

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-XXXX

WASTE DISCHARGE REQUIREMENTS

FOR
VICTOR PACKING, INC.
RAISIN PROCESSING AND DEHYDRATING PLANT
MADERA COUNTY

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

1. On 29 November 2000, Victor Packing, Inc., a California corporation, submitted a Report of Waste Discharge (RWD) to support the discharge of process wastewater from its raisin processing and dehydrating plant (Plant) in Madera County. Additional information was submitted on 26 December 2000 to complete the RWD. Tentative Waste Discharge Requirements (WDRs) for the Plant were prepared and circulated in 2001 but were never adopted.
2. Victor Packing, Inc. (hereafter Victor Packing or Discharger), owns and operates the Plant that generates the waste and is responsible for compliance with these WDRs.
3. The Plant is at 11687 Road 27½ approximately three miles south of Madera in Section 6, Township 12 South, Range 18 East, MDB&M. The Plant and land application areas occupy Assessor's Parcel Numbers (APNs) 047-090-005, and 047-090-006, that include approximately 138 acres of land as shown on Attachment A, which is attached hereto and made part of this Order by reference.
4. Waste Discharge Requirements (WDRs) Order 94-352, adopted by the Central Valley Water Board on 9 December 1994, prescribes requirements for the Plant. Order 94-352 allows a monthly average daily discharge of up to 0.06 million gallons per day (mgd). At the time Order 94-352 was adopted, all wastewater from the Plant was discharged to a series of checks in a 4-acre disposal field from August through September and December through January. This area was subsequently enlarged to approximately 9 acres and the discharge switched to sprinkler application to more evenly distribute the wastewater. During the remainder of the year the wastewater is mixed with irrigation water and applied to approximately 100 acres of grape vineyards. Order 94-352 is out of date and no longer adequately describes the discharge or Central Valley Water Board plans and policies. Therefore, Order 94-352 will be rescinded and replaced with this Order.

Existing Facility and Discharge

5. The Plant has been in operation since prior to 1975. The Plant operates its raisin processing facility year-round where it rinses and packs raisins for local growers. In addition, the Plant operates a dehydrator from late August through October for dehydrating grapes and reconditioning rain damaged grapes and raisins. Generally, the Plant operates about 10 hours per day four or five days a week throughout the year. However, the Plant may operate up to 16 hours per day six days a week during the harvest season in the fall.
6. Source water for the Plant is provided by an on-site well. From a sample collected on 28 May 2014, the source water is of relatively good quality with an electrical conductivity (EC) of 440 umhos/cm, total dissolved solids (TDS) of 300 mg/L, and nitrate as nitrogen (NO₃-N) of 4 mg/L. A second well is used to provide supplemental irrigation water for the land application areas.
7. Process wastewater generated at the Plant includes rinse water from washing raisins and grapes, water collected during the dehydration process, equipment wash water, and boiler blow down.
8. Raisins brought to the Plant are screened and vacuumed to remove the capstems, then graded and sorted before being dumped into a hot water tank. The raisins and water are pumped onto a rifle board and shaker where the water is drained off and the raisins rinsed with fresh water. Wastewater generated during the cleaning and rinsing process is pumped through a rotating drum screen adjacent to the packing line to remove excess solids. The wastewater then passes through a secondary screen and is discharged to an aboveground settling tank before being pumped to the land application areas.
9. From late-August through October, the Plant processes fresh grapes through its dehydrator. Grapes brought to the Plant are dumped into a shaker bin to remove debris. The grapes are then washed and placed onto clean trays, which are stacked and rolled into the dehydrator tunnels. After dehydration, the raisins are transferred into bins and the trays are cleaned and recycled. The dehydrator is also used to recondition rain-damaged raisins and grapes in the fall on an as needed basis. Wastewater from the dehydrating operation is collected and passes through a second rotating drum screen adjacent to the dehydrator building. The wastewater then passes through the secondary screen and is co-mingled in the settling tank with wastewater from the raisin processing operation before being discharged to the land application areas.
10. Based on data provided by the Discharger for the last three years, current flows at the Plant range from about 3,000 to 38,000 gallons per day. This is below the monthly average daily flow limit in Order 94-352 of 60,000 gallons per day or 0.06 mgd. According to the Discharger, it has no plans to expand the Plant or significantly increase operations in the near future. Therefore, this Order will carry over the existing monthly average daily

flow limit of 0.06 mgd and set an annual discharge limit of 10 million gallons, which is well above the current annual discharge of about 3 million gallons per year.

