CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO.

WASTE DISCHARGE REQUIREMENTS

FOR

LOCKEFORD COMMUNITY SERVICES DISTRICT
WASTEWATER TREATMENT FACILITY
SAN JOAQUIN COUNTY

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

1. The Lockeford Community Services District (hereafter referred to as Discharger) submitted a Report of Waste Discharge (RWD) on 9 June 2006 for updating existing Waste Discharge Requirements (WDRs) for its wastewater treatment facility. The purpose of the update is to provide effluent disinfection, add a new land application area, and modify an existing wastewater storage pond to treat and dispose of domestic wastewater generated in existing and new residential developments. Supplemental information to the RWD was received on 8 March 2007.

2. For the purposes of this Order, the term "Wastewater Treatment Facility" (WWTF) shall mean the wastewater collection system, the wastewater treatment ponds, recycled water distribution piping, recycled water storage ponds, and the land application areas. The general location of the facility is shown on Attachment A, which is attached hereto and made part of this Order by reference.

3. Improvements at the facility are referred to as the Disposal Improvement Project, which will be implemented by the Discharger when this Order is adopted, and the Treatment Improvement Project, which has not yet been scheduled for implementation by the Discharger.

4. The WWTF is presently located in two areas and a third area will be added as part of the Disposal Improvement Project. The areas are named Treatment Area, Land Application Area No. 1, and Land Application Area No. 2. The locations of the areas are presented on Attachment A.

5. The Treatment Area is at 17725 North Tully Road, Lockeford, in Section 6, T3N, R8E, MDB&M. The Lockeford Community Services District owns and operates the WWTF, Treatment Area, Land Application Area (LAA) No. 1 and LAA No. 2. LAA No. 1 is in Section 6 T3N, R8E, MDB&M. LAA No. 2 is in Section 5 T3N, R8E, MDB&M. The Treatment Area site plan is shown on Attachment B, which is attached hereto and made part of this Order by reference.

6. WDRs Order No. 90-312 and Wastewater Reclamation Requirements (WRRs) Order No. 90-313, adopted by the Regional Water Board on 2 November 1990, prescribe requirements for the Lockeford Community Services District WWTF and LAA No. 1. Continued use of Orders 90-312 and 90-313 is not consistent with the current plans and policies of the Regional Water Board, nor with the Discharger's need to expand capacity.

7. The Assessor's Parcel Numbers (APNs) for the WWTF are presented below:

Area	APN
Treatment Area	053-030-39
LAA No. 1	053-030-58
	053-030-51
LAA No. 2	053-070-03

Existing Facility, Facility Improvements, and Discharge

8. The existing WWTF treats and disposes of wastewater from the unincorporated community of Lockeford. The WWTF is being expanded and disinfection is being added to provide better treatment for the wastewater that will be generated due to future land development. Currently, the flow rate varies from 0.24 to 0.29 Million gallons per day (Mgal/day).

9. Wastewater is delivered to the treatment system from two pump stations; one of the pump stations is equipped with an alarm that will alert the system operator of malfunctions. The other pump station is checked on a daily basis. This order requires all pumping stations to be equipped with alarm systems. Additional pump stations will be added based on need.

10. Wastewater is metered using ultrasonic flow meters at the headworks (prior to treatment), downstream of treatment/storage ponds and prior to chlorination, and downstream of the chlorination pipe.

11. Presently, five wastewater ponds exist. Ponds No. 1 through 4 are located at the Treatment Area; Pond No. 5 is located at LAA No. 1. A sixth pond, Pond No. 6, will be constructed at LAA No. 2 as part of the Treatment Improvement Project.

12. A wastewater treatment schematic is presented on Attachment C, which is attached hereto and made part of this Order by reference. The following summarizes the treatment process:

    a. Wastewater is biologically treated in a mechanically aerated treatment pond (Pond No. 1) prior to discharge to three storage ponds (Ponds No. 2, 3, and 4). The existing treatment capacity is in excess of 0.40 Mgal/day.

    b. Wastewater in Ponds No. 2, 3, and 4 has undergone biological treatment but has not been disinfected. This wastewater is currently pumped either to Pond No. 5 for storage

or to LAA No. 1 for disposal. In this Order, wastewater that is disinfected is considered "recycled water."

c. Effluent disinfection processes will be added as part of the Disposal Improvement Project. The disinfectant will be chlorine gas. The chlorine contact chamber will consist of a 27-inch diameter pipe that is 500 feet long. Recycled water will be pumped to either Pond No. 5, to Pond No. 6 (when built), or directly to LAAs No. 1 or 2.

d. Until the disinfection process is operable, the Discharger is prohibited from applying undisinfected wastewater to land.

13. Pond configurations are expected to change as part of the future Treatment Improvement Project, which will provide better wastewater treatment and flexibility of operation. However, the footprint of the ponds at the Treatment Area will not change. The wastewater ponds are described below:

    a. At the Treatment Area, four ponds presently exist.

        i) Pond No. 1 is a treatment pond and is equipped with two 10-horsepower brush aerators and three 7.5-horsepower aspirator type aerators. The pond does not contain a synthetic liner. As part of the Treatment Improvement Project, two 10-horsepower brush type mechanical aerators will be added to the treatment pond to increase treatment capacity, improve mixing, and reduce the potential for short-circuiting in the pond. The pond is 39 ac•ft in size and holds 13-million gallons at two feet of freeboard.

        ii) Ponds No. 2, 3, and 4 are used for wastewater storage but could be converted to treatment ponds if needed (to allow sludge removal from Pond No. 1 or other operation and maintenance needs). The ponds do not contain synthetic liners. The three ponds hold a total of 156 ac•ft and 51 million gallons at two feet of freeboard.

    b. Each LAA will contain a recycled water storage pond. The acreage that the ponds occupy is not part of the LAA irrigation acreage used in water balance calculations.

        i) Pond No. 5 is located at LAA No. 1 and is presently used to store treated (undisinfected) wastewater; however, in the future it will store recycled water. The pond does not contain a synthetic liner. Pond No. 5 will be deepened to increase the storage capacity from the current volume of 40 million gallons (123 ac•ft), to 51 million gallons (157 ac•ft) at two feet of freeboard as part of the Disposal Improvement Project.

        ii) Pond No. 6 will be constructed at LAA No. 2 as part of the Treatment Improvement Project and will be used to store recycled water. As described in the RWD, the pond will not contain a synthetic liner. The pond will be constructed when sludge is removed from Pond No. 1 as part of the Treatment Improvement Project, which

will remove Pond No. 1 from service temporarily. Pond No. 6 will be 52 ac•ft in size and will hold 17 million gallons at two feet of freeboard. The parcel for LAA No. 2 consists of 60 acres; however, only 38 acres are proposed for land application of recycled water because of Pond No. 6 and setbacks from natural drainages throughout the parcel.

14. The Disposal Improvement Project will consist of the activities listed below. This project will formally begin when this Order is adopted.

    a. Deepening of Pond No. 5 to increase storage capacity by at least 11 million gallons.

    b. Installation of new groundwater monitoring wells for the ponds and land application areas.

    c. Installation of disinfection equipment.

    d. Improvements on 38 acres to allow the land application of recycled water on LAA No. 2.

    e. Submittal of documentation showing that a legal covenant regarding land use has been signed with the property owner located south of LAA No. 2.

    f. Preparation and submittal of a technical report documenting completion of the foregoing.

