles of six to twenty-four inch transmission and distribution line. The total acreage of the land application areas is approximately 630 acres. The reclaimed water is used mainly for the spray or flood irrigation of fodder crops and pasture for animals not producing milk for human consumption. A small percentage of the reclaimed water is used for the spray irrigation of non food-bearing trees. The designated land application areas are identified and described in a revised Title 22 CCR Engineering Report submitted to the Regional Board on 20 February 2002, and are shown on Attachments B-1 through B-4, which are attached herein and made a part of this Order by reference. The land application areas as they currently exist are also described briefly below:

End-User Site Number	End-User Name	APNs	Acres Irrigated	Current Irrigation Method	Beneficial Use of End-Use Area	Wastewater Pond(s) Onsite
1	L&T Enterprises	03-04-09 03-04-10	3.4	sprinkler	fodder crops/pasture	Yes
2	Fulkerson	03-075-08 03-075-09 03-075-12	0.5	sprinkler	fodder crops/pasture	No
3	Battaglia	59-140-26 59-120-05	0.9	sprinkler	fodder crops/pasture	Yes
4	Larsen	59-140-24	1	sprinkler	fodder crops/pasture	No
5	Larsen	59-140-25	10.1	sprinkler	fodder crops/pasture	Yes
6	Hatcher	59-120-06	0.1	sprinkler	fodder crops/pasture	No

End-User Site Number	End-User Name	APNs	Acres Irrigated	Current Irrigation Method	Beneficial Use of End-Use Area	Wastewater Pond(s) Onsite
7	McRae	59-120-08 59-130-01 59-140-05 59-160-02 59-160-06 59-160-07	31.2	sprinkler/ flood	fodder crops/pasture	No
8	Unterein	59-140-14 59-140-15	2.0	sprinkler	fodder crops/pasture	No
9	Fraser	59-160-34	24.2	sprinkler	fodder crops/pasture	No
10	West	59-160-08 59-070-09	28.9	sprinkler	fodder crops/pasture	No
11	Applebee	59-160-22	2.2	sprinkler	fodder crops/pasture	No
12	Whitt	59-160-19	4.4	flood	fodder crops/pasture	No
13	Hoag	59-160-40	0.5	sprinkler	fodder crops/pasture	No
14	Casler	59-160-18	1.0	sprinkler	fodder crops/pasture	No
15	Nelson	59-160-18	1.2	sprinkler	fodder crops/pasture	No
16	Harris	59-160-31	4.6	sprinkler	fodder crops/pasture	Yes
17	Jamestown S.D.	59-150-27	18.5	sprinkler	non-food bearing trees	No
18	TUD – below Quartz R.	59-150-04	7.1	sprinkler	fodder crops/pasture	No
19	Albin	59-150-14	0.2	sprinkler	fodder crops/pasture	No

End-User Site Number	End-User Name	APNs	Acres Irrigated	Current Irrigation Method	Beneficial Use of End-Use Area	Wastewater Pond(s) Onsite
		59-150-17				
20	Kile	59-150-18	3.9	sprinkler	fodder crops/pasture	Yes
21	Mace	59-150-12	4.8	sprinkler	fodder crops/pasture	Yes
22	Snider	59-290-41	6.5	sprinkler	fodder crops/pasture	Yes
23	Stone	59-290-64	11.8	sprinkler	fodder crops/pasture	Yes
24	TUD – Egan Ranch	59-600-30	22.3	sprinkler	fodder crops/pasture	Yes
25	MiWuk ITC – Chicken Ranch	58-180-41 58-550-11	20	sprinkler	fodder crops/pasture	No
26	Rosasco	58-180-20 58-230-38 58-230-39 58-240-06	150	flood	fodder crops/pasture	Yes
27	Gardella	58-230-18 58-230-19 58-230-25 58-230-26 58-230-30 58-230-56 58-230-58 58-230-59 58-230-	271	flood	fodder crops/pasture	Yes

End-User Site Number	End-User Name	APNs	Acres Irrigated	Current Irrigation Method	Beneficial Use of End-Use Area	Wastewater Pond(s) Onsite
		60 58-260-01 58-260-02 58-270-03 64-080-64				