11. Order 94-352 requires the Discharger to sample its wastewater weekly for pH, and collect samples for electrical conductivity (EC), and biochemical oxygen demand (BOD) twice monthly in September and October and then once in February and July. In addition, the Discharger collects samples annually in September for total and fixed dissolved solids and standard minerals including boron, chloride, nitrate, and sulfate. Table 1 presents average, minimum, and maximum wastewater concentrations for these constituents for 2011 through 2013:

TABLE 1. Wastewater Quality

Constituent	Units	Wastewater Quality		
		Average	Minimum	Maximum
pH	pH units	4.2	3.5	6.9
Electrical Conductivity (EC)	umhos/cm	964	376	1,630
Biochemical Oxygen Demand (BOD)	mg/L	5,283	60	10,000
Total Dissolved Solids (TDS)	mg/L	6,227	2,100	9,990
Fixed Dissolved Solids (FDS)	mg/L	1,337	720	2,370
Nitrate as Nitrogen (NO ₃ -N)	mg/L	3.8	3	4.9
Sulfate	mg/L	303	158	378
Chloride	mg/L	39	24	58
Boron	mg/L	0.2	0.1	0.3

12. Samples of the wastewater were collected for general minerals and nitrogen forms by the Discharger in October 2000 and by Central Valley Water Board staff in May 2014. The results are presented in Table 2 below:

TABLE 2. Wastewater General Minerals and Nitrogen Forms

Constituent	Units	5 October 2000	28 May 2014
pH	s.u.	4.0	4.3
Electrical Conductivity (EC)	umhos/cm	935	1,400
Biochemical Oxygen Demand (BOD)	mg/L	10,000	16,000
Total Dissolved Solids (TDS)	mg/L	9,800	18,000
Fixed Dissolved Solids (FDS)	mg/L	- - -	970
Nitrate as Nitrogen (NO ₃ -N)	mg/L	3.5	7.8
Total Kjeldahl Nitrogen (TKN)	mg/L	49	51
Total Nitrogen	mg/L	52	59
Bicarbonate	mg/L	<1	<1
Calcium	mg/L	65	94
Magnesium	mg/L	26	51
Sodium	mg/L	79	39
Potassium	mg/L	210	340

TABLE 2. Wastewater General Minerals and Nitrogen Forms

Constituent	Units	5 October 2000	28 May 2014
Chloride	mg/L	57	38
Sulfate	mg/L	6.9	460

13. The Discharger occasionally dips grapes in a caustic solution or hot water bath to create “soda dipped” raisins prior to washing. Other chemicals added to the waste stream include minor amounts of FDA-approved cleaning chemicals used during sanitation of the equipment used in the Plant.
14. Residual solids removed from the wastewater by the screening units are collected in bins and applied as a soil amendment on approximately 15 acres of vineyard directly south of the Plant. The solids are evenly spread and disked into the soil between the rows on a daily basis. According to the Discharger, wastewater from the Plant is not applied to this 15-acre vineyard. Accumulated sand from the settling tank is removed, as needed, and evenly applied to the 100-acre vineyard.
15. Capstems and raisins removed during the sorting and grading process are collected in bins and sold off-site to either a distillery or as cattle feed.
16. From the settling tank, the wastewater is blended with fresh irrigation water and applied to approximately 100 acres of vineyard. According to the RWD, the blending ratio is about 20 parts fresh water to 1 part wastewater. The blended irrigation water is applied via furrow irrigation between the rows of grape vines. According to the RWD, irrigation ceases when the depth of application is about three inches, and the application areas are rotated to allow for 6 to 13 days drying between irrigation cycles.
17. According to the Discharger, the vineyard furrows are disked periodically to maintain infiltration rates and maintain aerobic conditions. In addition, the vineyard is uniformly level with about a 2% slope and the ends of the rows are blocked to prevent runoff.
18. When not irrigating the vineyard, the wastewater is applied to a sprinkler field of approximately 9 acres just east of the Plant. This occurs primarily between late-August and October and between December and January during the harvest and when the vineyard is being pruned.
19. The sprinkler field is divided into three sections of about three acres each. An inspection of the Plant in May 2013 indicated that the discharge of wastewater to the sprinkler field was excessive and in threatened violation of Order 94-325. At the time of the inspection, one of the sections was filled with about two to three inches of wastewater, while the other two sections were in the process of drying and being prepped. Ponding of wastewater in the sprinkler field is a violation of Order 94-325, Reclamation Area and Disposal Field Specification E.2, which requires that all applied wastewater infiltrate within 48-hours. Following the inspection the Discharger indicated its intention to modify its management

