CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-__

WASTE DISCHARGE REQUIREMENTS

FOR
RICHARD G. WILBUR
WILBUR PACKING COMPANY
SUTTER COUNTY

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

1. On 21 December 2006, Richard G. Wilbur submitted a Report of Waste Discharge (RWD) for the Wilbur Packing Company fruit packing facility. Additional information was submitted in May 2007 and July 2013 to complete the RWD.

2. Richard G. Wilbur (hereafter "Discharger") owns and operates the Wilbur Packing Company facility. The land occupied by the facility and the land discharge areas are owned by the Richard G. Wilbur Trust (Richard G. Wilbur, Trustee). Richard G. Wilbur operates the facility that generates the waste and the land discharge areas and is therefore responsible for compliance with these Waste Discharge Requirements (WDRs).

3. The Discharger's prune processing and packaging facility is located at 1500 Eager Road, Yuba City, Sutter County (Section 4, T154N, R3E, MDB&M). The facility occupies Assessor's Parcel Numbers (APN) 10-260-073. The location of the facility is shown on Attachment A, which is attached hereto and made part of this Order by reference.

4. The facility includes administrative and fruit processing buildings, scales, warehouses, three unlined shallow wastewater ponds, and 130 acres of plum orchards that are used as a Land Application Area (LAA) for the discharge of process wastewater. A site map is presented on Attachment B, which is attached hereto and is made part of this Order by reference. The Discharger plans to replace the three existing unlined wastewater ponds with a new lined wastewater pond and increase the LAA from 130 to 200 acres.

Existing Facility and Discharge

5. The facility primarily processes dehydrated prunes from orchards at Wilbur Ranch and from other local growers. Dehydrated prunes are rehydrated by steam injection, pitted and sorted, and potassium sorbate is applied prior to packaging. The Discharger has been processing and packaging prunes and other dried fruit at the facility since approximately 1992.

6. The facility processes dried prunes on an average of 31 tons/day; with a peak annual total of up to 7,000 tons. Approximately 50 percent of the prunes processed at the facility are grown at the surrounding Wilbur Ranch, with the remaining fruit is provided by other local growers. Plums are typically dried in the fields to approximately 20% moisture content for storage until processing and packaging. Other fruits packaged at the facility include dried apples, apricots, peaches, raisins, and peas provided from other local growers.

7. Process water for the packing facility is provided from a supply well located in the plum orchard south of the packing facility. The process water supply well is cased to 85 feet below ground surface (bgs) and has an open interval from 85 to 178 feet bgs. Irrigation water to the plum orchard is provided from an agricultural well located on the southern portion of the 130-acre orchard LAA. No information is available concerning the construction and depth of the agricultural well. Water quality data for the process water supply well and the agricultural well are summarized below.

Constituent	Units	Agricultural Well	Process Water Supply Well [1]		Potentially Applicable WQO
		June 2004	August 2006	October 2013	
pH	S.U.	7.1	6.91	--	6.5 [2] – 8.4 [3]
TDS	mg/L	--	1,200	1,130	450 [3] – 1,500 [4]
Chloride	mg/L	216	250	--	250 [2] - 600 [4]
Sodium	mg/L	170	110	--	69 [3]
Iron	mg/L	--	ND	<0.1	0.3 [2]
Manganese	mg/L	--	130	<0.01	0.05 [2]
Boron	mg/L	0.52	320	0.254 [5]	0.7 [3]
Sulfate	mg/L	35	66	--	250 [2]
Alkalinity	mg/L	409	620	--	--
Hardness	mg/L	--	880	--	--

[1] Total concentrations unless otherwise noted
[2] Secondary Maximum Contaminant Level
[3] Lowest Agricultural Water Quality Goal
[4] Upper Secondary Maximum Contaminant Level
[5] Dissolved concentration

8. These data indicate that the current water supply is moderately saline, very hard, and very alkaline. The RWD and supplemental information from the Discharger do not explain the variability in boron and manganese concentrations in the supply well between 2006 and 2013, but it may be associated with the reporting dissolved or total recoverable constituent analysis or laboratory reporting error. The more recent data are assumed to be most representative for the purpose of this order.

9. Wastewater at the facility is generated from fruit processing and equipment sanitation/wash water, lubrication water for the pitter, tank and floor cleaning, and equipment maintenance activities (e.g. water softening regeneration, cooling tower and boiler blowdown).

10. The average process wastewater discharge is approximately 55,000 gallons per day (gpd), with a peak daily flow of 200,000 gpd and an annual total flow of 20 million gallons per year (MGY). There is currently no plan to increase wastewater discharge rates.

11. Various chemicals are used to clean and sanitize fruit processing equipment and for the treatment of boiler feed water to prevent scaling. Boiler water treatment compounds are added to counteract the impacts to boiler equipment to prevent equipment corrosion from minerals in the supply water. Sanitation and boiler treatment chemicals used at the facility include the following:

Chemical	Use	Quantity / Year
GW Sani-Clean (Sodium Hypochlorite and Sodium Hydroxide)	Sanitizer, disinfectant, and water chlorinator.	4,290 gallons
Form-A-Chlor-557 (Potassium hydroxide and sodium hypochlorite)	Food processing and food handling cleaning agent.	880 gallons
Boiler Tech 4250	Sodium hydroxide and EDTA salt	935 gallons
Oxy Tech 6000	Sodium bisulfate and caustic potash	605 gallons

12. Wastewater samples were collected from five separate locations within the wastewater system in 2006 and 2013. Wastewater sampling was conducted four times during the fall of 2006 and one time in April 2013. Average analytical results for each sampling location in the wastewater process from the 2006 and 2013 sampling events are summarized below.

Constituent	Units	During Processing	During Sanitation	During Boiler Blowdown	Leaving Collection Sump to Ponds	Leaving Storage Ponds to LAA
BOD	mg/L	2,500	--	--	2,100	1,400
TDS	mg/L	3,500	1,500	2,600	3,100	3,000
FDS	mg/L	1,950	--	--	--	1,900
pH	S.U.	7.8	7.7	7.5	6.8	6.6
Nitrate as N	mg/L	5.7	--	--	0.6	0.38
TKN	mg/L	30	--	--	30	20
Boron	mg/L	--	--	250	280	--

Constituent	Units	During Processing	During Sanitation	During Boiler Blowdown	Leaving Collection Sump to Ponds	Leaving Storage Ponds to LAA
Iron	mg/L	--	--	2,100	1,100	--
Sodium	mg/L	--	--	250	200	--
Chloride	mg/L	--	--	300	400	--
Sulfate	mg/L	--	--	100	84	--

13. Currently all process wastewater is directed to floor drains that discharge to a collection sump where live bacterial culture is added to enhance biodegradation of organic components in the wastewater stream. From the collection sump, wastewater is pumped through a solids separation screen and then through a flow meter before entering two unlined wastewater storage ponds.

14. A flow meter is located from the on-site supply well to fruit processing. A second flow meter is located downstream of solid separation of the wastewater to measure the volume of water discharged to unlined ponds. The facility currently does not monitor the volume of supplemental irrigation water used to irrigate the LAA where wastewater is discharged.