13. Water Reclamation Requirements Order No. 94-200 provided that new end-use application areas could be added by simply contracting with TUD, and existing end-use sites could be removed from the system without informing regulatory agencies. However, this Order prescribes a formal process for adding new end-use sites or significantly modifying existing end use sites (e.g., size or boundaries of application areas, irrigation method, crop grown, harvesting methods, new ponds). It also requires a simple written notification when existing end-use sites are removed from the system.
14. Solids removal blowoffs exist at numerous locations along the transmission and distribution lines, and are potential sources of unauthorized discharges to surface water bodies or to unpermitted discharge areas. The Discharger has submitted a plan for the operation and management of the blowoffs; however, the plan does not clearly describe where the disposal method of reclaimed water generated by each blowoff valve. Therefore, this Order restricts the use of the blowoff valves until an acceptable plan is submitted.
15. Prior to the year 2001, the annual largest volume of wastewater which was reclaimed was 1,930 acre-feet (approximately 630 million gallons) during the 1997 season. During the 2000 season, 1,586 acre-feet (approximately 515 million gallons) of reclaimed water was distributed.
16. During the year 2001, the Discharger delivered a total of 2,030 acre-feet (approximately 660 million gallons) of reclaimed water to 27 end-users. The average rate of irrigation was approximately 3.5 acre-feet/acre.
17. During 2001, the average nutrient application rate on the land application areas was approximately 170 pounds per acre (lbs/ac) for nitrogen and 33 lbs/ac for phosphorous. The *Western Fertilizer Handbook* indicates that forage crops, depending on the variety, typically utilize from 150 to 450 lbs/ac of nitrogen and 40 to 125 lbs/ac of phosphorous.
18. Crops are not harvested from the land application areas; instead the forage crops are grazed by

cattle or sheep.

### **Recent Enforcement Action**

19. Several inspections of the water reclamation system, both field and aerial, have been conducted in the past two years. An aerial inspection, conducted in October 2000, revealed evidence of apparent runoff and/or overspray at several of the end-use land application areas. This was followed by an extensive field inspection of almost all the application areas, which resulted the issuance of a Notice of Violation for multiple violations including the absence of signage around several sites, overspray onto non-permitted property, irrigation during a rain event, and runoff from land application areas.
20. The inspections also revealed the presence of several tailwater return ponds within surface water drainage courses. This practice is in violation of the Water Reclamation Requirements Order No. 94-200, as well as this Order, both of which prohibit the discharge of waste to surface water drainage courses.
21. Aerial inspections conducted in October 2001 and October 2002, as well as field inspections conducted in September 2002, again revealed evidence of overspray or runoff from some end-use application areas.
22. Between March 1995 and April 1999, TUD discharged approximately 565 million gallons of treated and disinfected wastewater from Quartz Reservoir to Woods Creek. In general, the discharges occurred toward the end of the wet season during years of above average amounts of precipitation, which filled the reservoir before distribution of reclaimed water could begin. The years of heavy precipitation also delayed the distribution of reclaimed water, and therefore the District was unable to fully draw down its reservoir before the next wet season. These discharges violated Water Reclamation Requirements Order No. 94-200.
23. In December 1999, the Executive Officer issued Administrative Civil Liability Complaint (ACLC) No. 99-511 for the unauthorized discharge of approximately 160 million gallons of treated and disinfected wastewater from Quartz Reservoir to Woods Creek between 19 January 1999 and 20 April 1999. The ACLC was settled when the Discharger agreed to pay \$25,000 and to install three gaging stations along two creeks that flow into Woods Creek.
24. On 27 January 2000, the Regional Board adopted Cease and Desist (C&D) Order No. 5-00-002 which required the Discharger to take measures to eliminate the ongoing unauthorized seasonal discharges to Woods Creek.
25. In response to the C&D Order, the Discharger submitted water balances for the water reclamation system to assess whether adequate storage and disposal capacity is available for anticipated flow rates. The water balances were prepared based on crop water and nutrient needs, quality and quantity of applied water, historical climate data, and 100-year annual return total rainfall amounts. The water balances indicated that without significant changes to the wastewater reclamation system, some seasonal discharge to Woods Creek would continue to be required during extremely wet winters when effluent flows are maximized and end-use needs for reclaimed water are minimized.

26. Since the preparation of those water balances, the Discharger has added approximately 100 more acres of land for wastewater reclamation application, and obtained NPDES Permit No. CA 0084611 for the winter-time discharge of excess effluent during years of above average precipitation.
27. In April 2001, the Discharger discharged 17 million gallons of effluent to Woods Creek in compliance with its recently acquired NPDES Permit. At the end of October 2001, there were 340 acre-feet (110 million gallons) of effluent remaining in Quartz Reservoir. That was the lowest drawdown level since 1992.

### **Site-Specific Conditions**

28. Annual precipitation in the vicinity averages approximately 28.1 inches. The mean pan evaporation rate is approximately 57.8 inches per year. All portions of the system are outside the 100-year flood zone.
29. The wastewater reclamation system is in the foothills of the Sierra Nevada Mountain range, at an elevation of approximately 1,500 feet above mean sea level. The topography consists of gently rolling hills.
30. Soils in the vicinity are generally thin (0 to 5' thick), consisting predominantly of silts and/or clays, and overlie fractured metamorphic bedrock.
31. Lands used for agricultural, residential, and commercial uses border the wastewater reclamation areas.