practices to prevent ponding of wastewater in the sprinkler field. A photo showing no ponding of wastewater within the sprinkler field was provided on 14 June 2013, and no evidence of ponding was observed within the sprinkler field during a follow-up inspection in May 2014. The Discharger has also proposed to investigate the possibility of growing and harvesting a fodder crop within the sprinkler field in order to take up excess nutrients.

20. According to the RWD, from August through November, depending on conditions, a portion of the wastewater may be used for dust control around the Plant and on dirt roads in and around the land application areas.
21. With an average nitrogen concentration of about 56 mg/L the nitrogen load to the land application areas with an annual discharge of 10 million gallons would be approximately 47 lbs/acre/year. This is less than the annual nitrogen uptake for grapes of approximately 125 lbs/acre/year (Western Fertilizer Handbook, 8th edition).
22. As shown in Finding 11, the TDS of the discharge is significantly higher than the EC or the FDS, indicating that the discharge is high in volatile dissolved solids. Volatile dissolved solids can be broken down and biologically treated by soil microorganisms in a well managed land application system, when wastewater is not over applied. Using the average FDS concentration of 1,337 mg/L with a discharge of up to 10 million gallons per year, the discharge will add a maximum of about 1,115 lbs/acre/year of FDS to the land application areas.
23. With BOD concentrations ranging from 60 to 16,000 mg/L, the cycle average BOD loading rate at 0.06 mgd to the 100-acre vineyard would be between 0.3 and 83 lbs/acre/day assuming the minimum six day resting period between applications proposed by the Discharger. However, BOD loading to the 9-acre sprinkler field could be higher if the discharge is not properly managed to allow sufficient resting periods between applications, especially in September and October when discharge to vineyard may be limited due to the harvest.
24. Domestic wastewater generated at the Plant is discharged to an on-site septic system regulate by Madera County.

Site-Specific Conditions

25. The Plant and land application areas are in the central portion of the San Joaquin Valley. Topography in the area is generally level with an approximate elevation between 260 and 265 feet above mean sea level.
26. Federal Emergency Management Agency (FEMA) maps show that the Plant and land application area are within Flood Zone X, areas determined to be outside the 500-year floodplain, with less than a 0.2% annual chance of flooding.

27. United States Department of Agriculture Natural Resources Conservation Service (NRCS) soil survey maps characterize approximately the top six feet of soils. Soils within the land application area are primarily Hanford fine sandy loam, and Tujunga loamy sand. Hanford fine sandy loam, which covers about 90% of the land application area is a well drained soil with hydraulic conductivity between 1.98 to 5.95 inches per hour, and a land classification unit of 1 (no restrictions). Tujunga loamy sand, which covers less than 10% of the land application area is an excessively drained soil with a land classification unit of 3e (severe limitations due to erosion or excessive drainage).
28. Climate in the Central Valley is characterized by hot dry summers and mild winters. The rainy season generally extends from November through April. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and pan evaporation for the area are about 12 inches and 66 inches, respectively, according to information published by the California Department of Water Resources. The maximum annual precipitation for 100-year rainfall return period is estimated to be about 21 inches. From the California Irrigation Management System (CIMIS), the mean reference evapotranspiration rate (ET_o) for the nearby Madera II station is about 29 inches per year.
29. Land use in the vicinity of the site is mixed agricultural, and residential. There are two food processing facilities, the Lamanuzzi & Pantaleo Madera Raisin Plant and Golden Valley Grape Juice and Wine immediately north and west of the site and a residential development across Avenue 12 about a half mile to the north. To the south, east, and west of the site is primarily agricultural land. Primary crops grown in the area include grape vines and almonds. Irrigation water is supplied primarily by groundwater.