15. The two unlined wastewater ponds provide a combined storage capacity of approximately 1.66 million gallons. Each pond is approximately 372 feet long, 45 feet wide and 12 feet deep. Earthen berms surrounding the ponds are approximately four feet above the surrounding grade. A third unlined pond is used only for overflow of the two wastewater ponds. The unlined ponds are not aerated and are used as temporary storage before the wastewater is discharged to irrigate the 130-acre plum tree orchard LAA.

16. The active growing season for the plum orchard begins in the spring and the first irrigation event typically occurs in April, depending on the rate of seasonal precipitation. During irrigation events, supplemental irrigation water is blended with wastewater from the ponds then applied to the 130-acre LAA by flood irrigation.

17. The existing 130-acre LAA is divided into irrigation checks that are approximately 160 feet wide and 1,120 feet long and surrounded with berms for tailwater control. A 12-inch irrigation pipe runs the length of each section of the orchard with valves for each check. The checks are irrigated one at a time in sequence. Typically, three irrigation events of three weeks in duration occur during the growing season between April and October. Harvesting occurs between September and October.

18. Prune pits, hulls, organic debris, and wastewater screenings from processing are stored in a dedicated solids storage area equipped with floor drains to capture the liquid and direct it to the wastewater collection sump. The solids are transported off site for use as cattle feed or disposal at a cogeneration plant.

19. Domestic wastewater is discharged to a septic system regulated by the Sutter County Environmental Health Department.

Planned Facility Changes

20. The Discharger plans to replace the unlined wastewater ponds and expand the LAA, but not increase wastewater flow rates. Below is a summary of the proposed modifications to the existing wastewater process:

    a. The Discharger has proposed to construct a 1.16 acre lined wastewater storage pond system to replace the existing unlined wastewater ponds. The footprint of the lined wastewater pond will be approximately 225 feet long by 225 feet wide. The proposed wastewater pond will be 14 feet deep with two feet of freeboard, resulting in a 12-foot maximum water depth and a storage capacity of approximately 3.9 million gallons. The pond will be constructed with a 1:1 slope with a berm height of 6 feet above existing grade.

    b. The lined wastewater pond will be constructed with a 60-ml high-density polyethylene lining or other geosynthetic material to prevent percolation and may be equipped with aerators to prevent odors.

    c. Flow meters will be installed downstream of solids separation to measure flow into the wastewater pond. Flow meters will be also installed to measure discharge from the wastewater pond and supplemental irrigation to the LAA.

    d. Upon completion of the new wastewater pond, the existing unlined wastewater ponds will be abandoned, cleaned out, and closed by removing sludge and backfilling with native material. At that time all process wastewater will be routed to the new pond system.

    e. The LAA will be expanded to include an additional 70 acres of existing plum orchards for wastewater discharge. The additional LAA acreage is west of the existing LAA and shown on Attachment B, which is attached hereto and made part of this Order by reference.

    f. The additional 70 acres of LAAs will be irrigated with a combination of wastewater and supplemental irrigation from an on-site agricultural well. A containment berm will be installed around the perimeter of the additional LAA to provide tailwater containment.

    g. Discharge to the expanded 200 acres of LAAs will typically occur from April through October. Occasional irrigation may occur in the early spring as needed by the trees.

    h. Irrigation may be by flood irrigation using a series of checks and furrows or using a micro-irrigation system.

i. Because the Discharger will be replacing the unlined ponds with one lined pond, excess wastewater may be hauled off-site to a permitted disposal facility during pond maintenance activities or to prevent exceedance of pond storage capacity.

21. The proposed wastewater flow rate of 55,000 gpd is equivalent to 3.7 inches of water applied to the 200-acre LAA. A total of 50 inches of water must be applied during an average rainfall year to sustain the orchards given a crop water demand coefficient (ET_c) that ranges from 0.45 to 0.90 during the growing season; a local reference evapotranspiration rate (ET_0) of 50 inches; an annual average precipitation of 22 inches; and 70% irrigation efficiency. Therefore, approximately 48 inches of supplemental irrigation water is needed during an average rainfall year, and the blending ratio would be approximately 13:1 (supplemental water to wastewater). According to the Discharger's RWD, the wastewater storage pond would be sufficient to contain all wastewater generated from November through April during an average rainfall year.

During the 100-year annual rainfall event of 32 inches, the blending ratio would be lower, and the Discharger would need to apply about 5 inches of water from the wastewater storage pond to the LAA during the rainy season to prevent pond overflow. This would include stored wastewater plus storm water that falls directly onto the pond and runoff from outdoor processing areas.

22. Based on available wastewater quality data, the proposed flow rate, and 200 acres of LAA, typical hydraulic and waste constituent loading rates are tabulated below.

Description	Units	Current Operations
Wastewater Applied	inches/yr	4
Supplemental Irrigation Water Applied [1]	inches/yr	48 [2]
Annual Average BOD Loading	lbs/ac/day	10
Total Nitrogen Loading	lbs/ac/yr	15
Flow-weighted Average FDS [3]	mg/L	1,150 [3]

[1] Flow from on-site agricultural supply well.

[2] Assumes 70% efficiency

[3] Estimated using a blending ratio of 13:1 supplemental irrigation water with the average wastewater FDS concentration leaving the collection sump to the pond.

In summary, the discharge supplies less than 10% of the crop demand for water and less than 10% of the crop demand for nitrogen. The BOD loading rate is very low. Based on these estimates, the discharge of wastewater to the LAA poses no more threat of groundwater degradation than an orchard that relies on groundwater and chemical fertilizers as it sole sources of water and nutrients.

Site-Specific Conditions

23. Surrounding land uses are primarily agricultural with seasonal crops and orchards, along with a few scattered rural residences. Highway 99 borders the facility to the east.

24. The topography of the site and surrounding area is generally level with an approximate elevation of 60 to 65 feet above mean sea level (MSL). Aside from the Live Oak Canal approximately one mile to the west, the nearest surface water is the Feather River, approximately one mile east of the facility. The perimeter of the orchard LAA is bermed such that runoff from the facility does not flow off-site or into the nearby canal or Feather River. The facility is near the eastern boundary of the Sutter Bypass Hydrologic Unit (520.3).

25. According to a 1988 Flood Insurance Rate Map for the area, the facility is in Flood Zone X, which is outside and protected from the currently-defined Federal Emergency Management Agency (FEMA) 100-year flood zone. The site is within an area that is protected from the 100-year flood by levees, dikes, or other structures that may be subject to possible failure or overtopping during larger flood events.

26. Based on climate data from the Western Regional Climate Center (WRCC), the average annual precipitation for the east side of Sutter County (Marysville Station) is approximately 21 inches per year. The 100-year, 365-day precipitation event is approximately 37 inches, and the average reference evapotranspiration (ETo) rate is approximately 50 inches per year.