### **Groundwater and Surface Water Considerations**

32. In general, groundwater utilized for domestic and irrigation purposes in the vicinity occurs within the bedrock fractures. Domestic and agricultural wells are typically greater than 100 feet in depth.
33. The first encountered groundwater generally occurs near the interface between the soil and the underlying bedrock.
34. Quartz Reservoir contains an asphalt membrane liner with a design thickness of ¼ inch that covers approximately one-half of the area below the normal maximum water surface elevation of the reservoir. Detailed specifications regarding the construction QA/QC have not been provided, and neither has any information been submitted regarding inspections of the liner. According to the RWD, the leakage rate of the intact asphalt liner is estimated to be 129,300 to 258,600 gallons per day.
35. The Discharger installed five monitoring wells and five piezometers around Quartz Reservoir in 1977, during the initial construction of the reservoir. The Discharger has submitted a location map, a drawing showing well/piezometer design details, some of the monitoring data voluntarily collected by the Discharger since 1992, and additional reports describing geologic and hydrogeologic conditions in the vicinity of Quartz Reservoir and the end-use areas.
36. The additional information provided indicates that Quartz Reservoir is generally underlain by serpentine and metasedimentary rocks, and by a narrow alluvial deposit where a small drainage

previously existed. Two faults are reported to exist within the reservoir. They are considered part of the Melones Fault zone, the principal trace of which passes approximately 1,500 feet east of the reservoir. The additional information submitted with the RWD states “The current water levels in the shallow wells which surround Quartz Reservoir suggest that the reservoir is in direct hydraulic communication with the groundwater.”

37. A formal groundwater monitoring program and technical analysis of groundwater monitoring data adequate to determine applicable background concentrations and the potential nature and extent of groundwater impacts attributable to the wastewater storage and reclamation system has not been required to date. Therefore, it is appropriate that this Order requires the Discharger to implement such a program.
38. Woods Creek, a perennial stream and a tributary of Don Pedro Reservoir, flows within approximately 500 feet of Quartz Reservoir and some of the land application areas. In addition, several other surface water drainage courses flow through or near end-use application areas.

### **Groundwater Degradation**

39. State Water Resources Control Board (State Board) Resolution No. 68-16 (“Statement of Policy with Respect to Maintaining High Quality Waters in California”) (hereafter Resolution 68-16 or the “Antidegradation Policy”) requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the State Board’s policies (e.g., quality that exceeds water quality objectives).
40. Some degradation of groundwater beneath Quartz Reservoir and within the land application areas is consistent with Resolution 68-16 provided that:
  - a. The degradation is confined within a specified boundary;
  - b. The discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures;
  - c. The degradation is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order; and
  - d. The degradation does not result in water quality less than that prescribed in the Basin Plan.
41. Some degradation of groundwater by some of the typical waste constituents released with discharge from a municipal wastewater utility after effective source control, treatment, and control is consistent with maximum benefit to the people of California. The technology, energy, water reclamation, and waste management advantages of municipal utility service far exceed any benefits derived from a community otherwise reliant on numerous concentrated individual wastewater systems, and the impact on water quality will be substantially less. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria) is prohibited. When allowed, the degree of degradation permitted depends upon

many factors (i.e., background water quality, the waste constituent, the beneficial uses and most stringent water quality objective, source control measures, waste constituent treatability).

42. Economic prosperity of local communities and associated industry is of maximum benefit to the people of California, as is the use of reclaimed water, and therefore sufficient reason exists to accommodate local growth and allow some groundwater degradation in the area of the wastewater reclamation system, provided that the terms of the Basin Plan are met.

### **Treatment and Control Practices**

43. This wastewater reclamation system provides treatment and control of the discharge that incorporates:
  - a. Technology for secondary treatment and disinfection of municipal wastewater;
  - b. Reclamation of wastewater on cropped properties;
  - c. A telemetry system for the monitoring of some system measurements and functions; and
  - d. Staffing to oversee the operation and maintenance of the system.
44. The wastewater reclamation system transports wastewater treated to secondary standards to a large partially lined storage reservoir, unlined reclaimed water storage ponds within use areas, and land application areas with a thin soil cover. The potential impacts on groundwater and the appropriate level of degradation that complies with Resolution 68-16 have not been fully evaluated. Therefore, the Discharger's current effort may not constitute BPTC as intended in Resolution 68-16, and this Order establishes a schedule for tasks to evaluate BPTC for each treatment, conveyance, storage, and disposal component of the system and to further characterize groundwater for selected constituents. Completion of these tasks, and implementation of the approved strategies developed from that work, will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.
45. This Order establishes interim groundwater limitations for the wastewater storage and disposal system that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains tasks for assuring that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16. Based on the results of the scheduled tasks, the Regional Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

### **Water Reclamation**

46. State Board Resolution No. 77-1, *Policy with Respect to Water Reclamation in California*, encourages reclamation projects that replace or supplement the use of fresh water. The Policy also recognizes the need for Regional Boards to protect public health and the environment in the implementation of reclamation projects. The Water Reclamation Law (CWC sections 13500-13529.4) declares that utilization of reclaimed water is of primary interest to people of the State in meeting future water needs. It also requires DHS to establish uniform statewide reclamation criteria



for the protection of public health, and has ordered Regional Boards to prescribe water reclamation requirements, where necessary, to protect the public health, safety, or welfare.