15. The Treatment Improvement Project will consist of the following activities, and while not currently scheduled, will be performed two years prior to sludge removal from the existing treatment pond (Pond No. 1):

    a. At least 17 Mgal of new storage will be constructed as Pond No. 6. The planned site for the new Pond No. 6 is the northwest corner of LAA No. 2.

    b. A storage pond at the Treatment Area will be converted to a new 0.4 Mgal/day, two-cell aerated treatment pond system so that Pond No. 1 can be taken out of service.

    c. Once the new storage Pond No. 6 is constructed and a storage pond has been converted to a treatment pond, Pond No. 1 will be taken out of service, the sludge will be removed, and Pond No. 1 will be converted into a second 0.4 Mgal/day, two-cell aerated treatment pond system.

    d. At the end of the Treatment Improvement Project, the Discharger will have a 0.6 Mgal/day, three-cell treatment plant with a fourth cell in reserve to allow any of the three cells to be taken out of service for any reason.

    e. The Treatment Improvement Project will be initiated when any of the following occurs:

i) The flow rate is projected to exceed 0.4 Mgal/day within 2.5 years;

ii) The treatment system threatens to violate WDRs.

iii) Sludge becomes problematic in the treatment pond system for any reason.

16. The Discharger has two portable generators. They are used to operate the lift stations and some of the water supply wells. The Discharger is planning to install an electrical transfer switch at the Treatment Area to run key components such as pumps, instruments, and the office but will not be completed until 2008. All new pump stations are designed with an emergency generator and automatic transfer switch.

17. Stormwater that falls on the roadways surrounding the ponds at the Treatment Area drains into the ponds. Other stormwater falling on roofs and paved areas drains to the surrounding unpaved areas where it infiltrates. Stormwater that falls on turf areas at the treatment facility will infiltrate.

18. Influent wastewater quality has been characterized by the Discharger. Based on samples collected since January 2004 until March 2006, wastewater quality is as follows:

Constituent	Units	Average
Monthly Average Flow Rate	Mgal/day	0.254
Biochemical Oxygen Demand	mg/L	184

19. Effluent wastewater quality has also been characterized by the Dischager. The following table summarizes average effluent quality since August 2005 . Samples were collected at the Pond No. 1 (treatment pond) outlet.

Constituent	Units	Effluent Quality
Biochemical Oxygen Demand	mg/L	17
Total Dissolved Solids	mg/L	479
Nitrate as Nitrogen	mg/L	Not Detectable
Total Nitrogen	mg/L	4.0
Chloride	mg/L	97.3
Sodium	mg/L	69.3

Recycled Water Application

20. Undisinfected wastewater is currently applied to 95 acres at LAA No. 1 using flood irrigation. Pasture grass is presently grown and beef cattle are allowed to graze the area.

21. Upon implementation of the Disposal Improvement Project, the Discharger will apply recycled water to the LAAs as follows:

    a. A total of 133 acres of land application areas will be available to the Discharger. The LAAs will be divided into five 26.6 acre irrigation checks.

b. Each 26.6 acre irrigation check will be sequentially rotated in alfalfa production for three years and fallow for two years. Every year 79.8 acres will be used for wastewater application.

c. The fallow 53.2 acres can be used to grow pasture grass or other crop if deemed appropriate, but the Discharger states that action would be an unusual occurrence.

22. Wastewater will be applied by flood irrigation. LAAs will be deep-ripped to allow drainage and deep rooting of the alfalfa crop. LAAs will be graded to allow effective flood irrigation and minimize ponding. Beef cattle will be allowed to graze LAA No. 1; no livestock will be allowed on LAA No. 2.

23. To further reduce the salinity of shallow groundwater underlying and downgradient of the LAAs, the LAAs will be designed and operated to capture and percolate most of the rain falling on the LAAs. Upon completion of the Disposal Improvement Project, the captured rainfall runoff will be applied to the irrigation fields to minimize pooling along runoff containment berms, and the associated risk of mosquito breeding. The Discharger estimates only five-percent of rainfall will runoff the LAA during an average rainfall year. Allowing runoff from the LAAs is acceptable because the wastewater will be disinfected and wastewater application will not occur during winter months except when climatic conditions allow.

24. Effluent will be applied at plant uptake rates for both nitrogen and water application. Irrigation tailwater will be controlled through such measures as controlling application and grading the area to prevent off-site drainage.

25. The RWD contains a water balance that demonstrates hydraulic capacity for a wastewater flow rate of 400,000 gpd when the Disposal Improvement Project has been completed. The water balance requires 101.9 million gallons of storage capacity and 80 acres of land application area. Presently, the Discharger has 90.9 million gallons of storage capacity and 95 acres of land application area at LAA No. 1. To increase the storage capacity, Pond No. 5 will be deepened to add 11 million gallons of storage capacity for a total of 101.9 million gallons. The water balance does not require any wastewater to be applied from November through March. However, this Order does not prohibit such application when conditions allow.

26. As described in Water Recycling Specification No. E.5, Title 22, Division 4, Chapter 3, Article 3 requires recycled water application setbacks based on adjacent land uses. To allow application of recycled water closer than allowed by setbacks, the Discharger has obtained an easement on the property south of LAA No. 2. The agreement limits where groundwater wells can be placed on the affected area. The easement allows application of recycled water within 20-feet of the property boundary, which is enough room for a tailwater return ditch, containment levee, and road.

Wastewater Collection System

27. Parts of the collection system are upwards of 50 years old. Approximately 40-percent of the system is believed to consist of clay pipe; the remaining is poly vinyl chloride (PVC) pipe. Based on seasonal flow rate variations, infiltration and inflow appears to be minimal. New wastewater collection system piping will consist primarily of schedule-40 PVC pipe. If excessive inflow and infiltration is identified in new or existing collection system piping, it can be replaced or repaired as needed.

28. The sanitary sewer system collects wastewater and consists of sewer pipes, manholes, and/or other conveyance system elements that direct raw sewage to the treatment facility. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the treatment facility. Temporary storage and conveyance facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage/conveyance facilities. Sanitary sewer overflow is also defined in State Water Resources Control Board (State Water Board) Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*, which can be found at:
http://www.waterboards.ca.gov/resdec/wqorders/2006/wqo/wqo2006_0003.pdf.

29. For this facility, any sanitary sewer overflows would consist of varying mixtures of domestic and commercial wastewater, depending on land uses in the sewage collection system. The chief causes of sanitary sewer overflows include grease blockages, root blockages, debris blockages, sewer line flood damage, manhole structure failures, vandalism, pump station mechanical failures, power outages, storm or groundwater inflow/infiltration, lack of capacity, and/or contractor caused blockages.

30. Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause temporary exceedences of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area.

31. The Discharger is expected to take all necessary steps to adequately maintain, operate, and prevent discharges from its sanitary sewer collection system. This Order requires the Discharger to prepare and implement a *Sewer System Management Plan* (SSMP) consistent with State Water Board Order No. 2006-0003-DWQ.

Site-Specific Conditions

32. Annual precipitation in the vicinity averages approximately 16.91 inches. The mean evapotranspiration rate is approximately 67.94 inches per year. All portions of the WWTF are outside the 100-year flood zone.

33. The facility lies within the Lower Mokelumne River Hydrologic Unit Area No. 531.20, as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

34. Based on the National Resource Conservation Service soil survey, the soils at the LAAs consist primarily of the Exeter sandy loam and San Joaquin Loam.

35. Published infiltration rates for the soils range from 0.06 to 2.0 in/hr.

Groundwater Considerations

36. The Lockeford community obtains its potable water from groundwater. Water quality data from 2005 and 2006 are presented below:

Analyte	Units	2005	2006
Boron	mg/L	ND (0.10)	ND (0.50)
Chloride	mg/L	21	23
Manganese	mg/L	ND (0.020)	ND
Nitrate (as N)	mg/L	1.3	0.87
Ammonia	mg/L	ND (0.50)	ND (0.50)
Sodium	mg/L	27	32
Electrical Conductivity	umhos/cm	350	387
PH	Std.	7.3	7.2
Total Dissolved Solids	mg/L	278	296
Total Hardness	mg/L	104	124

37. The following table presents a summary of the monitoring wells that have been installed to date and their status. Wells TPMW-5 and R1MW-2 were drilled deeper than the depth of well casing; the excess borings were sealed with bentonite clay. Well TPMW-1 was constructed with an unusually long sand filter pack. The well locations are presented on Attachments A and B.