Groundwater Conditions

27. The facility is located within the Sutter Subbasin of the Sacramento Valley Groundwater Basin, which consists of late Tertiary to Quaternary aged deposits comprised of Sierra-sourced (Sierra Nevada) detritus and volcanic and clastic sediments. Recent alluvium is underlain by the Sutter Buttes Rampart, the Victor Formation, the Pliocene Laguna, and the Sutter Formation. Near-surface Holocene aged stream channel and flood plain deposits occur along the current and ancestral paths of streams and rivers in Sutter County. The stream channel and flood plain deposits consist of unconsolidated gravel, sand, silt, and clay. Where present, stream channel and flood plain deposits extend from ground surface to an estimated depth of 100 feet. These units are highly permeable and provide high well yields and groundwater recharge.

28. The Sutter County Groundwater Management Plan[1] summarizes the geologic and hydrogeologic conditions in the Sutter Subbasin and portions of the East Butte and North American Subbasins of the south central part of the Sacramento Valley Groundwater Basin. According to the Plan, naturally occurring constituents of concern in groundwater near the facility include dissolved salts [as measured by the specific

[1] Sutter County Public Works Department, March 2012.

conductance or electrical conductance (EC)], boron, nitrate, manganese, arsenic, and mercury. The plan states that there are some areas within the county where boron and manganese are at concentrations that "…may cause aesthetic problems for domestic and municipal uses…" and that regional sources of groundwater degradation include applied fertilizers, salts, and septic systems (nitrate and salt loading).

29. Four groundwater monitoring wells (MW-1 through MW-4) were installed in 2006 to provide data for the RWD. The four monitoring wells were constructed with 2-inch PVC casing. The monitoring well locations are shown on Attachment B, with selected construction details summarized below.

Well ID	Screen Interval (feet bgs)	Description of Well Location
MW-1	27 - 37	Approximately 40 feet south (downgradient) of the wastewater ponds
MW-2	29 - 39	Approximately 250 feet east (upgradient) of the wastewater ponds
MW-3	30 – 40	Approximately 1,100 feet southeast (cross- or upgradient) of the wastewater ponds and within LAA
MW-4	30 - 40	Approximately 2,800 feet southwest (downgradient) of the wastewater ponds and 1,700 feet west (downgradient) of the existing LAA

30. The monitoring well installation logs indicate that near-surface soils at the facility consist of clay and sandy loam to a depth of approximately 25 feet below ground surface (bgs). A medium grained saturated sand interval was identified beneath the surface sediments between 25 and 35 feet bgs and a clay interval was identified in the monitoring wells below 35 feet bgs.

31. Limited groundwater monitoring conducted in September 2006 and May 2013 indicates that the approximate depth to groundwater at the site is 20 to 21 feet bgs. Based on limited monitoring data collected to date, the downgradient direction of the shallow water table ranges from northwest to southwest. Because only two monitoring events have been conducted to date, additional groundwater monitoring data are necessary to characterize seasonal variability in the shallow groundwater flow direction, which may be strongly influence by groundwater pumping.

32. Groundwater monitoring data from two monitoring events in 2006 and 2013 are summarized in the following table.

Constituent	Units	Adjacent to Unlined Ponds		Land Application Areas		Protective Water Quality Limit
		MW-1	MW-2	MW-3	MW-4	
FDS [1]	mg/L	1,500	1,310	619	657	---

Constituent	Units	Adjacent to Unlined Ponds		Land Application Areas		Protective Water Quality Limit
		MW-1	MW-2	MW-3	MW-4	
TDS [2]	mg/L	1,860	1,720	900 [2]	910	450 [3] – 1500 [4]
Chloride [2]	mg/L	760	550	189	44	250 [5] – 600 [5]
Sodium [2]	mg/L	513	396	109	38	69 [3]
pH [2]	SU	8	6.7	6.8	7.5	6.5 [5] - 8.4 [3]
EC [2]	µmhos/cm	3,320	3,100	1,510	1,380	900 [5]
Nitrate nitrogen [2]	mg/L	<0.1	<0.1	<0.1	<0.1	10 [6]
Sulfate [2]	mg/L	6	<2.0	33	33	250 [5]
Iron [2]	mg/L	3.6	2.56	<0.05	<0.05	0.3 [5]
Manganese [2]	mg/L	0.84	0.33	<0.01	<0.01	0.05 [5]
Boron [2]	mg/L	0.2	0.3	0.5	<0.1	---

[1] Data collected in August/September 2006
[2] Data collected in May 2013
[3] Lowest Agricultural Water Quality Goal
[4] Upper Secondary Maximum Contaminant Level
[5] Secondary Maximum Contaminant Level
[6] Primary Maximum Contaminant Level

33. The following preliminary conclusions can be made based on the limited groundwater monitoring data collected in 2006 and 2013:

    a. Monitoring wells MW-1 and MW-2 are in close proximity to the existing unlined wastewater ponds. Based on the sandy soil conditions and shallow depth to groundwater, percolation from the unlined wastewater ponds has likely created a groundwater mound that incorporates MW-1 and may extend as far as MW-2. Therefore, MW-1 and MW-2 are considered representative of groundwater conditions immediately downgradient of the wastewater ponds.

    b. There is currently no background groundwater monitoring well at the site. Monitoring well MW-3 is located within and on the upgradient side of the 130-acre LAA while monitoring well MW-4 is downgradient of the current LAA. Groundwater quality in these wells is likely more strongly influenced by ambient background conditions than the discharge. Therefore, groundwater monitoring data from MW-3 and MW-4 will serve as a surrogate for background groundwater quality for the purpose of this Order.

    c. Available groundwater monitoring data from MW-1 and MW-2 indicate strong evidence of pollution from the existing wastewater ponds when compared with groundwater data from MW-3 and MW-4. Specifically, groundwater in monitoring wells MW-1 and MW-2 exceeds water quality objectives for TDS, sodium, and

manganese. Groundwater monitoring well MW-1 also exceeds the least stringent potential water quality objective for chloride.

34. Data from the existing monitoring well network are not sufficient to accurately characterize background groundwater quality or evaluate potential degradation from discharges to the LAA. Additional monitoring wells and monitoring data are necessary to define background conditions and evaluate compliance with the groundwater limitations of this Order.

Basin Plan, Beneficial Uses, and Regulatory Considerations

35. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.

36. Local drainage is to Feather River to the east, which drains into the Sutter Bypass to the south of the facility. The beneficial uses of the of the Feather River from the Fish Barrier Dam to the Sacrament River, as stated in the Basin Plan, include municipal and domestic supply, agricultural irrigation supply; water contact recreation; non-contact water recreation; warm freshwater habitat, cold fresh water habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

37. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. The Basin Plan also sets forth a numeric objective for total coliform organisms.

38. The Basin Plan's numeric water quality objective for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN groundwater.

39. The Basin Plan's narrative water quality objectives for chemical constituents, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of the California Code of Regulations (hereafter Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

40. The narrative toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

41. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.