47. A 1988 Memorandum of Understanding between the California Department of Health Services (DHS) and State Board on the use of reclaimed water establishes basic principles relative to the two agencies and regional boards. The Memorandum allocates primary areas of responsibility and authority between the agencies and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to use of reclaimed water.
48. The DHS has established statewide water reclamation criteria in Title 22 CCR Section 60301 et. seq. DHS revised the water reclamation criteria contained in Title 22 on 2 December 2000. The Discharger must treat its wastewater to secondary standards and disinfect the secondary effluent per current Title 22 CCR requirements.
49. Criteria from Title 22 CCR Section 60301 et. seq. which are applicable to this reclamation project are prescribed in this Order.
50. The DHS requires that the the American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* be implemented in design and construction of reclamation equipment. The guidelines require installation of purple pipe, adequate signs, etc. In addition, the Discharger must provide adequate separation between the reclaimed water lines, the domestic water lines, and the sewer lines. Because the Discharger's system was installed prior to 1993, purple pipe need only be used for new construction and for any lines replaced during normal O&M procedures. However, DHS recommends that there be an alternative form of identification for existing non-purple lines to prevent illegal or inadvertent connections to the reclaimed water system.
51. Section 13523 of the California Water Code provides that a regional board, after consulting with and receiving recommendations from DHS or its delegated local health agency, and after any necessary hearing, shall, if it determines such action to be necessary to protect the health, safety, or welfare of the public, prescribe water reclamation requirements for water that is used or proposed to be used as reclaimed water. Section 13523 further provides that such requirements shall include, or be in conformance with, the statewide uniform reclamation criteria established by DHS pursuant to the California Water Code Section 13521.
52. The Discharger's use of reclaimed water for irrigation in landscape or agricultural areas could affect the health, safety, and welfare of the public; therefore these requirements are necessary.
53. Title 22 CCR Section 60323(a) states that no person shall produce or supply reclaimed water for direct reuse from a water reclamation plant unless an engineering report is submitted. These reports must be reviewed and approved by DHS and the Regional Board. Fodder and pasture for animals not producing milk for human consumption is considered a beneficial reuse. A Title 22 CCR Engineering Report was submitted to DHS on 7 November 2001. On 13 December 2002, DHS provided comments, found the report to be inadequate, and required additional information before formal approval could be granted. On 20 February 2002, the Discharger submitted a revised Title 22 CCR Engineering Report to the Regional Board, but not to DHS. A copy of the revised report was submitted to DHS on 27 August 2002, but DHS comments have have not yet been received.

54. TUD has not provided verification that its WWTP provides the reliability features required by Title 22 CCR to ensure uninterrupted chlorine feed, adequate biological treatment, and adequate disinfection to meet the disinfected secondary-23 MPN/100 ml standard. In addition, TUD has not provided evidence of a monitoring program, alternative storage provisions, automatic diversion mechanisms, and a contingency plan required by Title 22 CCR to assure that inadequately treated wastewater is not delivered to Quartz Reservoir or to end-use areas. Therefore, it is appropriate that this Order requires that they do so in a revised Title 22 CCR Engineering Report, and that the Discharger implement any improvements which are necessary to meet the requirements of Title 22.
55. California Water Code Section 13523.1 describes the use of master reclamation permits and states that among other items, the permittee (in this case, TUD) shall establish and enforce rules or regulations for reclaimed water users, and shall conduct periodic inspections of the reclaimed water users' facilities to monitor compliance with the master reclamation permit. This Order incorporates the requirements of Section 13523.1.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

56. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board. Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
57. Surface water drainage is to water bodies tributary to New Don Pedro Reservoir. As listed in the Basin Plan, the beneficial uses of New Don Pedro Reservoir are municipal and domestic supply; hydropower generation; water contact and non-contact water recreation; warm and cold freshwater habitat; and wildlife habitat.
58. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
59. The Basin Plan encourages water reclamation.
60. The Basin Plan establishes numerical and narrative water quality objectives for surface and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Regional Board's adoption of waste discharge requirements and enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Regional Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.
61. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 CCR : Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section

64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

62. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
63. Section 13241 of the Water Code requires the Regional Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. Water Code Section 13263 requires the Regional Board to address the factors in Section 13241 in adopting waste discharge requirements. The State Board, however, has held that a Regional Board need not specifically address the Section 13241 factors when implementing existing water quality objectives in waste discharge requirements because the factors were already considered in adopting water quality objectives. These waste discharge requirements implement adopted water quality objectives. Therefore, no additional analysis of Section 13241 factors is required.
64. The wastewater reclamation system is not subject to waste discharge requirements for discharges of storm water associated with industrial activities, and is not required to submit a Notice of Intent and obtain coverage under General Permit No. CAS000001.
65. The action to update waste discharge requirements for this existing reclaimed water storage and distribution system is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with Title 14 CCR Section 15301.
66. California Water Code Section 13267(b) provides that: *“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of 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 No. R5-2002-0202 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

67. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to CWC Section 13801, apply to all monitoring wells.
68. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27 CCR . While the wastewater storage and distribution system is exempt from Title 27 CCR, the data analysis methods of Title 27 CCR are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.
69. The discharge authorized herein and the storage facilities associated with the discharge, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27 CCR Section 20005 et seq.. The exemption, pursuant to Title 27 CCR Section 20090(a), is based on the following:
  - a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and
  - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
70. Pursuant to California 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.