Well Name	Location	Dia. (in.)	Depth (ft.)	Screen Int (ft. bgs)	Filter Pack	Status
TP MW-1	Treatment	4	120	90-120	85-120	Perched
TP MW-2	Treatment	4	132	102-132	96-132	Water Table
TP MW-3	Treatment	4	135	105-135	100-135	Water Table
TP MW-4	Treatment	4	145	130-145	128-145	Water Table
TP MW-5	Treatment	4	63	44.5-54.5	42.5-54.5	Perched
R1 MW-1	LAA No. 1	4	145	130-145	128-145	Water Table

Well Name	Location	Dia. (in.)	Depth (ft.)	Screen Int (ft. bgs)	Filter Pack	Status
R1 MW-2	LAA No. 1	4	100	68-83	66-83	Perched
R1 MW-3	LAA No. 1	4	140	125-140	123.4-140	Water Table
R1 MW-4	LAA No. 1	4	145	130-145	128-145	Water Table
BMW-1	Backgnd	4	145	130-145	124-145	Water Table
BMW-2	Backgnd	4	145	130-145	128-145	Water Table
R2 MW-1	LAA No. 2	4	145	115-145	112-145	Water Table
R2 MW-2	LAA No. 2	4	145	115-145	112-145	Water Table
R2 MW-3	LAA No. 2	4	145	115-145	112-145	Water Table
R2 MW-4	LAA No. 2	4	145	115-145	112-145	Water Table
R2 MW-5	LAA No. 2	4	145	115-145	112-145	Water Table

TP denotes Treatment Area. R1 denotes Reclamation Area (LAA Area) No. 1. BMW denotes Background Monitoring Well. R2 denotes Reclamation Area (LAA Area) No. 2.

38. The RWD presents the following information about groundwater conditions at the site:

    a. Groundwater monitoring wells have been installed at the wastewater treatment system and both LAAs. The unlined wastewater treatment ponds appear to have created a groundwater mound that complicates determination of groundwater flow direction.

    b. Two water bearing zones have been identified: a local perched zone and the regional water table. The perched zone has been identified at the Treatment Area and at LAA No. 1. Wells TPMW-1, TPMW-5, and R1MW-2 exhibit groundwater elevations above the regional water table elevations. Review of the groundwater elevation data from wells screened in the perched and regional water table indicates a downward vertical gradient exists between the saturated zones. However, the existence of the perched zone at the Treatment Area wells is questionable and may be the result of a groundwater mound generated by the unlined wastewater ponds percolating wastewater into the subsurface.

    c. Groundwater elevations in each zone are discussed below:

        i. The groundwater flow direction of the perched zone wells could not be determined because no continuous perched zone between the wells could be identified. Typical depths to perched groundwater are 50 to 70 feet below ground surface.

        ii. The groundwater flow direction in the water table zone is to the southeast with a slight gradient (0.00073 to 0.0013 ft./ft.). Typical depths to groundwater are 120-130 feet below ground surface.

        iii. Regional groundwater maps prepared by the Department of Water Resources indicate that groundwater flow is to the south or southeast.

iv. Although Well No. TPMW-1 was constructed with a sand pack presumably deep enough to show a groundwater elevation typical of the regional water table, it possesses a groundwater elevation higher than expected. The cause of the elevation anomaly is unknown but the well may be acting as a vertical conduit allowing mounded wastewater to move to lower saturated zones more quickly. Further investigation and possible replacement of Well TPMW-1 is warranted.

39. Groundwater quality has been characterized by quarterly sampling of monitoring wells. A summary of average groundwater quality for all the wells (except total coliform organisms as described in Finding No. 39.g) is presented in the table below as well as the Water Quality Limit for each analyte.

Treatment Area monitoring wells TPMW-1, TPMW-2, and TPMW-3 have been sampled since March 2000; Background Wells BMW-1 and BMW-2; Treatment Area Wells TPMW-4 and TPMW-5; and LAA No. 1 Wells R1MW-1 through R1MW-4 have been sampled since November 2006; LAA No. 2 Wells R2MW-1 through R2MW-4 have been sampled since August 2005; and LAA No. 2 Well R2MW-5 has been sampled since October 2005.

Well	Location	Units	NO_3 as N	TKN	TDS	Hardness	Na	Cl	Alkalinity	TCO (MPN/100ml)
WQL	--	mg/L	10 [1]	NA	450 [2]	NA	69 [2]	106 [2]	NA	<2.2 [3]
BMW-1	Bkgnd	mg/L	0.7	ND (1.0)	367	124	51	82	67	<2
BMW-2	Bkgnd	mg/L	4.0	ND (1.0)	354	161	37	38	130	<2
TPMW-1	Trtmt	mg/L	4.0	ND (1.0)	636	415	62	136	313	<2
TPMW-2	Trtmt	mg/L	3.6	ND (1.0)	351	118	48	45	127	<2
TPMW-3	Trtmt	mg/L	1.9	ND (1.0)	548	347	59	77	328	<2
TPMW-4	Trtmt	mg/L	2.8	ND (1.0)	249	92	39	37	98	<2
TPMW-5	Trtmt	mg/L	0.9	ND (1.0)	653	273	177	84	346	<2
R1MW-1	LAA 1	mg/L	1.8	ND (1.0)	283	65	47	22	72	<2
R1MW-2	LAA 1	mg/L	6.3	ND (1.0)	449	189	62	72	155	<2
R1MW-3	LAA 1	mg/L	3.5	ND (1.0)	286	75	37	31	81	<2
R1MW-4	LAA 1	mg/L	6.0	ND (1.0)	246	87	26	27	67	<2
R2MW-1	LAA 2	mg/L	2.7	0.4	288	48	27	17	86	<2
R2MW-2	LAA 2	mg/L	1.1	0.3	224	57	28	19	92	<2
R2MW-3	LAA 2	mg/L	2.1	0.3	236	66	26	16	95	<2
R2MW-4	LAA 2	mg/L	3.7	0.3	252	73	34	28	90	<2
R2MW-5	LAA 2	mg/L	1.8	0.3	204	47	28	25	71	<2

Bkgnd denotes background well. Trtmt denotes Treatment Area well. LAA 1 denotes Land Application Area No. 1 well. LAA 2 denotes Land Application Area No. 2 well. NO_3-N denotes Nitrate as Nitrogen. TKN denotes Total Kjeldahl Nitrogen. TDS denotes Total Dissolved Solids. Na denotes sodium. Cl denotes chloride. TCO denotes Total Coliform Organisms. MPN/100mL denotes Most Probable Number per 100 mL. ND denotes Not Detected. NA denotes Not Applicable. WQL denotes Water Quality Limit. [1] USEPA Primary Maximum Contaminant Level (Drinking Water). [2] Agricultural Water Quality Goals. [3] Water Quality Control Plan.