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

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

43. Pollution Abatement in the Fruit and Vegetable Industry, published by the United States Environmental Protection Agency, cites BOD loading rates in the range of 36 to 600 lb/acre-day to prevent nuisance, but indicates the loading rates can be even higher under certain conditions. The studies that supported this report did not evaluate actual or potential groundwater degradation associated with those rates. There are few studies that have attempted to determine maximum BOD loading rates for protection of groundwater quality. Those that have been done are not readily adapted to the varying soil, groundwater, and climate conditions that are prevalent throughout the region.

44. The California League of Food Processors' Manual of Good Practice for Land Application of Food Processing/Rinse Water proposes risk categories associated with particular BOD loading rate ranges as follows:

    a. Risk Category 1: (less than 50 lb/ac/day as an application cycle average; depth to groundwater greater than 5 feet) Indistinguishable from good farming operations with good distribution important.

    b. Risk Category 2: (less than 100 lb/ac/day as an application cycle average; depth to groundwater greater than 5 feet) Minimal risk of unreasonable groundwater degradation with good distribution more important.

    c. Risk Category 3: (greater than 100 lb/ac/day as an application cycle average; depth to groundwater greater than 2 feet) Requires detailed planning and good operation with good distribution very important to prevent unreasonable degradation, as well as use of oxygen transfer design equations that consider site-specific application cycles and soil properties and special monitoring.

    The *Manual of Good Practice* recommends allowing a 50 percent increase in the BOD loading rates in cases where sprinkler irrigation is used, but recommends that additional safety factors be used for sites with heavy and/or compacted soils.

45. Although it has not been subject to a scientific peer review process, the Manual of Good Practice provides science-based guidance for BOD loading rates that, if fully implemented, are considered a best management practice to prevent groundwater degradation due to reduced metals.

46. This Order sets a monthly cycle average BOD loading rate of 40 lbs/acre/day, which is consistent with Risk Category 1 in the Manual of Good Practice for Land Application of Food Processing/Rinse Water discharges.

Antidegradation Analysis

47. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation is consistent with the maximum benefit to the people of the state.

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

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

    d. The discharger employs best practicable treatment or control (BPTC) to minimize degradation.

48. Limited degradation of groundwater by some of the typical waste constituents associated with food processing discharges, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The Discharger's packing operations currently provides 120 full time jobs, with supporting part-time employment of approximately 35 additional people that work in the orchards and 89 staff working at Wilbur Ranch. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing limited groundwater degradation that may occur pursuant to this Order.

49. It is not possible to determine pre-1968 groundwater quality for the shallow water bearing zone. Therefore, determination of compliance with Resolution 68-16 for this facility must be based on current background groundwater quality.

    The table below provides a comparison of process wastewater with groundwater analytical results for May 2013. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride), nitrate, and other minerals (manganese and iron) as discussed below. As noted in Findings 32 and 33, the discharge to the LAA poses a threat of degradation, but far less so than the unlined wastewater storage ponds.

Constituent	Concentrations (mg/L)			
	Process Wastewater [1]	Apparent Background Groundwater Quality [2]	Groundwater Quality Affected by Wastewater Ponds [3]	Potential Water Quality Objective
TDS	2,660	900 - 910	1,720 - 1,860	450 [4] to 1,500 [5]
FDS	1,620	638	1,405	--
Nitrate Nitrogen	28 [6]	<0.1	<0.4	10 [7]
Sulfate	73.9	33 - 197	<2 - 6	250 [8]
Sodium	423	38 - 109	396 - 513	69 [4]
Chloride	614	44 - 189	550 - 760	106 [4] - 600 [5]
Manganese [9]	--	<0.01	0.33 - 0.84	0.05 [8]
Iron [9]	--	<0.05	2.56 – 3.6	0.3 [8]
Boron [9]	--	<0.1 – 0.6	0.3	0.7 [4]

[1] Wastewater to unlined ponds
[2] Monitoring wells MW-3 and MW-4
[3] Monitoring wells MW-1 and MW-2
[4] Lowest agricultural water quality goal
[5] Upper Secondary Maximum Contaminant Level
[6] Total nitrogen is used to represent the nitrate nitrogen potential of the wastewater
[7] Primary Maximum Contaminant Level for nitrate nitrogen
[8] Secondary Maximum Contaminant Level
[9] Dissolved concentration

50. Based on the comparison of wastewater and groundwater concentrations, the following constituents have the potential to degrade groundwater quality.

    a. **Total Dissolved Solids.** Wastewater discharged into the existing unlined ponds has a typical FDS concentration of 2,700 mg/L. The best available indicators of background groundwater quality are TDS concentrations of approximately in 900 mg/L in MW-3 and MW-4. TDS concentrations in MW-1 and MW-2 closer to the unlined wastewater ponds are up to 1,900 mg/L. These findings indicate that discharge into the existing unlined ponds has caused exceedance of the least stringent potential water quality objective, which is the short-term maximum secondary MCL of 1,500 mg/L. Because the Discharger plans to replace the existing unlined ponds with a lined pond system, groundwater quality with respect to TDS is expected to improve over time; however, it is not possible to predict the level of improvement that can achieved or when it might occur. Therefore, this Order sets a groundwater limitation that prohibits any increase of TDS in groundwater in monitoring wells MW-1 and MW-2.

    There is currently insufficient groundwater monitoring information to evaluate the impact of wastewater discharge to the LAA. As noted in Findings 32 and 33, application of wastewater to the LAA has the potential to cause groundwater

degradation with TDS, however it is not expected to cause or contribute to exceedance of a water quality objective.

This Order includes a time schedule in the Provisions that requires the Discharger to complete the lined wastewater storage pond. If the required improvements do not result in significantly improved groundwater quality within four years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objective.

The FDS effluent limit of this order does not allow the salinity of the wastewater to increase above current levels. For the monitoring wells that monitor the wastewater storage pond (MW-1 and MW-2), the groundwater limitation of this Order prohibits exceedance of current TDS concentrations until January 2018, by which time the groundwater quality in these wells is expected to be below background conditions or water quality objectives, whichever is greater. TDS concentrations in the compliance monitoring wells that monitor the LAA are currently below the water quality objective, and this Order allows degradation up to the water quality objective in those wells. However, the Order also sets a numeric trigger concentration for TDS for those wells that monitor the LAA. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the groundwater limitation or implements additional treatment or control measures to ensure compliance with the groundwater limitation.

b. **Nitrate**. Wastewater discharged into the existing unlined ponds has an approximate total nitrogen concentration of 28 mg/L. For comparison, nearby monitoring wells MW-1 and MW-2 did not identify nitrate as nitrogen concentrations in excess of laboratory reporting limits. These findings indicates that nitrogen discharge into the existing unlined ponds has not caused exceedance of the least stringent potential water quality objective, which is the primary MCL of 10 mg/L. However, as discussed below, the reducing conditions that caused high levels of iron and manganese have likely resulted in dinitrification. Otherwise the threat of nitrate pollution posed by the unlined ponds would be high. Replacement of the unlined wastewater ponds with a lined pond system is expected to provide adequate protection of underlying groundwater conditions to prevent exceedance of the water quality objective for nitrate.