### **Public Notice**

71. All of 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.
72. The State Department of Health Services has been consulted with, and their recommendations regarding the public health aspects of water reclamation have been considered.
73. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and have been provided with an opportunity for a public hearing and an opportunity to submit written views and recommendations.
74. In a public meeting, all comments pertaining to the discharge were heard and considered.

**IT IS HEREBY ORDERED** that Order No. 94-200 is rescinded, and pursuant to Sections 13263, 13267, 13523, and 13423.1 of the California Water Code, the Tuolumne Utilities District, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall ensure that all of the following conditions of discharge are met at its wastewater treatment facility and on all end-use land application areas:

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

**A. Discharge Prohibitions**

1. The discharge of reclaimed water, or irrigation tailwater containing reclaimed water, to surface waters or surface water drainage courses is prohibited.
2. Bypass or overflow of untreated or partially treated waste is prohibited.
3. Discharge of treated wastewater downstream of the treatment plant, other than at the approved land application areas or in compliance with another permit adopted by the Regional Board, is prohibited.
4. Discharge of waste classified as 'hazardous' under Title 23 CCR Section 2521 or 'designated', as defined in California Water Code Section 13173 is prohibited.

**B. Discharge Specifications**

1. Reclaimed water used for irrigation shall at least meet disinfected secondary-23 standards, as defined in Title 22 CCR Section 60301.225 .
2. The storage, transport and use of reclaimed water shall not cause pollution or a nuisance as defined by Section 13050 of the California Water Code.
3. Objectionable odors originating at Quartz Reservoir shall not be perceivable beyond the limits of the property owned by the Discharger.
4. Objectionable odors originating at a land application area from the use of reclaimed water shall not be perceivable beyond the limits of the land application area.
5. The dissolved oxygen content in the upper one foot of any wastewater storage pond shall not be less than 1.0 mg/l
6. All storage areas shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
7. Discharge to end-use application areas other than those defined in Finding No. 12 of this Order or discharge in a manner different from that defined in Finding No. 12 shall not commence until the Executive Officer provides written approval of the specific *Wastewater*

*Reclamation End User Plan* required by Provision G.3. This requirement does not apply to the expansion of the Gardella pond, as it received a County permit, including CEQA compliance during 2002.

8. Freeboard in Quartz Reservoir shall, under normal conditions, not be less than two feet as measured from the lowest point of overflow at the reservoir end of the spillway. During those periods when the maximum amount of storage is required due to abnormally high seasonal precipitation or the delayed onset of the irrigation season, the minimum allowable freeboard can be reduced to one foot, provided that a one-foot high sandbag berm is constructed across the spillway control sill.
9. Freeboard in any reclaimed water pond (used for storage or tailwater control) on end-use sites shall never be less than two feet as measured from the water surface to the lowest point of overflow.
10. In the absence of an NPDES permit for the seasonal discharge of treated effluent from Quartz Reservoir to Woods Creek, the reclaimed water storage system shall have sufficient storage capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration from the Sonora WWTP and the JSD WWTP during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
11. In the absence of an NPDES permit for the seasonal discharge of treated effluent from Quartz Reservoir to Woods Creek, by 1 November of each year, available pond storage capacity within the entire system shall at least equal the volume necessary to comply with Discharge Specifications B.8, B.9, and B.10.
12. The Discharger shall comply with all aspects of Title 22 CCR.

### **C. Land Application Area Specifications**

1. The Discharger shall establish and enforce rules or regulations for users of reclaimed water, governing the design and construction of reclaimed water use facilities and the use of reclaimed water, in accordance with Title 22 CCR Section 60301 et seq..
2. The Discharger shall conduct periodic inspections of the facilities of reclaimed water users to monitor compliance by the users with Title 22 CCR and the requirements of this permit.
3. Public contact with reclaimed wastewater shall be controlled through use of fences and cautionary signs, or acceptable alternatives. Perimeter warning signs indicating that reclaimed water is in use shall be visible to the public along the property boundary and at each access road entrance to the properties. The contents of these signs shall be as described in Section Title 22 CCR Section 60310(g) .
4. In areas of public access, reclaimed water controllers, valves, and similar appurtenances shall be affixed with reclaimed water warning signs, and shall be equipped with removable handles or locking mechanisms to prevent public access or tampering. Quick couplers and sprinkler heads, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibbs that the public could use shall be eliminated.