40. In general, groundwater quality is good and the analyte concentrations are less than the Water Quality Limit values. However, the Treatment Area wells contain waste constituents

at higher concentrations than the background wells and the land application area wells. Similarly, LAA No. 1 wells tend to contain waste constituents at higher concentrations than the wells located at LAA No. 2 (where no wastewater has yet been applied). The water quality trends are described below:

a. None of the monitoring wells contained average nitrate concentrations that exceed the water quality limit. Average concentrations in background wells are approximately 4 mg/L or less. At the Treatment Area, the concentrations vary from 4 mg/L to less than 2 mg/L. At LAA No. 1 average concentrations range from 6.3 mg/L to 1.8 mg/L. At LAA No. 2 average concentrations range from 1.1 mg/L to 3.7 mg/L.

b. Three of the monitoring wells contain average TDS concentrations that exceed the TDS water quality limit of 450 mg/L. Average concentrations in background wells are approximately 350 mg/L or less. At the treatment facility, three wells exceed the limit; they are Well TPMW-1 (636 mg/L), TPMW-3 (548 mg/L), and TPMW-5 (653 mg/L). At LAA No. 1 average concentrations range from 449 mg/L to 246 mg/L. At LAA No. 2 average concentrations range from 288 mg/L to 204 mg/L.

    i) It is noted that Well TPMW-3 possesses an elevated TDS average concentration (548 mg/L) and is located upgradient of the wastewater ponds. This seems to indicate the well is located within a groundwater mound, but the groundwater elevation in the well is not higher than the regional water table.

c. One well contained average sodium concentrations that exceeded the water quality limit of 69 mg/L. Background concentrations range from 37 mg/L to 51 mg/L. The remaining concentrations ranged from 62 mg/L to 26 mg/L. Concentrations were lowest in wells located at LAA No. 2.

d. One well contained average chloride concentrations that exceed the water quality limit of 106 mg/L. Average concentrations in background wells varied from 82 mg/L to 38 mg/L. At the treatment facility, one well exceeded the limit; it is Well TPMW-1 (136 mg/L). At LAA No. 1 average chloride concentrations range from 72 mg/L to 22 mg/L. At LAA No. 2 average concentrations range from 28 mg/L to 16 mg/L.

e. Although there are not water quality limits for hardness or alkalinity the analytes can be used to determine if groundwater quality degradation has occurred. The average concentrations of hardness and alkalinity are highest in wells located at the Treatment Area.

f. The wells that are screened (or have sand pack that extends to shallow zones) in perched zone groundwater tend to have higher concentrations of waste constituents. Those wells are TPMW-1, TPMW-5, and R1MW-2. It is noted that Well TPMW-4 was installed adjacent to Well TPMW-5 but was constructed to only monitor the lower regional water table zone.. Significant differences between the chemistry of the two wells have been observed.

g. Detectable levels of Total Coliform Organisms (TCO) were reported in 13 of 16 wells since monitoring was initiated but the concentrations have reduced to non-detectable in the most recent sampling events. Upon installation, the wells were not disinfected. Because coliform organisms are normally filtered as they migrate through soil media, the presence of TCO in the wells is likely a result of contamination during well installation or sampling. The current non-detectable TCO concentration complies with the Basin Plan.

h. Although not presented in the table above due to space limitations, total trihalomethanes (THMs) were included in the analyses for LAA No. 2. No detectable total THM was reported. Because wastewater has not been chlorinated to date there is little reason to expect THMs to be present in the wastewater or groundwater. However, once wastewater is disinfected, it will be reasonable to require monitoring for these constituents. The non-detectable THM concentration complies with the Basin Plan.

41. Based on the average total nitrogen concentration in effluent (4 mg/L), and the flow rate (0.4 Mgal/day), the total nitrogen applied to the land application areas (80 acres active each year) is expected to be approximately 61 lbs/acre•year. The Discharger plans to grow alfalfa in the LAAs. According to the *Western Fertilizer Handbook*, alfalfa is capable of taking up 480 lbs/acre•year of nitrogen. When wastewater is properly applied to land, the alfalfa should take up all the applied nitrogen. Groundwater beneath land application areas is not anticipated to be degraded by nitrogen compounds as a result of the wastewater application.

42. Based on the average TDS concentration in effluent from the treatment pond (479 mg/L), and the flow rate (0.4 Mgal/day), the total TDS applied to the land application areas (80 acres active each year) is expected to be 7,256 lbs/acre•year. Because TDS consists of biodegradable dissolved solids and Fixed Dissolved Solids (FDS), the loading rate of FDS should be slightly less than the TDS loading rate. Groundwater beneath land application areas and wastewater ponds is expected to be degraded by TDS compounds as a result of the wastewater application and storage. However, the degradation is consistent with the Antidegradation Policy as described below:

    a. The RWD describes a groundwater model that predicts the concentration of wastewater percolate and the potential impact on groundwater quality. The model estimates groundwater quality degradation to be limited to a value below the water quality objective. Degradation of groundwater quality is expected to remain under the water quality limit of 450 mg/L. The model assumptions are presented below:

        i) The alfalfa crop will remove approximately 1,200 pounds of FDS. That is based on 6 tons per acre of alfalfa and a 10-percent ash content. Crops will be removed from the LAAs so that the accumulated salt is removed from the system.

ii) Wastewater will be applied at night to minimize evaporation, even with that measure approximately 47 percent will be lost to the atmosphere through evapotranspiration.

iii) Approximately 50-percent of the wastewater applied will be leached through the soil to prevent salt buildup in the root zone.

iv) Precipitation will be collected and applied to land application areas to dilute the salinity of wastewater applied.

v) The overall, long-term average salinity of percolate (of rainfall and wastewater origins) is estimated to be 446 mg/L.

vi) The resulting salinity of shallow zone groundwater immediately downgradient from the LAAs is also estimated to have an overall, long-term average salinity of 446 mg/L because the percolate concentration is the dominant factor in determining shallow groundwater quality.

vii) Because the recycled water storage ponds will not be lined, groundwater quality may be degraded by THMs. Additional groundwater monitoring wells will be required to monitor the ponds where recycled water is stored.

Antidegradation Analysis

43. State Water Resources Control Board (State Board) Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation Policy") requires the Regional Water 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 Regional Water Board's policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that any discharge that could degrade the waters of the state be regulated to assure use of best practicable treatment or control of the discharge to assure that pollution or nuisance will not occur, and the highest water quality consistent with maximum benefit to the people of the State will be maintained.

44. The Discharger has not provided an antidegradation analysis except for TDS. Staff's review of the information in the Findings finds that effluent disposal has the potential to degrade or pollute the underlying groundwater with respect to salinity constituents. However, as discussed in Finding No. 41, the Discharger believes that the degradation will remain below the salinity water quality objective for the beneficial use of agriculture, 450 mg/L TDS.

45. The average concentration of TDS in the potable water supplied to the City of Lockeford is approximately 290 mg/L. The recent TDS concentration in the effluent discharged to the percolation ponds is approximately 480 mg/L. The incremental addition of dissolved salts

though water usage at this facility (about 190 mg/L) is within the normal range for domestic use and is considered reasonable.

46. The Regional Board further finds that some degradation of the groundwater beneath the WWTP is consistent with the maximum benefit to the people of the state 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.

47. 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, 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).

48. This Order acknowledges that some degradation may occur as a result of the application of treated wastewater to land, but the Regional Board finds that such degradation at this facility is consistent with the maximum benefit to the people of the state. Economic prosperity of local communities and associated industry is of benefit to the people of California, and therefore sufficient reason exists to accommodate growth and some groundwater degradation, provided that the terms of the Basin Plan are met. State Board Resolution No. 77-1, *Policy with Respect to Water Recycling in California*, encourages recycling projects that replace or supplement the use of fresh water, and *The Water Recycling Law* (CWC section 13500-13529.4) declares that utilization of recycled water is of primary interest to the people of the state in meeting future water needs. This Order is consistent with State Water Board policy.

Treatment and Control Practices

49. Resolution No. 68-16 requires the discharge to be regulated to assure use of best practicable treatment or control (BPTC). The Regional Water Board may not, in general,

specify the manner of compliance; therefore, to implement Resolution No. 68-16, the Regional Water Board sets forth effluent and receiving water limitations. To be consistent with Resolution No. 68-16, the Discharger must assure that it is complying with the requirements of this Order and complying with the receiving water limits. The Discharger will provide treatment and control of the discharge that incorporates:

a. Alarms to prevent system bypass or overflow;

b. Future disinfection of treated effluent;

c. Future application of recycled water at plant uptake (for nitrogen and water) rates;

d. Appropriate biosolids storage and disposal practices;

e. An Operation and Maintenance (O&M) manual; and

f. Certified operators to assure proper operation and maintenance.