Groundwater Conditions

30. According to the Department of Water Resources Groundwater Elevation Maps (Spring 2010), first encountered groundwater in the vicinity of the site occurs at about 130 feet below ground surface (bgs). Regional groundwater flow in the area is to the southwest.
31. There are no monitoring wells at the site. Groundwater quality data for the area was obtained from five monitoring wells at the nearby Golden Valley Grape Juice and Wine Facility. These monitoring wells are generally cross- or down-gradient of the Discharger's site. One monitoring well, MW-4 was completed to 25 feet bgs to monitor a shallow perched zone near the 10-acre disposal field utilized by Golden Valley Grape Juice and Wine. This area is north and west of Victor Packing near Avenue 12. Depth-to-groundwater in MW-4 has ranged from 9 to 16 feet bgs. Perched groundwater was not encountered during drilling of the other monitoring wells. According to the most recent groundwater monitoring reports from 2013, groundwater in the area is first encountered at about 140 feet bgs.
32. The California Department of Water Resources (DWR) and United States Geological Survey (USGS) publish information about groundwater quality. Data that is pertinent to

characterizing first-encountered groundwater is limited due to the wide variability in the screened interval of the wells, sampling dates, and constituents monitored. A search of the *Water Quality Database* published by the USGS and DWR identified one well (USGS 365500120020001) within a half mile up-gradient of the site. According to the database, the well was constructed to a depth of about 330 feet bgs. A groundwater sample collected from this well in 2008 indicated that groundwater up-gradient of the site is relatively good with an EC of 467 umhos/cm, TDS of 337 mg/L, and NO₃-N of 5.9 mg/L.

33. Table 3 presents a comparison of average groundwater quality from monitoring wells at the Golden Valley Grape Juice and Wine Facility for 2010 through 2013 with up-gradient groundwater quality from USGS Well 365500120020001 from the sample collected in 2008.

TABLE 3. Groundwater Quality

Constituent	Unit	MW-1	MW-2	MW-3	MW-4	MW-5	USGS Well (2008)	MCLs
pH	s.u.	7.4	7.2	7.5	7.0	7.3	7.2	
EC	umhos/cm	855	661	2,083	868	867	467	900/1,600 ¹
TDS	mg/L	592	526	1,554	551	558	337	500/1,000 ¹
NO ₃ -N	mg/L	6.2	4.7	1.9	0.6	4.9	5.9	10 ²
Bicarbonate	mg/L	328	166	401	410	396	148	
Calcium	mg/L	90	70	263	80	100	39	
Magnesium	mg/L	27	22	80	27	30	13	
Sodium	mg/L	47	42	128	68	44	32	
Chloride	mg/L	44	28	174	33	30	23	250/500 ¹
Sulfate	mg/L	48	132	592	38	36	27	250/500 ¹
Iron	mg/L	<0.1	0.1	<0.1	2.8	<0.1	na	0.3 ³
Manganese	mg/L	<0.01	0.01	<0.01	4.86	<0.01	na	0.05 ³

MCLs= Maximum Contaminant Levels for drinking water. Concentrations shown in bold exceed their respective MCLs.

1. Recommended/Upper Secondary MCL.
2. Primary MCL.
3. Secondary MCL.

34. Given the direction of groundwater flow in the area and the placement of the monitoring wells at Golden Valley Grape Juice and Wine, MW-1 and MW-2 most likely represent groundwater quality down-gradient of the site. As shown in Table 3 above, a comparison of the groundwater quality in MW-1 and MW-2 with USGS Well 365500120020001, up-gradient of the site, indicates that groundwater down-gradient of Victor Packing has been degraded for EC, TDS, calcium, and sulfate. Constituent concentrations observed in MW-1 and MW-2 are still below their respective MCLs, except for TDS, which exceeds the recommended secondary MCL of 500 umhos/cm. Given the proximity of MW-1 and MW-2 to the land application areas utilized by Golden Valley Grape Juice and Wine and their distance from Victor Packing, it is unclear if the degradation observed in MW-1 and MW-2 is the result of the discharge from Victor Packing, Golden Valley Grape Juice and Wine, or local agricultural practices.