There is currently insufficient groundwater monitoring information to evaluate the impact of nitrogen in wastewater discharge to the LAA. Nitrate as nitrogen concentrations were less than the laboratory reporting limit of 0.1 mg/L in monitoring wells in MW-3 and MW-4, which are generally up- and downgradient of the LAA.

This Order includes a time schedule in the Provisions that requires the Discharger to complete the lined wastewater storage pond and to perform a

background groundwater study to determine background groundwater conditions with respect to nitrate. If the required improvements do not result in significantly improved groundwater quality in MW-1 and MW-2 within four years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objective.

The expanded LAA system will maximize nitrogen uptake by crops and minimize the potential for nitrate to cause or contribute to nitrate pollution. Therefore, the groundwater limitations of this Order requires that the discharge not cause any increase in groundwater nitrate concentrations in groundwater monitoring wells near the LAA and that nitrogen from wastewater and other sources be applied to the LAAs at rates consistent with crop demand.

c. **Sodium**. Wastewater discharged into the existing unlined pond has a sodium concentration of 423 mg/L. Groundwater monitoring data for nearby monitoring wells MW-1 and MW-2 identified sodium concentrations of 513 mg/L and 396 mg/L, respectively. These concentrations indicate that discharge into the existing unlined pond has caused an exceedance of the lowest agricultural water quality goal for sodium of 69 mg/L. Because the Discharger plans to replace the existing unlined ponds with a lined pond system, groundwater quality with respect to sodium from the wastewater ponds is expected to improve over time; however, it is not possible to predict the level of improvement that can achieved or when it might occur. Therefore, this Order sets a groundwater limitation that prohibits any increase of sodium in groundwater in monitoring wells MW-1 and MW-2.

There is currently insufficient groundwater monitoring information to evaluate the impact of sodium in wastewater discharge to the LAAs. Sodium concentrations in groundwater near the LAA ranges from 109 mg/L in upgradient monitoring well MW-3, which is above the lowest agricultural water quality goal, to below the water goal in downgradient monitoring well MW-4. Without reliable background data, it appears that groundwater quality in MW-3 is likely influenced by agricultural land use in the area. Therefore, this Order requires that the Discharger determine background groundwater conditions with respect to sodium.

This Order sets a groundwater limitation that prohibits any increase in groundwater sodium in monitoring wells MW-1, MW-2, and MW-3. This Order includes a time schedule in the Provisions that requires the Discharger to complete the lined wastewater storage pond and to perform a background groundwater study to characterize groundwater conditions and potential impacts to groundwater. If the required improvements do not result in significantly improved groundwater quality within four years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objective.

The expanded LAA system will maximize sodium uptake by crops and soil cation exchange, which will minimize the potential for sodium to migrate to groundwater. Therefore, the groundwater limitations of this Order require that the discharge not cause any increase in sodium concentrations near the wastewater ponds and the LAA, and that wastewater and other water sources be applied to the LAAs at rates consistent with crop demand to minimize percolation. This Order also sets a numeric trigger concentration for sodium for those wells that monitor discharge to the LAA. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the groundwater limitation or implements additional treatment or control measures to ensure compliance with the groundwater limitation.

Chloride. Wastewater discharged into the existing unlined pond has a chloride concentration of 614 mg/L. Groundwater monitoring data for nearby monitoring wells MW-1 and MW-2 identified chloride concentrations of 760 mg/L and 550 mg/L, respectively. The chloride concentration in MW-1 indicates that wastewater discharge into the existing unlined pond has caused exceedance of the secondary MCL of 600 mg/L. For comparison with background conditions, chloride concentrations in groundwater monitoring wells MW-3 and MW-4 range from 189 mg/L to 44 mg/L, respectively. These findings indicate that discharge into the existing unlined ponds has caused exceedance of the least stringent potential water quality objective.

Because the Discharger plans to replace the existing unlined ponds with a lined pond system, groundwater quality with respect to chloride from the wastewater ponds is expected to improve over time; however, it is not possible to predict the level of improvement that can achieved or when it might occur. Therefore, this Order sets a groundwater limitation that prohibits any increase of chloride in groundwater in monitoring well MW-1 and MW-2.

There is currently insufficient groundwater monitoring information to evaluate the impact of wastewater discharged to the LAA. Due to the variability of chloride concentrations in groundwater monitoring wells MW-3 and MW-4, application of wastewater to the LAA has the potential to cause groundwater degradation with chloride, although it is not expected to cause or contribute to exceedance of a water quality objective. Therefore, this Order requires that the Discharger determine background groundwater quality. This Order also sets a numeric trigger concentration for chloride for those wells that monitor the LAA. If the trigger concentration is exceeded, this Order requires that the Discharger demonstrate that the increasing trend will not result in exceedance of the groundwater limitation or implements additional treatment or control measures to ensure compliance with the groundwater limitation.

d. **Manganese**. Wastewater generated at the facility has not been analyzed for manganese; however dissolved manganese concentrations in nearby monitoring wells MW-1 and MW-2 were 0.84 and 0.33 mg/L, respectively. These concentrations exceed the Secondary MCL of 0.05 mg/L and are likely the result

of reducing conditions beneath the wastewater ponds that favor dissolution and mobilization of manganese from native soil. For comparison purposes, dissolved manganese concentrations in monitoring wells MW-3 and MW-4 near the LAA were below laboratory reporting limits. These findings indicate that pollution has occurred beneath the unlined ponds. Because the Discharger proposes to replace the existing unlined ponds and maintain low BOD loading rates, the discharge is not likely to continue causing reducing conditions that would continue dissolving iron into groundwater. Therefore, this Order sets a groundwater limitation that prohibits any increase in manganese concentrations in monitoring wells MW-1 and MW-2 near the existing unlined ponds.

Manganese concentrations in MW-1 and MW-2 are expected to decrease after the Discharger replaces the unlined ponds. If the required improvements do not result in significantly improved groundwater quality within four years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objective.

Manganese concentrations in the compliance groundwater monitoring wells that monitor the LAA are currently below the water quality objective and the low BOD loading rate will be sufficient to prevent pollution associated with the LAA. The groundwater limitations of this Order allow degradation up to the water quality objective or background water quality, whichever is greater.

e. **Iron**. Wastewater generated at the facility has not been analyzed for iron; however dissolved iron concentrations in monitoring wells MW-1 and MW-2 have concentrations that range between 3.6 mg/L and 2.56 mg/L, which exceeds the secondary Maximum Contaminant Level of 0.3 mg/L and are likely the result of reducing conditions beneath the wastewater ponds that favor dissolution and mobilization of iron from native soil. For comparison purposes, dissolved iron concentrations in monitoring wells MW-3 and MW-4 near the LAAs were below laboratory reporting limits. These findings indicate that degradation and pollution has only occurred beneath the unlined ponds. Because the Discharger proposes to replace the existing unlined ponds, the discharge is not likely to continue causing reducing conditions that would continue dissolving iron into groundwater. Therefore, this Order sets a groundwater limitation that prohibits any increase in manganese concentrations in monitoring wells MW-1 and MW-2 near the existing unlined ponds.