50. In order to determine compliance with Resolution No. 68-16 it is appropriate to establish a schedule for sampling of groundwater monitoring wells and to formally determine background groundwater concentrations for selected constituents. If groundwater is degraded or there is evidence that the discharge may cause degradation, then the Discharger will be required to evaluate and implement additional BPTC measures for each conveyance, treatment, storage, and disposal component of the system. Completion of these tasks will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the state will be achieved.

51. This Order establishes interim groundwater limitations for the WWTF that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order also 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 Resolution 68-16 and the Basin Plan. Based on the results of the scheduled tasks, the Regional Water Board may reopen this Order to reconsider groundwater limitations and other requirements to comply with Resolution 68-16.

Basin Plan, Beneficial Uses, and Regulatory Considerations

52. 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 Board. These requirements implement the Basin Plan.

53. The beneficial uses of the Mokelumne River between Camanche Reservoir and the Delta are agricultural supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

54. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

55. The Basin Plan encourages water recycling.

56. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical and narrative water quality objectives are maximum (i.e., least stringent) limits directly applicable to the protection of designated beneficial uses of the water. Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceeded. Controllable factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State are subject to the authority of the State or Regional Board, and that may be reasonably controlled. In addition, the water quality objectives do not require improvement over naturally occurring background concentrations. As described in the attached Information Sheet, the Basin Plan requires that the Regional Water Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements.

57. The Basin Plan includes a water quality objective for Chemical Constituents that, at a minimum, requires waters designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations (CCR): Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449, and 64449-B (Secondary Maximum Contaminant Levels-Ranges) 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 that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

58. State Board Order No.WQO-2003-0014 upheld the Regional Board's use of numeric groundwater limits, and states that numeric groundwater limits must be restricted to those constituents present in the waste, breakdown products of constituents present in the waste, and those that might be leached from the soil beneath the wastewater disposal area. The Groundwater Limitations of this Order complies with State Board Order No. WQO-2003-0014, as described below. Additional information regarding each of these chemicals is found in the Information Sheet.

    a. The Discharger has not yet sampled its effluent for boron. However, boron occurs naturally in waters, and is known to be present in the cleaning products used in

domestic households[1]. Boron has been found in the wastewater effluent at other domestic wastewater treatment facilities at concentrations ranging from 0.7 to 2.2 mg/l, and is expected to be present in the wastewater at this facility. Boron has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. The groundwater underlying the facility has the designated beneficial use of agricultural supply. According to Ayers and Westcot[2], boron can damage sensitive crops if present in excess of 0.7 mg/L in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of boron is the narrative Chemical Constituents objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 0.7 mg/L for boron, based on Ayers and Westcot, is appropriate to apply the narrative Chemical Constituents objective to protect the agricultural use of groundwater. This limit assumes no impact on sensitive agricultural uses, consistent with the high quality of expected natural background water quality in the area of the discharge.

b. The Discharger's effluent contains an average chloride concentration of 97.3 mg/L. Chloride is known to be present in wastewater, as it is one of the major components of total dissolved solids. Chloride is a major anion in natural water and wastewater, and is added to the waste stream because chloride is present in the human diet and is excreted unchanged from the human body[1,3]. Chloride concentrations at other facilities vary depending on the salinity of the source water and the activities resulting in wastewater discharge. At other domestic wastewater facilities, chloride has been present in the wastewater at concentrations ranging from 48 to 310 mg/l. Chloride has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. According to Ayers and Westcot[2], chloride can damage sensitive crops if present in excess of 106 mg/L in irrigation water applied by sprinklers, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of chloride is the narrative Chemical Constituents objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 106 mg/L for chloride, based on Ayers and Westcot, is appropriate to apply the narrative Chemical Constituents objective to protect the agricultural use of groundwater. This limit assumes no impact on sensitive agricultural uses, consistent with the high quality of expected natural background water quality in the area of the discharge.

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[1] American Public Health Association et al., 1985.Standard Method for the Examination of Water and Wastewater, 16th Edition.

[2] Ayers, R.S. and D.W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations- Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985). This paper contains the results of studies of the impacts of various chemicals on agricultural uses including crop irrigation and stock watering. Therefore, it is appropriate to use the data contained therein to apply the narrative Chemical Constituent water quality objective.

[3] Metcalf and Eddy, 2003. Wastewater Engineering Treatment and Reuse, 4th Edition.

c. The Discharger has not yet sampled its effluent for iron. Iron is naturally occurring in all waters due to its presence in soils and rocks[1], and is liberated from the soil under oxidizing conditions associated with the biodegradation of organic matter. Iron is known to be present in domestic wastewater, and at other domestic wastewater facilities has been found at concentrations ranging from 70 to 190 ug/L. It is also expected to be present in the effluent from this facility. Iron has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. In addition, naturally occurring iron can be solubilized from soil under reducing conditions caused by the land disposal of domestic wastewater[1]. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California secondary MCL for iron is 0.3 mg/L, and groundwater beneath the facility is designated as municipal or domestic supply. It is therefore appropriate to adopt a numerical groundwater limitation of 0.3 mg/L for iron to implement the Chemical Constituents objective to protect the municipal and domestic use of groundwater.

d. The Discharger has not yet sampled its effluent for manganese. Manganese occurs naturally in waters and is added to the waste stream through both domestic and industrial use[1]. Manganese has been found at other facilities at concentrations ranging from 2 to 21 ug/L, and is expected to be present at this facility. Manganese has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. In addition, naturally occurring manganese can be solubilized from soil under reducing conditions caused by the land disposal of domestic wastewater, and is more prevalent in dissolved forms in groundwater[1]. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California secondary MCL for manganese is 50 ug/L, and groundwater beneath the facility is designated as municipal or domestic supply. It is therefore appropriate to adopt a numerical groundwater limitation of 50 ug/L for manganese to implement the Chemical Constituents objective to protect the municipal and domestic use of groundwater.

e. The average sodium concentration in the effluent from this facility is 69.3 mg/L. Sodium is known to be present in wastewater, as it is one of the major components of total dissolved solids. Sodium is a major cation in natural water, due to its prevalence in the earth's crust, and in wastewater because sodium chloride is present in the human diet and is excreted unchanged by the body[1]. Sodium concentrations at other facilities vary depending on the salinity of the source water and the activities resulting in wastewater discharge. At other domestic wastewater facilities, sodium has been present in the wastewater at concentrations ranging from 89 to 300 mg/l. Sodium has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs.. According to Ayers and Westcot[2], sodium can damage sensitive crops if present in excess of 69 mg/L in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality

objective to protect the agricultural use from discharges of sodium is the narrative Chemical Constituents objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 69 mg/L for sodium, based on Ayers and Westcot, is appropriate to apply the narrative Chemical Constituents objective to protect the agricultural use of groundwater. This limit assumes no impact on sensitive agricultural uses, consistent with the high quality of expected natural background water quality in the area of the discharge.

f. Total dissolved solids, which were found to be present in the wastewater at average concentrations of 476 mg/L, have the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. According to Ayers and Westcot[2], dissolved solids can damage sensitive crops if present in excess of 450 mg/L in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of total dissolved solids is the narrative Chemical Constituents objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 450 mg/L for total dissolved solids, based on Ayers and Westcot, is appropriate to apply the narrative Chemical Constituents objective to protect the agricultural use of groundwater. This limit assumes no impact on sensitive agricultural uses, consistent with the high quality of expected natural background water quality in the area of the discharge.

g. Nitrate, which was not found in the wastewater at the detection limit (0.05 mg/L), has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California MCLs in groundwater that is designated as municipal or domestic supply. The California primary MCL for nitrate is equivalent to 10 mg/L as nitrogen, and groundwater beneath the facility is designated as municipal or domestic supply. It is therefore appropriate to adopt a numerical groundwater limitation of 10 mg/L for nitrate as nitrogen to implement the Chemical Constituents objective to protect the municipal and domestic use of groundwater.