35. Given the high concentrations of BOD and nitrogen in the wastewater, and the potential groundwater degradation observed in monitoring wells down-gradient of the site, this Order requires the Discharger to install groundwater monitoring wells to monitor groundwater beneath its land application areas.

Basin Plan, Beneficial Uses, and Regulatory Considerations

36. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, 4th Edition, revised October 2011* (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.
37. The Plant and land application areas lie within the Madera Hydraulic Area (545.2) of the San Joaquin Valley Floor Hydrologic Unit, as depicted on interagency hydrologic maps prepared by the State Water Resources Control Board and the Department of Water Resources, revised in August 1986. Local drainage is to Cottonwood Creek, an ephemeral stream approximately one half mile to the southwest. Cottonwood Creek flows into the San Joaquin River between Friant Dam and Mendota Pool. The beneficial uses of the San Joaquin River from Friant Dam to the Mendota Pool, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial process supply; water contact recreation; non-contact water recreation; warm and cold freshwater habitat; migration of warm and cold aquatic organisms; warm water spawning; and wildlife habitat.
38. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
39. The Basin Plan encourages the reuse of wastewater and identifies crop irrigation as a reuse option where the opportunity exists to replace an existing or proposed use of fresh water with reused water.
40. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater.
41. The Basin Plan's narrative water quality objective for chemical constituents requires, at a minimum, 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.

42. 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.
43. 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.
44. 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 $\mu\text{mhos/cm}$. 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 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.
45. The list of crops in Finding 29 is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but it is representative of current and historical agricultural practices in the area.
46. Many surface waters and local groundwater supplies have been degraded with salt. In some areas, the high salinity is naturally occurring, but in many areas it is due to the acts of man. In 2006, the Central Valley Water Board, the State Water Board, and stakeholders began a joint effort to address salinity and nitrate problems in the region and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program.

Other Considerations

47. Excessive application of high organic strength wastewater to land can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater with nitrogen species and metals, as discussed below. Such groundwater degradation can be prevented or minimized through implementation of best management practices which include planting crops to take up plant nutrients and maximizing oxidation of BOD to prevent nuisance conditions.
48. It is reasonable to expect some attenuation of various waste constituents that percolate below the root zone within the vadose (unsaturated) zone. Specifically, excess nitrogen can be mineralized and denitrified by soil microorganisms, organic constituents

(measured as both BOD and volatile dissolved solids) can be oxidized, and the cation exchange capacity of the soil may immobilize some salinity constituents.

49. With regard to BOD, excessive application can deplete oxygen in the vadose zone and lead to anoxic conditions. At the ground surface, this can result in nuisance odors and fly-breeding. When insufficient oxygen is present below the ground surface, anaerobic decay of the organic matter can create reducing conditions that convert metals that are naturally present in the soil as relatively insoluble (oxidized) forms to more soluble reduced forms. This condition can be exacerbated by acidic soils and/or acidic wastewater. If the reducing conditions do not reverse as the percolate travels down through the vadose zone, these dissolved metals (primarily iron, manganese, and arsenic) can degrade shallow groundwater quality. Many aquifers contain enough dissolved oxygen to reverse the process, but excessive BOD loading over extended periods may cause beneficial use impacts associated with these metals.
50. Typically, irrigation with high strength wastewater results in high BOD loading on the day of application. It is reasonable to expect some oxidation of BOD at the ground surface, within the evapotranspiration zone and below the root zone within the vadose (unsaturated) zone. The maximum BOD loading rate that can be applied to land without creating nuisance conditions or leaching of metals can vary significantly depending on soil conditions and operation of the land application system.
51. *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.
52. 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; 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; 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; 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.

53. 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, may be considered management practices to prevent groundwater degradation due to reduced metals.
54. This Order sets a cycle average BOD loading limit of 100 lb/acre/day for the 100-acre vineyard and 150 lbs/acre/day for the 9-acre sprinkler field. This Order also includes a Provision requiring the Discharger to prepare a Wastewater and Nutrient Management Plan to address BOD, salinity, and nutrient loading rates in the land application areas.