Iron concentrations in MW-1 and MW-2 are expected to decrease after the Discharger replaces the unlined ponds. If the required improvements do not result in significantly improved groundwater quality within four years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objective.

Iron concentrations in compliance groundwater monitoring wells that monitor the LAA are currently below the water quality objective and the low BOD loading rate will be sufficient to prevent pollution associated with the LAA. The groundwater limitation of this Order allows degradation up to the water quality objective or within the range of background water quality, whichever is greater.

51. With respect to TDS, sodium, chloride, iron, and manganese, an unacceptable degree of groundwater degradation has occurred beneath the existing unlined wastewater ponds. An unacceptable degree of groundwater degradation of TDS, sodium, iron, and manganese has also occurred in MW-2. Therefore, this Order does not authorize any further degradation of groundwater beneath the existing unlined ponds beyond that which exists today for these constituents, as reflected by monitoring wells MW-1 and MW-2.

52. This Order requires intrawell analysis of compliance well groundwater monitoring data to determine compliance with the Groundwater Limitations. If the required improvements do not result in significantly improved groundwater quality within three years of adoption of this Order, the Provisions require that the Discharger implement additional treatment or control as necessary to bring the discharge into compliance with the Basin Plan water quality objectives.

53. This Order requires implementation of upgrades and any additional measures that will be required to comply with the Groundwater Limitations of this Order, and which are expected to result in significant improvements in the shallow groundwater quality beneath the site. This Order imposes effluent and mass loading rate limitations and contains a time schedule for the implementation of additional treatment or control to ensure that the highest water quality consistent with the maximum benefit to the people of the State will be achieved while minimizing any degradation that may occur prior to completion of the required tasks. Following completion of the time schedule, this Order will be reopened if necessary to reconsider effluent limitations and other requirements to comply with Resolution 68-16. Based on the existing record, the discharge authorized by this Order is consistent with the antidegradation provisions of Resolution 68-16.

Other Regulatory Considerations

54. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This order promotes that policy by requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

55. Based on the threat and complexity of the discharge, the facility is determined to be classified as 2C as defined below:

    a. Category 2 threat to water quality: “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations

of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

b. Category C complexity, defined as: "Any discharge for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code. Included would be discharges having no waste treatment systems or that must comply with best management practices, discharges having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal."

56. Title 27 of the California Code of Regulations (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this Order are exempt from Title 27 pursuant to provisions that exempt domestic sewage, wastewater, and reuse. Title 27, section 20090 states in part:

> The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed:
>
> (b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:
>
> (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
>
> (2) the discharge is in compliance with the applicable water quality control plan; and
>
> (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

57. The discharge authorized herein, and the treatment and storage facilities associated with the discharge, are exempt from the requirements of Title 27. The current unlined wastewater ponds, future aerated pond, and LAAs are exempt pursuant to Title 27, section 20090(b) because they are discharges of wastewater to land and:

a. The Central Valley Water Board is issuing WDRs;

b. This Order prescribes requirements that will ensure compliance with the Basin Plan; and

c. The wastewater discharged to the LAAs does not need to be managed as hazardous waste.

58. The U.S. EPA published Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance (hereafter "Unified Guidance") in 2009. As stated in the Unified Guidance, the document:

> …is tailored to the context of the RCRA groundwater monitoring regulations … [however, t]here are enough commonalities with other regulatory groundwater monitoring programs … to allow for more general use of the tests and methods in the Unified Guidance… Groundwater detection monitoring involves either a comparison between different monitoring stations … or a contrast between past and present data within a given station… The Unified Guidance also details methods to compare background data against measurements from regulatory compliance points … [as well as] techniques for comparing datasets against fixed numerical standards … [such as those] encountered in many regulatory programs.

The statistical data analysis methods in the Unified Guidance are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.

59. The State Water Board adopted Order 97-03-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities, and requiring submittal of a Notice of Intent by all affected industrial dischargers. The Discharger is covered under NPDES General Permit CAS000001.

60. Water Code section 13267(b) states:

> In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge 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.

61. The technical reports required by this Order and the attached Monitoring and Reporting Program <order number> are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

62. 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 Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.

63. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.

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

Public Notice

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

66. The Discharge and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity to submit written comments and an opportunity for a public hearing.

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

IT IS HEREBY ORDERED that pursuant to Water Code sections 13263 and 13267, Richard G. Wilbur and Wilbur Packing Company, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted hereunder, shall comply with the following:

A. Discharge Prohibitions

1. **Effective 1 July 2015**, discharge of wastewater to any unlined pond is prohibited. Future use of the existing unlined wastewater ponds for supplemental irrigation water storage or other purposes is prohibited unless and until the Discharger completes pond closure activities pursuant to the approved *Unlined Wastewater Pond Closure Plan* described in Provision H.1.c.

2. Discharge of wastes to surface waters or surface water drainage courses, including off-site conveyance systems outside of control of the Discharger, is prohibited.

3. Discharge of waste classified as 'hazardous', as defined in the California Code of Regulations, title 23, section 2510 et seq., is prohibited.

4. Discharge of waste at a location or in a manner different from that described in the Findings is prohibited.

5. Discharge of wastewater off-site (if any) to any place other than a permitted wastewater treatment facility is prohibited.

6. Discharge of toxic substances into the wastewater treatment system or land application areas such that biological treatment mechanisms are disrupted is prohibited.

7. Discharge of process wastewater to the domestic wastewater treatment system (septic system) is prohibited.

8. Discharge of domestic wastewater to the process wastewater ponds, land application area or any surface waters is prohibited.

B. Flow Limitations

1. Wastewater flows from the sump to the wastewater pond(s) shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow [1]	21 MG
Average Daily Flow [2]	55,000 gpd

[1] As determined by the total flow for the calendar year.

[2] As determined by the total flow during the calendar month divided by the number of days in that month.

Compliance with these limitations shall be determined based on flow monitoring data from the flow meter depicted on Attachment C.

C. Effluent and Mass Loading Limitations

The blend of wastewater and supplemental irrigation water applied to the LAAs shall not exceed the following effluent and mass loading limits:

Constituent	Units	Irrigation Cycle Average	Annual Maximum
BOD Mass Loading	lbs/acre/day	40	--
Average FDS Concentration	mg/L	--	1,500 [1]
Total Nitrogen Mass Loading	lbs/ac/year	--	Crop Demand

[1] Flow-weighted average based on total flow and concentration for each source of water discharged.