h. The Discharger has not yet sampled its effluent for ammonia. However, wastewater has been found in the influent to other wastewater treatment facilities at concentrations ranging from 17 to 30 mg/l, and in the effluent from 1.4 to 1.6 mg/L. Ammonia has the potential to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. According to Amoore and Hautala[4], the odor of ammonia can be detected in water at a

[4] Amoore, J.E. and E. Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No. 6, (1983). These authors studied the concentration of chemicals in air that caused adverse odors and then calculated the concentration in water that would be equivalent to that amount in air.

concentration of 1.5 mg/L (as ammonia), and concentrations that exceed this value can impair the municipal or domestic use of the resource due to the adverse odor. The applicable water quality objective to protect the municipal and domestic use from discharges of ammonia is the narrative Tastes and Odors objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation of 1.5 mg/L for ammonia (as ammonia), based on Amoore and Hautala, is appropriate to apply the narrative Tastes and Odors objective to protect the municipal and domestic use of groundwater.

i. pH, which ranged from 7.6 to 10.1 standard units in the wastewater, has the ability to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs.. According to Ayers and Westcot[2], pH less than 6.5 or greater than 8.4 can damage sensitive crops if present in irrigation water, thereby impairing agricultural use of the water resource. The applicable water quality objective to protect the agricultural use from discharges of substances that affect pH is the narrative Chemical Constituents objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. A numerical groundwater limitation range of 6.5 to 8.4 for pH, based on Ayers and Westcot, is appropriate to apply the narrative Chemical Constituents objective to protect the agricultural use of groundwater. This limit assumes no impact on sensitive agricultural uses, consistent with the high quality of expected natural background water quality in the area of the discharge.

j. The trihalomethane chemicals bromoform, bromodichloromethane, chloroform, and dibromochloromethane are found in wastewater that has been chlorinated and have the ability to degrade groundwater quality due to the unlined wastewater ponds, as well as the application of wastewater to LAAs. These byproducts are formed from reactions with organic matter during the disinfection process. Although the Discharger has not yet begun disinfecting its wastewater, it is reasonable to assume that trihalomethanes will be present in the effluent after disinfection. These volatile organic chemicals do not naturally occur in groundwater, and are toxic priority pollutants. Local groundwater is designated as municipal and domestic supply and is used as a source of drinking water by the Discharger. According to the USEPA and the Cal/EPA Office of Environmental Health Hazard Assessment, these four chemicals pose a cancer risk at low concentrations in drinking water, and could thereby impair the municipal and domestic beneficial use by imposing toxicity. The applicable water quality objective to protect the municipal and domestic beneficial use from discharges of these trihaolmethanes is the narrative Toxicity objective, which is implemented following the "Policy of Application of Water Quality Objectives" in the Basin Plan. For bromoform, a numerical groundwater limitation of 4 ug/L, based on the USEPA IRIS[5] cancer risk level, is appropriate to apply the narrative Toxicity

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Therefore, it is appropriate to use the data contained therein to apply the narrative Tastes and Odors water quality objective.

5 U.S. Environmental Protection Agency, Integrated Risk Information System, http://www.epa.gov/iris.

objective to protect the municipal and domestic beneficial use of groundwater. For bromodichloromethane, a numerical groundwater limitation of 0.27 ug/L, based on the Cal/EPA Cancer Potency Factor[6], is appropriate to apply the narrative Toxicity objective to protect the municipal and domestic beneficial use of groundwater. For chloroform, a numerical groundwater limitation of 1.1 ug/L, based on the Cal/EPA Cancer Potency Factor, is appropriate to apply the narrative Toxicity objective to protect the municipal and domestic beneficial use of groundwater. For dibromochloromethane, a numerical groundwater limitation of 0.37 ug/L, based on the Cal/EPA Cancer Potency Factor, is appropriate to apply the narrative Toxicity objective to protect the municipal and domestic beneficial use of groundwater.

59. The Basin Plan contains narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The Chemical Constituents 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 taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses." Chapter IV, Implementation, of the Basin Plan contains the "Policy for Application of Water Quality Objectives." This Policy specifies, in part, that numerical receiving water limitations will be established in Board orders which will, at a minimum, meet all applicable water quality objectives, that where compliance with narrative objectives is required (i.e., where the objectives are applicable to protect specified beneficial uses), the Regional Water Board will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives, and that compliance with narrative water quality objectives may be evaluated considering numerical criteria and guidelines developed and/or published by other agencies and organizations.

60. The "Antidegradation" section of the attached Information Sheet lists the various waste constituents identified thus far as fitting the restriction of the Findings, along with limits of each constituent necessary to protect beneficial uses known to be adversely affected by waste constituents in groundwater. The listing identifies each constituent, the beneficial uses, water quality objective, and its associated limit, as well as the technical reference for the limit. Some limits may become less restrictive when the water supply is limited to certain applications of a beneficial use. However, in the absence of specific factual information supplied by the discharger to justify restricting certain beneficial uses, groundwater limits have been selected so as to provide protection of unrestricted beneficial uses. Interim groundwater limitations for each constituent reflect the most restrictive listed limit for the waste constituent, except if natural background quality is greater, in which case background becomes the interim limitation.

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[6] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency Toxicity Criteria Database, http://www.oehha.org/risk/ChemicalDB/index.asp.

Water Recycling

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

62. The California Department of Public Health (CDPH) has established statewide water recycling criteria in Title 22, CCR, Section 60301 et. seq. (hereafter Title 22). After expansion, the Discharger will treat the wastewater to secondary-23 recycled water standards and disinfect the effluent per Title 22 requirements.

63. A 1988 Memorandum of Understanding between CDPH and the State Water Board on the use of recycled water establishes basic principles relative to the two agencies and the regional water 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 recycled water.

64. Section 60323(a) of Title 22 states that no person shall produce or supply recycled water for direct reuse from a proposed water recycling plant unless an engineering report is submitted for review by CDPH. Irrigation of fodder crops is considered a beneficial reuse. The Discharger submitted a Title 22 Engineering Report to CDPH on 21 August 2007 and an Amended Title 22 Engineering Report on 10 September 2007. CDPH provided comments on the Amended Title 22 Report on 26 September 2007; those comments are addressed in these WDRs.

Other Regulatory Considerations

65. On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems General Order No. 2006-0003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger's collection system exceeds one mile in length, therefore the General Order is applicable.

66. 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.

67. The Regional Water Board is using the Standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Water Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance,

reporting, and permitting responsibilities to the EPA. All biosolids will be hauled to a separate permitted facility.

68. The State Water Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001) specifying waste discharge requirements for discharges of stormwater associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. This Order requires the Discharger to obtain coverage under the General Permit.

69. A mitigated negative declaration was adopted by the Lockeford Community Services District on 27 July 2006. The mitigated negative declaration was adopted in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.). The proposed wastewater treatment and disposal system is consistent with the project as analyzed when mitigation measures are implemented. Potentially significant impacts were identified in the Initial Study and Mitigated Negative Declaration. The potentially significant impacts consisted of:

    a. Objectionable odors that might be generated by the wastewater system. Maintaining adequate treatment and complying with the WDRs will reduce this potential impact to less than significant.

    b. Degradation of surface water and groundwater quality by wastewater application. This Order protects surface waters by prohibiting the discharge of tailwater from the LAAs, and controlling recycled water application rates should prevent groundwater degradation. The controls should reduce the potential impact to less than significant.

    The Regional Water Board finds that this Order contains requirements that, if complied with, implement the mitigation measures related to wastewater issues and will reasonably protect the beneficial uses of waters of the state and prevent nuisance.

70. Section 13267(b) of the CWC 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 discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports 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 attached Monitoring and Reporting Program No. R5-2007-_____ is necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

71. 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 used to monitor the impacts of wastewater storage or disposal governed by this Order. Those wells that do not have a construction log, boring log, or County permit may not be used for monitoring associated with this Order.