5. Any connection between the reclaimed water conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source for the purpose of supplementing reclaimed water shall be equipped with an air gap separation to prevent backflow.
6. All reclaimed water equipment, pumps, piping, valves, and outlets shall be appropriately marked to differentiate them from potable facilities. All new reclaimed water distribution system piping shall be purple or wrapped with purple tape such that the pipe is clearly distinguishable from others as reserved solely for reclaimed water conveyance. Existing non-purple lines need an alternative form of identification, especially in areas where an illegal or inadvertent connection could be made to the reclaimed water distribution system.
7. There shall be at least a ten foot horizontal and one foot vertical separation between parallel pipelines transporting reclaimed water and domestic supply. The domestic supply shall be above the reclaimed water pipeline. At crossings, the reclaimed pipeline shall be constructed perpendicular to and at least one foot below the domestic supply line with the connecting joints equidistant from the crossing. The distance shall be measured from the nearest outside edge of the pipe.
8. Direct or windblown spray shall be confined to the designated land application area and shall be prevented from contacting food handling facilities, outdoor eating areas, drinking water facilities, homes, or surface watercourses.
9. Spray irrigation with reclaimed water is prohibited when wind velocities exceed 30 mph.
10. Reclaimed water shall not be used for irrigation of food crops for human consumption, nor shall it be used in nonrestricted recreational impoundments as defined by Title 22 CCR.
11. Unless the Discharger demonstrates successfully to the Executive Officer in an approved *Wastewater Reclamation End-Use Plan* as described in Provision E.1.e. that less setback is justified, the following minimum setback distances from application or storage of reclaimed water shall be maintained:

Setback Distance (feet)

<u>To</u>	<u>Spray Irrigation</u>	<u>Flood Irrigation</u>	<u>Drip Irrigation</u>	<u>Storage Ponds</u>
Property lines, except where contiguous with another designated reclaimed water application area	50	25	5	25
Property lines, where contiguous with another designated reclaimed water application area	2	2	2	10
Roads or driveways with public access	50	25	5	25
Surface water drainage courses	50	25	10	50

<u>To</u>	<u>Spray</u> <u>Irrigation</u>	<u>Flood</u> <u>Irrigation</u>	<u>Drip</u> <u>Irrigation</u>	<u>Storage</u> <u>Ponds</u>
Residences and locations where exposure may be similar to that of schools or parks	100	100	100	100
Public/domestic supply wells	100	100	100	100

12. Irrigation with reclaimed water shall not be performed within 24 hours before a predicted precipitation event, during precipitation, within 24 hours after any precipitation event, or when the ground is saturated.
13. Application rates for reclaimed water shall not exceed agronomic rates considering the crop, soil, climate, and irrigation management system and shall be in accordance with the *Wastewater Reclamation End-Use Plans* required by Provision E.1.e.
14. The land application areas and reclaimed water ponds shall be managed to prevent breeding of mosquitoes. In particular:
  - a. Except for reclaimed water storage ponds, there shall be no standing water on the irrigation parcel areas 24 hours after effluent application to a parcel ceases;
  - b. Ditches must be maintained essentially free of emergent, marginal, and floating vegetation, and;
  - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store effluent.

**D. Groundwater Limitations**

1. Release of waste constituents from the wastewater storage ponds and land application areas shall not cause groundwater under and beyond the storage ponds or land application areas, as determined by an approved monitoring well network, to:
  - a. Contain any of the following constituents in concentration greater than as listed or greater than ambient background quality, whichever is greater:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Total Coliform Organisms	MPN/100 mL	Less than 2.2
Total Dissolved Solids <sup>a</sup>	mg/L	450
Total Nitrogen	mg/L	10



<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Nitrite (as N)	mg/L	1
Nitrate (as N)	mg/L	10
Ammonia (as NH <sub>4</sub> )	mg/l	0.5
Bromoform	µg/l	4
Bromodichloromethane	µg/l	0.27
Chloroform	µg/l	1.1
Dibromochloromethane	µg/l	0.37

- a. A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].
- b. Contain any constituent not identified in Groundwater Limitation D.1.a in concentrations greater than background quality (whether chemical, physical, biological, bacteriological, radiological, or some other property or characteristic).
- c. Exhibit a pH of less than 6.5 or greater than 8.5 pH units.
- d. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

**E. Provisions**

1. All of the following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described by Provision G.6.
  - a. By **1 January 2003**, the Discharger shall submit a report showing that it has provided DHS with all the additional information required for the Title 22 CCR Engineering Report. The additional information required includes verification of compliance with the contingency plan requirement (Section 60323.c), general requirements of design (Sections 60333 – 60337), and reliability requirements (Sections 60341 – 60355) of Title 22 CCR. If DHS finds that improvements must be made to the system to meet the requirements of Title 22 CCR, then the Discharger shall make all improvements within **180 days** of notification by the Executive Officer.
  - b. By **1 February 2003**, the Discharger shall submit a plan for the operation and maintenance of blowoffs to assure that unauthorized releases of reclaimed water do not occur. The plan shall clearly show where reclaimed water will be disposed of for each blowoff valve. Blowoffs may not be utilized until the Executive Officer has approved the plan.
  - c. By **15 December 2003**, the Discharger shall submit a plan which identifies existing reclaimed water distribution lines in areas where inadvertent or illegal connections could be made, proposes mitigation measures to prevent such connections, and includes a schedule for implementation of the plan.