Compliance with the above requirements shall be determined as specified below:

a. The mass of BOD applied to the LAA as an irrigation cycle average shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{A(CT)}$$

Where:
M = mass of BOD applied to each LAA field in lbs/ac/day/irrigation cycle
C = concentration of BOD in mg/L based on the average of the three most recent wastewater monitoring results
V = volume of wastewater applied to the LAA field in millions of gallons per day during the irrigation cycle
A = area of the LAA field irrigated in acres
CT = cycle time (i.e., irrigation cycle length from start of irrigation to start of next irrigation event, in days)

b. The mass of total nitrogen applied to each LAA on an annual basis shall be calculated using the following formula and compared to published crop demand for the crops actually grown:

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

Where:
M = Mass of nitrogen applied to LAA in lb/ac/yr
C_i = Monthly average concentration of total nitrogen for month *i* in mg/L
V_i = volume of wastewater applied to the LAA during calendar month *i* in million gallons
A = area of the LAA irrigated in acres
i = the number of the month (e.g., January = 1, February = 2, etc.)
M_x = nitrogen mass from other sources (e.g., fertilizer and compost) in pounds
8.345 = unit conversion factor

c. The flow-weighted average annual FDS concentration shall be calculated using the following formula:

$$C_a = \frac{\sum_{1}^{12} [(C_{Pi} \times V_{Pi}) + (C_{Si} \times V_{Si})]}{\sum_{1}^{12} (V_{Pi} + V_{Si})}$$

Where: C_a = Flow-weighted average annual FDS concentration in mg/L

$_{i}$ = the number of the month (e.g., January = 1, February = 2, etc.)
C_{Pi} = Monthly average process wastewater FDS concentration for calendar month *i* in mg/L
C_{Si} = Monthly average supplemental irrigation water FDS concentration for calendar month *i* in mg/L (considering each supplemental source separately)
V_{Pi} = volume of process wastewater applied to LAAs during calendar month *i* in million gallons
V_{Si} = volume of supplemental irrigation water applied to LAAs during calendar month *i* in million gallons (considering each supplemental source separately)

D. Discharge Specifications:

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

2. The discharge shall not cause degradation of any water supply.

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

4. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.

5. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.

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

7. Objectionable odors shall not be perceivable beyond the limits of the facility boundary at an intensity that creates or threatens to create nuisance conditions.

8. As a means of discerning compliance with Discharge Specification D.7, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

9. The Discharger shall operate and maintain all wastewater ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. For ponds lined with geosynthetic (plastic) material, the operating freeboard in any pond shall never be less than one foot (measured vertically from

the lowest possible point of overflow). For unlined or clay lined ponds with berms that are higher than the surrounding grade, the operating freeboard shall never be less than two feet. As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.

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

11. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications 9 and 10.

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

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

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

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

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

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

14. The Discharger shall monitor sludge accumulation in the wastewater pond at least **every five years beginning in 2019**, and shall periodically remove sludge as necessary to maintain adequate storage capacity. Specifically, if the estimated volume of sludge in any pond exceeds 20 percent of the permitted pond capacity, the Discharger shall complete sludge cleanout within 12 months after the date of the estimate.

15. Storage or composting of residual solids and sludges on areas not equipped with means to collect leachate and minimize storm water infiltration is prohibited.

16. **Every five years beginning in 2020**, the Discharger shall test the integrity of all pond liners and repair all significant leaks in accordance with an approved workplan pursuant to Provision H.1.h.

E. Groundwater Limitations

1. **Effective immediately and continuing until 31 December 2016**, the release of waste constituents shall not cause groundwater to:

   a. Contain the following constituents at concentrations greater than the concentrations tabulated below:

Constituent	Maximum Compliance Monitoring Well Concentration (mg/L)			
	MW-1	MW-2	MW-3	MW-4
TDS	2,000	1,900	*	*
Chloride	800	600	*	*
Sodium	550	450	150	*
Iron	4.0	3.0	*	*
Manganese	1.0	0.5	*	*

   * Groundwater limitations E.1.b and E.1.c apply.

   b. For all compliance monitoring wells except as specified in E.1.a above, contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

   c. For all compliance monitoring wells except as specified in E.1.a above, contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations.

   d. For all compliance monitoring wells exhibit a pH of less than 6.5 or greater than 8.4 pH units.

   Compliance with these limitations shall be determined by comparing the annual average results in each compliance monitoring well to the specified limit.

2. **Effective 1 January 2017**, release of waste constituents shall not cause groundwater in any compliance monitoring well to:

   a. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses, except where background groundwater quality exceeds the water quality objective.

b. Contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22 of the California Code of Regulations, except where background groundwater quality exceeds the water quality objective.

Compliance with these limitations shall be determined based on analysis of data using approved statistical methods.

F. Land Application Area Specifications

1. Crops (e.g. plum orchards) shall be grown in the LAAs. Crops shall be selected based on nutrient uptake capacity, tolerance to soil moisture conditions, consumptive use of water, and irrigation requirements. Cropping activities shall be sufficient to take up the nitrogen applied, including any fertilizers and manure.

2. Application of waste constituents to LAAs shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAAs, including the nutritive value of organic and chemical fertilizers and of the wastewater shall not exceed the annual crop demand.

3. Discharge of process wastewater to any LAA not having a fully functional tailwater/runoff control system is prohibited.

4. Tailwater runoff shall not be discharged outside of the LAAs.

5. LAA storm water runoff shall not be discharged outside of the LAAs.

6. Land application of wastewater shall be managed to minimize erosion.

7. The LAAs shall be managed to prevent breeding of mosquitoes. In particular:

   a. There shall be no standing water 48 hours after irrigation ceases;

   b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and

   c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.

8. LAAs shall be designed, maintained, and operated to comply with the following setback requirements:

Setback Definition	Minimum Irrigation Setback (feet)
Edge of LAA to property boundary	10
Edge of LAA to manmade or natural surface water drainage course	25
Edge of LAA to domestic water supply well	100

9. Irrigation of the LAAs shall occur only when appropriately trained personnel are on duty.

10. LAAs shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.

11. Discharge to the LAAs shall not be performed during rainfall or when the ground is saturated.

G. Solids Disposal Specifications

Sludge, as used in this document, means the solid, semisolid, and liquid organic matter removed from wastewater treatment, settling, and storage vessels or ponds. Solid waste refers to solid inorganic matter removed by screens and soil sediments from washing of unprocessed fruit or vegetables. Except for waste solids originating from meat processing, residual solids means organic food processing byproducts such as culls, pulp, stems, leaves, and seeds that will not be subject to treatment prior to disposal or land application.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, and clarifiers as needed to ensure optimal operation and adequate storage capacity.

2. Any handling and storage of sludge, solid waste, and residual solids shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order.

3. If removed from the site, sludge, solid waste, and residual solids shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27, division 2. Removal for reuse as animal feed, or land disposal at facilities (i.e., landfills, composting facilities, soil amendment sites) operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy this specification.

4. Any proposed change in solids use or disposal practice shall be reported in writing to the Executive Officer at least 90 days in advance of the change.

H. Provisions

1. The following reports shall be submitted pursuant to Water Code section 13267 and shall be prepared as described in Provision H.5:

    a. **By 1 August 2014**, the Discharger shall submit a *Flow Metering Systems Improvement Plan*. The plan shall describe the planned installation of flow meter systems that provide continuous direct flow measurements and accurate calculation of daily total flows for:

i. combined flow from the solids screen to the storage pond,

ii. flow from the storage pond to the LAAs, and

iii. flow from the supply well for irrigation of the LAAs.