72. 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 Section 20380. While the WWTF is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

73. The discharge authorized herein and the treatment and 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 20380 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 facility.

74. Pursuant to CWC Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

75. The recommendations of the State Department of Public Health regarding the public health aspects of water recycling have been considered in preparation of this Order.

76. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, as well as the Regional Water Board's administrative record, were considered in establishing the following conditions of discharge.

77. The Discharger and interested agencies and persons have been notified of the Regional 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.

78. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Orders No. 90-312 and 90-313 are rescinded, and that pursuant to Sections 13263 and 13267 of the California Water Code, Lockeford Community Services District, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

[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. Discharge of wastes 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 sewage from a sanitary sewer system at any point upstream of a wastewater treatment facility is prohibited. Discharge of treated recycled water downstream of the wastewater treatment facility, other than at the designated storage ponds or land application areas, is prohibited.

4. Discharge of waste classified as “hazardous” under Title 23 CCR Chapter 15, Section 2521, or “designated,” as defined in Section 13173 of CWC is prohibited.

5. Application of recycled water in a manner or location other than that described herein is prohibited.

6. The use of recycled water for purposes other than irrigation as defined in Title 22 CCR Section 60304(a) and this Order is prohibited.

B. Discharge Specifications

1. The monthly average flow rate may not exceed 300,000 gpd. Upon approval of the *Recycled Water Expansion Report* (RWER) by the Executive Officer, the monthly average flow rate may be increased to a maximum of 400,000 gpd.

2. The Discharger shall not take Pond No. 1 out of service without first submitting the report required by Provision No. G.1.h, and receiving written approval from the Executive Officer.

3. Only disinfected water may be applied to LAA No. 1 and Pond No. 5. Only disinfected water shall be applied to LAA No. 2.

4. Wastewater treatment and use of recycled water shall not cause pollution or a nuisance as defined by Section 13050 of the CWC.

5. Public contact with wastewater and recycled water shall be precluded or controlled through such means as fences, signs, or acceptable alternatives.

6. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of the Groundwater Limitations.

7. Objectionable odors originating at the facility shall not be perceivable beyond the limits of the property owned by the Discharger.

8. As a means of discerning compliance with Discharge Specification B.7, the dissolved oxygen content in the upper one foot of any wastewater treatment or storage pond shall not be less than 1.0 mg/L.

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

10. Effective with the approval of the RWER, the Discharger shall treat the wastewater such that it complies with Title 22 CCR, Section 60301.225 (“Disinfected Secondary-23 Recycled Water”).

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

12. Wastewater and recycled water ponds shall be managed to prevent breeding of mosquitoes. In particular,

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

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

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

13. The facility shall have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration. 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.

14. Freeboard in any pond containing wastewater or recycled water shall never be less than two feet as measured from the water surface to the lowest point of overflow.

15. On or about **15 October** of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specifications B.13 and B.14.

16. The application of recycled water to land application areas by spray irrigation is prohibited.

17. All recycled water conveyance and distribution piping and equipment shall comply with California Department of Public Health requirements and the American Water Works Association (AWWA) *Guidelines for Distribution of Non-Potable Water* and *Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water*.

18. A use supervisor shall be appointed by the Discharger. The use supervisor shall be responsible for installation, operation, and maintenance of the recycled water system, prevention of potential hazards, implementing these requirements, and coordination with the cross-connection control program of the water purveyor or the San Joaquin County Environmental Health Department.

C. Effluent Limitations

1. Effective immediately, effluent discharged from the treatment pond (Pond No. 1 or alternative treatment pond) shall not exceed the following limits:

Constituent	Units	Monthly Average
BOD_5	mg/L	40
Total Nitrogen	mg/L	10
TDS	mg/L	550

BOD_5 denotes 5-day Biochemical Oxygen Demand. Total N denotes Total Nitrogen. TDS denotes Total Dissolved Solids.

2. Effluent discharged from the Treatment Area to Pond No. 5, Pond No. 6 (future), or directly to LAA No. 1 or 2 shall not exceed the following limits for total coliform organisms:

   a. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed

   b. The number of total coliform bacteria shall not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30-day period.

3. No stored wastewater or recycled water shall have a pH less than 6.5 or greater than 10.0.

D. General Solids Disposal Specifications

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

2. Sludge and solid waste shall be removed from screens, sumps, and ponds as needed to ensure optimal plant operation.

3. Treatment and storage of sludge shall be confined to the treatment facility property, and shall be conducted in a manner that precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

4. Any storage of residual sludge, solid waste, and biosolids at the facility shall be temporary, and the waste shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or at concentrations that will violate the Groundwater Limitations of this Order.

5. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27 CCR Division 2. Removal for further treatment, disposal, or reuse at disposal sites operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

6. Use and disposal of biosolids shall comply with the self-implementing Federal regulations of 40 CFR 503, which are subject to enforcement by the U.S. EPA, 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.

E. Water Recycling Specifications

1. Application of recycled water shall be confined to the designated application areas as defined in this Order.

2. Recycled water shall be used in compliance with Title 22, Division 4, Chapter 3, Article 3, *Uses of Recycled Water.*

3. Public contact with recycled water shall be controlled through use of fences, signs, and/or other appropriate means. All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches by 8 inches and include the following wording, “Recycled Water – Do Not Drink.” The size and content of these signs shall be as described in Section 60310(g) of Title 22.

4. 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. Quick couplers, if used, shall be of a type, or secured in a manner, that permits operation only by authorized personnel. Hose bibs shall not be used.

5. Application of recycled water shall comply with the following setback requirements:

Setback Definition	Minimum Setback (feet)
Edge of land application area to domestic well	100
Wastewater/Recycled water storage pond to domestic well	100
Spray irrigation to residence or exposure similar to park, playground, or school yard.	100
Impoundment of undisinfected secondary wastewater to domestic well	150
Land Application Area to Surface Water[1]	50

1. Excluding ditches used exclusively for tailwater return from the land application area.

The setbacks may be modified by written approval of the Executive Officer if they are described in the Title 22 Engineering Report, are approved by the California Department of Public Health, legal agreements are executed and recorded at the County Recorder's Office, the documents are provided to the Regional Water Board, and the Discharger shows that water quality will still be protected with smaller setbacks.

6. Any use of recycled water shall comply with the following:
   a. Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency.
   b. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.
   c. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

7. Any connection between the recycled water conveyance system and any potable water conveyance system, groundwater supply well, or surface water supply source for the purpose of supplementing recycled water shall be equipped with a CDPH-approved backflow prevention device.

8. Application rates for recycled water shall not exceed nitrogen and water uptake rates considering the plant, soil, climate, and irrigation management system in accordance with the water balance submitted with the RWD.

9. Irrigation runoff (i.e., tailwater) shall be completely contained within the designated land application area and shall not enter any surface water drainage course or stormwater drainage system.

10. Sprinkler heads shall be of the type approved for recycled water and shall create a minimum amount of mist. Drainage through sprinkler heads is prohibited.

11. Irrigation of land application areas with recycled water shall not be performed within 24 hours of a forecasted storm, during or within 24 hours after any precipitation event, nor when the ground is saturated.

12. Wastewater shall not be applied to LAA No. 1 (or any other land application area) until the disinfection system is operable and all applied wastewater complies with Effluent Limitation C.2.

13. Land application areas shall be managed to prevent breeding of mosquitoes. In particular:
    a. There shall be no standing water 48 hours after application of recycled water;
    b. Tailwater ditches must be maintained essentially free of emergent, marginal, or floating vegetation, and;
    c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.

F. Groundwater Limitations

1. Release of waste constituents from any portion of the WWTF and land application areas shall not cause groundwater to:

    a. Contain any of the following constituents in concentrations greater than listed or greater than natural background quality, whichever is greater. Note that natural background conditions have not yet been established for the land application areas.