**End Use Manual and End Use Plans**

- d. By **15 April 2003**, the Discharger shall submit a *Wastewater Reclamation End-Use Policies and Procedures Manual (Manual)* for the wastewater reclamation system. The purpose of the Manual shall be to ensure compliance with the terms and conditions of this Order relative to individual end-users' application of reclaimed water and to document the Discharger's inspection program for end-use areas. The Manual shall include:
- i. TUD's rules or regulations for users of reclaimed water governing the design and construction of end-use areas and the use of reclaimed water. The rules and regulations shall clearly demonstrate that the requirements of this Order, as they apply to end-use areas, will be implemented;
  - ii. the procedures for the preparation and submittal to the Regional Board and DHS of *Wastewater Reclamation End-Use Plans*, as described in Section E.1.e, below;
  - iii. a description of the items to be inspected during an initial site visit prior to commencing discharge to a new use area;
  - iv. a description of an ongoing and regular inspection program to ensure user compliance, including inspection methods and procedures, an inspection schedule, user noncompliance notification procedures, and inspection documentation;
  - v. an enforcement program to ensure user compliance;
  - vi. a training program for the Discharger's employees and for end-users; and
  - vii. instructions for field personnel on how to manage the day-to-day discharge operations to comply with the terms and conditions of this Order.

The Manual shall include a system organizational chart and a list and description of duties. Key personnel shall be familiar with the contents of the Manual.

- e. In accordance with the schedule below, the Discharger shall submit *Wastewater Reclamation End-Use Plans (Plans)*, which define and describe individual end-use areas and provide the necessary information and procedures to assure compliance with the terms and conditions of this Order and Title 22 CCR. Each Plan shall include:
- i. a signed written agreement between the Discharger and the end-user that clearly defines the compliance requirements for the end-user, and documents the end-user's understanding of, and agreement to comply with, this Order;
  - ii. a map and description of the use area including, but not limited to: the acreage to be irrigated, the method of irrigation, and the crops to be grown. The map shall show specific areas of use, areas of public access, surrounding land uses, the locations of wells in or within the established setback limits of the use area, locations and identification of non-reclaimed water pipelines within a reasonable distance of the reclaimed water lines, turnouts and other means to extract

- reclaimed water (e.g., hydrants, blow-offs), wastewater, tailwater, and freshwater ponds (identified and labeled on the map), and the location of signage and any other exclusionary measures (e.g., fencing);
- iii. the name and address of the party responsible for the distribution and use of the reclaimed water at the site;
  - iv. a description of the topography, soil, and, if known, the basic hydrogeologic conditions of the use area;
  - v. identification and description of surface water drainage courses, as well as wastewater, tailwater, and freshwater ponds in the use area, and provisions for the protection of drainage courses;
  - vi. a description of site containment measures, tailwater control methods, berms/checks/furrows, the degree of potential access by employees or the public, prevailing wind direction, and irrigation practices to minimize wind drift, especially in areas of more potential public exposure;
  - vii. a description of how potable water uses are protected;
  - viii. a description of the agronomic controls to provide for nutrient uptake of the wastewater, nutrient removal calculations, crop harvesting/removal procedures, if applicable, and the methods that will be used to monitor application rates versus hydrologic and nutrient uptake to assure that application rates for reclaimed water do not exceed agronomic rates considering the crop, soil, climate, and irrigation management system;
  - ix. if available, the well construction details of monitoring, agricultural, or domestic wells in or within the established setback limits of the use area;
  - x. identification of locations at the use area where human health or water quality problems are most likely to occur;
  - xi. for each wastewater or tailwater pond, a full description including the location, size, depth below and above ground surface, type of underlying soil, pond lining material (if applicable), and how the pond will be managed to maintain compliance with Discharge Specifications No. B.9 and B.10.
  - xii. if a wastewater storage pond will be constructed, then a copy of documentation showing compliance with the requirements of the California Environmental Quality Act (CEQA).

The Discharger shall submit End-Use Plans in compliance with the following schedule:

By **1 June 2003**, for the Rosasco and Gardella end user sites as described in Finding No. 12;

By **1 September 2003**, for the West, Jamestown S.D., TUD-below Quartz, TUD-Egan Ranch, and Chicken Ranch end-user sites, as described in Finding No. 12;

By **1 December 2003**, for the L&T Enterprises, Larsen (two sites), McRae, Fraser, and Stone end-user sites, as described in Finding No. 12;

By **1 April 2004**, for the Fulkerson, Battaglia, Hatcher, Unterein, Applebee, Whitt, Hoag, Casler, Nelson, Harris, Albin, Kile, Mace, and Snider end-user sites, as described in Finding No. 12.