The plan shall describe how the metering systems will be used in conjunction with appropriate wastewater sampling stations (whether existing or new) to ensure accurate calculation of waste constituent loadings. The plan shall document that all wastewater flow meters shown in Attachment C will be independently calibrated by a third party.

b. **By 1 September 2014,** the Discharger shall submit a *Groundwater Monitoring Well Installation Workplan* that describes plans to install a background monitoring well and at least two monitoring wells within or downgradient of the expanded LAAs to verify compliance with the Groundwater Limitations. The workplan shall be prepared in accordance with, and include the items listed in, the first section of Attachment D: "*Requirements for Monitoring Well Installation Workplans and Monitoring Well Installation Reports*", which is attached hereto and made part of this Order by reference. The groundwater monitoring wells shall be designed to yield samples representative of the uppermost portion of the first aquifer underlying the LAAs.

c. **By 1 September 2014**, the Discharger shall submit a *Wastewater Pond Design Report and Pond Liner Construction Quality Assurance (CQA) Plan,* and an *Unlined Wastewater Pond Closure Plan.* The *Wastewater Pond Design Report* shall describe the proposed plan to replace the existing unlined wastewater ponds with a lined pond system, as described in Finding 20. Specifically, the *Wastewater Pond Design Report* shall provide specifications of the new wastewater storage pond and liner system, including complete pond geometry, pond volume at two feet of freeboard, liner materials, liner thickness, seaming methods, and details of anchorage and typical penetrations. The *CQA Plan* shall describe the specific construction quality assurance procedures and test methods that the Discharger proposes to ensure and verify that the liner subgrade preparation, installation and seaming will comply with the specifications; the entire liner is tested following installation to verify that all seams and liner penetrations are leak-free at the time of acceptance; and the entire liner is inspected for visible material defects and construction damage such as holes or tears prior to acceptance. If the proposed pond geometry differs from the geometry described in Finding 20, the *Wastewater Pond Design Report* shall include a revised water balance that demonstrates the pond will have sufficient capacity to ensure compliance with all requirements of this Order at the wastewater flow rates allowed herein.

d. **By 1 September 2014**, the Discharger shall submit an *Unlined Wastewater Pond Closure Plan.* The *Unlined Wastewater Pond Closure Plan* shall describe the specific means that will be implemented to remove residual waste

constituents in the bottom of the former wastewater ponds, including proposed procedures to remove sludge, provide verification of waste removal, backfill and compaction procedures, and restoring the area to minimize future percolation beneath the former wastewater pond(s).

e. **By 1 November 2014**, the Discharger shall submit a *Flow Meter Installation and Calibration Report* that demonstrates that flow meters have been installed downstream of the wastewater collection process and from supplemental irrigation to the LAAs for use in determining compliance with the Flow Limitations of this Order. The report shall verify that the metering systems are adequate and fully operational. The report shall document that all wastewater flow meters shown schematically in Attachment C have been independently calibrated by a third party. The report shall also provide standard procedures for recording wastewater flow measurements, and provide a schedule for periodic meter calibration.

f. **By 1 February 2015,** the Discharger shall submit a *Groundwater Monitoring Well Installation Report* that describes the installation of the new groundwater monitoring wells required by Provision H.1.b. The report shall be prepared in accordance with, and including the items listed in, the second section of Attachment D: "Monitoring Well Workplan and Monitoring Well Installation Report Guidance," which is attached hereto and made part of this Order by reference. The report shall describe the installation and development of all new monitoring wells, and explain any deviation from the approved workplan.

g. **By 1 June 2015,** the Discharger shall submit a *Wastewater System Improvements Completion Report* that documents the completion of the lined wastewater pond in accordance with the approved *Wastewater Pond Design Report and Pond Liner Construction Quality Assurance (CQA) Plan* and certifies that the pond is fully functional and ready to receive wastewater in compliance with the requirements of this Order. The report shall include final dimensions and liner specifications and a *Liner Construction Quality Assurance (CQA) Report* that documents all construction observation, testing, and test results for the pond lining system and shows that the lining system was leak-free at the time of completion. The *Unlined Pond Closure Report* shall include documentation of the procedures used to remove and dispose of sludge and residual waste-containing sediments off-site, and restoration of the former unlined wastewater pond area to prevent future percolation of residual waste constituents.

h. **By 1 May 2017,** the Discharger shall submit a *Background Groundwater Quality Study Report and Groundwater Limitations Compliance Assessment Plan*. For each groundwater monitoring parameter/constituent identified in the MRP, the background report shall present a summary of monitoring data and calculation of the concentration in background monitoring wells. The compliance plan shall describe and justify the statistical methods proposed to evaluate compliance with the final Groundwater Limitations of this Order, which

become effective **1 January 2017**. Determination of background quality and compliance shall be conducted using appropriate statistical methods that have been selected based on site-specific information and the U.S. EPA Unified Guidance document cited in Finding 58 of this Order. The report shall explain and justify the selection of the appropriate statistical methods.

i. By **1 May 2017**, the Discharger shall submit a *Groundwater Limitations Compliance Report* that demonstrates statistically significant decreasing trends for TDS, sodium, chloride, manganese, and iron in MW-1 and MW-2. If compliance with the final Groundwater Limitations, which become effective **1 January 2017**, is not demonstrated for each constituent in each well, the report shall include a description of the specific additional treatment or control measures that will be implemented to achieve compliance with the Groundwater Limitations unless the report demonstrates that another source of pollutants is preventing compliance. The proposed measures, if any, shall be completed by **1 May 2018**.

j. By **1 June 2020**, the Discharger shall submit a *Pond Liner Integrity Evaluation Workplan* that specifies the means and methods that the Discharger proposes to use to perform a 5-year evaluation of all geosynthetic liner systems to comply with Discharge Specification D.6.

2. If groundwater monitoring results show that the discharge is causing groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order, 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 that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of each component of the wastewater and 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. At least **180 days** prior to any pond sludge removal and disposal, the Discharger shall submit a *Sludge Cleanout Plan*. The plan shall include a detailed plan for periodic sludge removal, drying, and disposal. The plan shall specifically describe the phasing of the project, measures to be used to control runoff or percolate from the sludge as it is drying, and a schedule that shows how all dried sludge will be land applied to the LAAs or removed from the site prior to the onset of the rainy season **(1 October)**.

4. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet

weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.

5. 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.

6. The Discharger shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer, and incorporate comments the Executive Officer may have in a timely manner, as appropriate. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

7. The Discharger shall comply with Monitoring and Reporting Program <order number>, which is part of this Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.

8. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

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

10. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and

appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.

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

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

13. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986."

14. The Discharger shall not allow pollutant-free wastewater to be discharged into the wastewater collection, treatment, and disposal systems in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

15. 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 Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

16. In the event of any change in control or ownership of the facility, 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 the Central Valley Water Board.

17. To assume operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

18. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

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

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

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

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

or will be provided upon request.

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

PAMELA C. CREEDON, Executive Officer