Constituent	Units	Limitation
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	<2.2
Total Dissolved Solids	mg/L	450 [1]

Constituent	Units	Limitation
Total Nitrogen	mg/L	10
Nitrate (as N)	mg/L	10
Ammonia (as NH_4)	mg/L	1.5
Bromoform	µg/L	4
Bromodichloromethane	µg/L	0.27
Chloroform	µg/L	1.1
Dibromochloromethane	µg/L	0.37

[1] 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].

2. Exhibit a pH of less than 6.5 or greater than 8.4 pH units.

3. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

G. 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 in Provision G.3.

   a. By **5 February 2008**, the Discharger shall either apply for coverage or submit a Notice of Non Applicability for Order No. 97-03-DWQ, Discharges of Stormwater Associated With Industrial Activities.

   b. Regardless of the status of any RWER submittal, by **6 March 2008**, documentation of the completed ownership transfer of LAA No. 2 to Lockeford CSD shall be submitted to the Regional Water Board.

   c. By **5 May 2008**, the Discharger shall submit a report describing installation of alarms at all wastewater pumping stations.

   d. By **6 March 2008**, the Discharger shall submit a *Groundwater Monitoring Workplan and Well Construction Evaluation* prepared in accordance with, and including the items listed in, the first section of Attachment D: *"Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports."* The workplan shall describe installation of groundwater monitoring wells at Ponds No. 5 and (future) Pond 6. The wells shall be designed to ensure that background water quality is adequately characterized and any potential water quality impacts from the discharges are detected. The system shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the site (anticipated to be the perched zone).

The Well Construction Evaluation portion of the report shall include an evaluation of Wells TPMW-1, 2, 3, and 4. The evaluation shall present and analyze the well construction details, groundwater elevations, chemical constituent concentrations, and determine the need for further investigation, well modification, or replacement. If it is determined that a well could be acting as a vertical conduit for waste constituents to migrate to lower intervals, those wells shall be properly destroyed and replaced as needed.

e. By **7 April 2008**, the Discharger shall submit an *Operation and Maintenance Plan* (O&M Plan) for the WWTF. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel. Key personnel shall be familiar with its contents. The O&M Plan shall provide the following:

   i. Operation and Control of Wastewater Treatment - A description of the wastewater treatment equipment; operational controls; treatment requirements/effluent limitations; flow diagrams including valve/gate locations; operation of the treatment systems during start-up, normal operation, by-pass, shut-down, and draining procedures; potential operational problems including a troubleshooting guide.

   ii. Sludge Handling - A description of the biosolids handling equipment, operational controls, control tests and observations related to process control, potential operational problems including a troubleshooting guide, and disposal procedures.

   iii. Operation and Control of Recycled Water Distribution System – A description of the recycled water distribution system, operational controls, flow diagrams including valve/gate locations; potential operational problems including a troubleshooting guide and backflow and cross-connection controls.

   iv. Personnel - Recommended staffing requirements, staff qualifications, training requirements and schedule, and operator certification requirements.

   v. Maintenance – Maintenance procedures, equipment record system, scheduling and use of the maintenance record system, inventory system, special tools, warranty provisions and expiration dates, maintenance cost and budgeting system, maintenance schedule of all equipment.

   vi. Emergency Response – A description of the vulnerability analysis including emergencies such as power outage, severe weather, or flooding. An equipment and telephone list for emergency personnel and equipment vendors. Coordination procedures with fire, police, and health department personnel, and an emergency operating plan.

   vii. Safety – A general discussion of the hazards of collection systems, mechanical equipment, explosion, pathogens, oxygen deficiencies, chemical and electrical hazards, etc.

viii. Appendices – Shall include flow diagrams, valve/gate locations, copy of WDRs, miscellaneous form samples, manufacturers manuals, and a list of reference materials.

f. By **4 June 2008**, the Discharger shall submit a *Monitoring Well Installation/ Destruction Report* prepared in accordance with, and including the items listed in, the second section of Attachment D. The report shall describe the installation or destruction of any wells, describe well development, and explain any deviation from the approved workplan.

g. By **30 September 2008,** the Discharger shall submit a *Disposal Improvement Project Report of Results* demonstrating that the work described in Finding No. 14 has been completed in compliance with the specifications of this Order.

h. By **31 August 2010**, 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 and calculation of the concentration in background monitoring wells. 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 eight consecutive quarterly (or more frequent) groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare the calculated background concentration with the interim numeric limitations set forth in Groundwater Limitation F.1.a. Where background concentrations are statistically greater than the interim limitations specified in Groundwater Limitation F.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.

i. **At least 60 days** before the Discharger wishes to take Pond No. 1 out of service so that sludge may be removed, the Discharger shall submit a report showing that Pond No. 6 has been constructed to provide 52 acre-feet (17 million gallons) of storage, and that at least one of Ponds No. 2, 3, or 4 has been converted to a treatment pond. The report shall also document how the Discharger proposes to remove, dry, store, and dispose of sludge in a manner consistent with this Order.

j. **At least 90 days** before the Discharger wishes to increase the wastewater flow rate, the Discharger shall submit a *Recycled Water Expansion Report* that shall contain the following:

i. At least two groundwater well sampling events at wells installed at the new land application areas and/or recycled water storage ponds. It is the Discharger's responsibility to submit, as needed, the *Groundwater Monitoring Workplan* and the *Monitoring Well Installation Report* in accordance with a

schedule that allows the sample event data to be included in the *Recycled Water Expansion Report*.

ii. A copy of the executed *Agreement of Use Restriction and Grant of Easement* and documentation of recording at the San Joaquin County Recorder's Office. If the easement could not be executed or recorded, provide an updated water balance for the reduced land area.

iii. Documentation that notification signs are installed as required by Water Recycling Specification E.3.

iv. Documentation of the property ownership transfer of LAA No. 2 to the Lockeford CSD.

v. Documentation of Pond No. 5 storage capacity increase. The increase must provide at least 11 million gallons of additional storage, resulting in at least 51 million gallons of storage provided by Pond No. 5.

vi. Documentation of improvements to the LAAs to allow wastewater application as described in the Water Recycling Specifications.

vii. Documentation that the wastewater disinfection system is operational, has been tested, and complies with Effluent Limitation C.2.

viii. Updates to the Operation and Maintenance Plan.

2. If groundwater monitoring results show that the discharge of waste 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 the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent listed in the Groundwater Limitation F.1.a of this Order. The workplan shall contain a preliminary evaluation of each component of the WWTF and effluent disposal 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.

3. 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 Discharger shall bear the professional's signature and stamp.

4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2007-____, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

5. 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)."

6. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

7. The Discharger shall provide certified wastewater treatment facility operators in accordance with Title 23 CCR, Division 3, Chapter 26.

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

9. Upon the reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer overflow, the Discharger shall take any necessary remedial action to (a) control or limit the volume of sewage discharged, (b) terminate the sewage discharge as rapidly as possible, and (c) recover as much as possible of the sewage 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 sewage flows around the sewage line failure.

    b. Vacuum truck recovery of sanitary sewer overflows and wash down water.

    c. Use of portable aerators where complete recovery of the sanitary sewer overflows are not practicable and where severe oxygen depletion is expected in surface waters.

    d. Cleanup of sewage-related debris at the overflow site.

10. The Discharger shall report to the Regional 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.”

11. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal system 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.

12. The Discharger shall submit to the Regional Water 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 Discharge 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 Water Board in writing when it returns to compliance with the time schedule.

13. In the event of any change in control or ownership of the facility or wastewater disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. 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 Regional Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

14. 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 Discharger shall notify the Regional 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.

15. 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 Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.

16. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

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

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

_____
PAMELA C. CREEDON, Executive Officer

TRO/WSW: 14-Nov-07