Antidegradation Analysis

55. 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 does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The discharger employs best practicable treatment or control (BPTC) to minimize degradation; and
 - d. The degradation is consistent with the maximum benefit to the people of the State.
56. Constituents of concern in the discharge (those with the greatest potential to affect beneficial uses of receiving water) include organics, nitrogen, and salts. However, the discharge is not expected to cause groundwater to exceed water quality objectives because:
 - a. For organics, to minimize the potential for reducing and/or nuisance conditions, this Order sets average BOD loading limits of 100 lbs/acre/day to the vineyard and 150 lbs/acre/day to the sprinkler field, requires the Discharger to cease discharging to the land application areas in the event soils become saturated, and requires weekly monitoring of the land application areas to check for ponding and/or nuisance conditions. With the conditions stipulated in this Order, and depth to groundwater,

the discharge is not expected to cause nuisance conditions or unreasonably degrade groundwater with constituents related to organic overloading.

- b. For nitrogen, the potential for groundwater degradation depends on wastewater quality, crop uptake, and the ability of the vadose zone to support nitrification and denitrification to convert the nitrogen to nitrogen gas before it reaches the water table. Most of the nitrogen in the process wastewater is present as TKN, which can mineralize and be converted to nitrate (with some loss via ammonia volatilization). Groundwater quality in the area is good with respect to nitrates. As discussed in Finding 21, the estimated nitrogen load to the land application areas at 10 million gallons would be approximately 47 lbs/acre/year, which is less than the nitrogen requirement for grapes. With nitrogen uptake by crops, nitrification and denitrification in soils, and depth to groundwater beneath the site, the discharge is not expected to degrade groundwater to the extent that it exceeds the State Primary Maximum Contaminant Level (MCL) of 10 mg/L.
- c. For salinity, average EC and TDS concentrations in the wastewater since 2011 are 964 umhos/cm and 6,227 mg/L, respectively. The TDS of the discharge is composed of both volatile dissolved solids and fixed dissolved solids. As discussed in Finding 22, a large portion of the TDS in the discharge is in volatile form, which can be broken down and biologically treated by microorganisms in the soil. In addition, fixed dissolved solids (FDS), can be reduced by nutrient uptake primarily calcium, magnesium, nitrates, phosphorus, and potassium by crops. With an annual discharge of up to 10 million gallons per year, the maximum FDS load from the discharge would be about 1,115 lbs/acre/year, which should not cause unreasonable degradation to groundwater. This Order also includes a Provision requiring the Discharger to submit a Salinity Control Plan to evaluate measures to control the salinity of the discharge.

Treatment and Control Practices

57. The Discharger provides or will provide, as required by this Order, treatment and control of the discharge that incorporates:
 - a. Screening to remove solids;
 - b. Reuse of wastewater for irrigation of crops at agronomic rates;
 - c. BOD loading limits of 100 lbs/acre/day for the vineyard and 150 lbs/acre/day for the sprinkler field;
 - d. Resting periods between wastewater applications;
 - e. Hydraulic loading rates that preclude standing water in the land application areas;
 - f. Groundwater monitoring to monitor the impact of the discharge on first encountered groundwater; and

- g. Preparation of a Salinity Control Plan and Wastewater and Nutrient Management Plan.

Antidegradation Conclusions

58. This Order establishes terms and conditions to ensure that the discharge does not unreasonably affect present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.
59. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State. The Discharger aids in the economic prosperity of the region by direct employment and provides a tax base for local and state governments. Provided the discharge complies with State and Central Valley Water Board plans and policies, there is sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order. In addition, the reuse of process wastewater for irrigation in place of fresh water is of further benefit to people of the State.
60. This Order is consistent with the Antidegradation Policy since; (a) the limited degradation allowed by this Order will not result in water quality less than water quality objectives, or unreasonably affect present and anticipated beneficial uses, (b) the Discharger has implemented BPTC to minimize degradation, and (c) the limited degradation is of maximum benefit to people of the State.