### Groundwater Quality Evaluation

- f. By **31 May 2003**, the Discharger shall submit a workplan for the characterization of groundwater quality at Quartz Reservoir, sensitive end-user storage ponds, and the most sensitive land application areas. "Sensitive" is defined as a pond/land application area that has the most potential to impact the underlying groundwater. The monitoring wells and peizometers previously installed around Quartz Reservoir may be used in the characterization. The workplan shall describe the installation of other wells to allow evaluation of the groundwater quality upgradient and downgradient of the selected storage pond/land application areas. Every monitoring well shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer and to comply with applicable well standards. The workplan shall be consistent with, and include the items listed in, the first section of Attachment C, "*Items to be Included in a Monitoring Well Installation Workplan and a Monitoring Well Installation Report of Results.*"
- g. By **30 November 2003**, the Discharger shall submit a groundwater well installation report for monitoring wells installed in compliance with Provision E.1.f that is consistent with, and includes the items listed in, the second section of Attachment C.
- h. By **30 May 2005**, the Discharger shall submit a *Background Groundwater Quality Study Report*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and comparison of background groundwater quality to that in wells used to monitor Quartz Reservoir, each sensitive storage pond, and each sensitive land application area. Determination of background quality shall be made using the methods described in Title 27 CCR Section 20415(e)(10), and shall be based on data from at least four consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with: 1) the calculated background concentration, and 2) the interim numeric limitations set forth in Groundwater Limitation D.1.a. Where background concentrations are statistically greater than the interim limitations specified in Groundwater Limitation D.1.a, the report shall recommend final groundwater limitations which comply with Resolution 68-16 for the waste constituents listed therein. Subsequent use of a concentration as a final groundwater limitation will be subject to the discretion of the Executive Officer.

2. Upon completion of tasks set forth in Provision E.1, the Regional Board shall consider the evidence provided and make a determination regarding whether the Discharger has justified BPTC and the appropriate final numeric groundwater limitations that comply with Resolution 68-16.
3. If groundwater monitoring results show that the discharge of waste to Quartz Reservoir or the water reclamation end-use areas is causing groundwater to contain waste constituents in concentrations statistically greater than background water quality, then within 120 days of the request of the Executive Officer, the Discharger shall submit a *BPTC Evaluation Workplan* that sets forth a scope and schedule for a systematic and comprehensive technical evaluation of each component of the system's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitations D.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the WWTP and wastewater reclamation system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.
4. Prior to the discharge of reclaimed water to an end-use application area other than those defined in Finding No. 12 of this Order, or prior to significant changes in the nature of existing designated end-use application areas (including, but not limited to the addition or expansion of wastewater ponds) defined in Finding No. 12 of this Order, the Discharger shall submit a *Wastewater Reclamation End-Use Plan* for the area to the Regional Board, and shall receive written authorization from the Executive Officer for the discharge. This provision does not apply to the expansion of the Gardella pond (for which permits were obtained in 2002).
5. The Discharger shall notify the Regional Board of the removal of end-use sites by a brief description in a monthly monitoring report.
6. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 26 CCR Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
7. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2002-0202, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
8. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

9. The Discharger shall use the best practicable control, including proper operation and maintenance, to comply with this order.
10. As described in the Standard Provisions, the Discharger shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.
11. Upon the reduction, loss, or failure of the water recycling distribution or application system resulting in an spill or overflow of reclaimed water, the Discharger shall take any necessary remedial action to (a) control or limit the volume of reclaimed water discharged, (b) terminate the discharge as rapidly as possible, and (c) recover as much as possible of the reclaimed water discharged (including wash down water) for proper disposal. The Discharger shall implement all applicable remedial actions including, but not limited to, the following:
  - a. Interception and rerouting of flows around the reclaimed water line failure;
  - b. Vacuum truck recovery of spills or overflows and wash down water;
  - c. Use of portable aerators where complete recovery of the spills or overflows are not practicable and where severe oxygen depletion is expected in surface waters; and
  - d. Cleanup of reclaimed water-related debris at the spill or overflow site.
12. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the “Emergency Planning and Community Right to Know Act of 1986.”
13. The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board in writing when it returns to compliance with the time schedule.
14. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.
15. A copy of this Order shall be kept at the treatment facility, and by end-users, for reference by operating personnel. Key operating personnel and end-use area inspectors shall be familiar with its contents.
16. The Regional Board will review this Order periodically and will revise requirements when necessary.

WDRS AND MASTER RECLAMATION PERMIT ORDER NO. R5-2002-0202  
TUOLUMNE UTILITIES DISTRICT  
WASTEWATER RECLAMATION SYSTEM  
TUOLUMNE COUNTY

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I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 5 December 2002.

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THOMAS R. PINKOS, Executive Officer

JRM: 12/5/02