Other Regulatory Considerations

61. On 15 November 1978, the Madera County Planning Commission, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 12000, et, seq.) and the State CEQA guidelines (Title 14, Division 6, California Code of Regulations, as amended) adopted a Negative Declaration for operation of the Plant including its dehydrator. The Negative Declaration determined that the project as proposed would have a less than significant impact on the environment. Compliance with this Order will mitigate or avoid significant impacts to water quality.
62. 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 nuisance."
 - b. Category C complexity, defined as: "Any discharger for which waste discharge requirements have been prescribed pursuant to Section 13263 of the Water Code not included in Category A or Category B... Included are dischargers having no waste treatment systems or that must comply with best management practices,

dischargers having passive treatment and disposal systems, or dischargers having waste storage systems with land disposal.”

63. 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 wastewater. 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.

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

- a. The discharge of process wastewater to the land application area is exempt pursuant to Title 27, section 20090(b) because it is a discharge of wastewater to land and:
 - i. The Central Valley Water Board is issuing WDRs.
 - ii. The discharge is in compliance with the Basin Plan, and;
 - iii. The treated effluent discharged to the land application areas does not need to be managed as hazardous waste.

65. 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. Stormwater around the Plant is absorbed into soils at the site or collected and diverted to an on-site stormwater basin. The Discharger is not

required to obtain coverage under the NPDES General Permit, since all stormwater at the Plant is reportedly retained on-site and does not discharge into a water of the U.S.

66. 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.

The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2014-XXXX 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.

67. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the state or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this Order.
68. 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.
69. 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

70. 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.
71. The Discharger 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.

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

IT IS HEREBY ORDERED that Waste Discharge Requirements Order 94-352 is rescinded and that Victor Packing, Inc., its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

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

B. Flow Limitations

1. The discharge shall not exceed a monthly average daily discharge flow of 0.06 mgd or an annual flow of 10 million gallons per year. [Monitored at EFF-001]

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

3. The discharge shall remain within the permitted waste treatment/containment structures and land application areas at all times.
4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
5. 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.
6. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or stored and discharged at an intensity that creates or threatens to create nuisance conditions.
7. Irrigation pipelines, sprinklers, and/or drip irrigation lines used to convey wastewater to the land application areas shall be flushed with fresh water after application of wastewater, as needed, to ensure compliance with Discharge Specification C.6.
8. All ponds and open 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.

D. Land Application Area Specifications

1. The Discharger shall grow crops within the land application areas. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of water and nutrients.
2. The cycle average BOD loading rate shall not exceed 100 lbs/acre/day to the 100-acre vineyard or 150 lbs/acre/day to the 9-acre sprinkler field. The cycle average BOD loading rate shall be calculated as determined by the method described in the attached Monitoring and Reporting Program.

3. The resulting effect of the discharge on soil shall not exceed the buffering capacity of the soil profile.
4. The discharge shall be distributed uniformly on adequate acreage within the land application areas to preclude the creation of nuisance conditions or unreasonable degradation of groundwater.
5. Application of waste constituents to the land application areas shall be at reasonable agronomic rates to preclude creation of a nuisance or unreasonable degradation of groundwater, considering crop, soil, climate, and irrigation management system. The annual nutritive loading of the land application area, including the nutritive value of organic and chemical fertilizers, and of the wastewater shall not exceed the annual crop demand.
6. The Discharger shall not discharge process wastewater to the land application areas when soils are saturated.
7. Wastewater applied as dust control must be applied only in quantities necessary to control dust and during periods when dust is being generated (e.g., not during or immediately after storm events, or while the ground is moist). The use of wastewater for dust control must comply with the conditions established as part of the Wastewater and Nutrient Management Plan required by Provision G.15.
8. Land application of wastewater shall be managed to minimize erosion.
9. The land application areas shall be managed to prevent breeding of mosquitoes. In particular:
 - a. There shall be no standing water 48 hours after irrigation ceases;
 - b. Tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation; and
 - c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.
10. The land application areas shall be inspected as frequently as necessary to ensure continuous compliance with the requirements of this Order.
11. Any runoff of wastewater or irrigation water shall be confined to the land application areas and shall not enter any surface water drainage courses or storm water drainage systems.

E. Solids Disposal Specifications

Solids as used in this document, means the residual solids removed from wastewater and settling tanks.

1. Any handling and storage of 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.
2. If removed from the site, 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.
3. 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.

F. Groundwater Limitations

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

1. Nitrate as nitrogen of 10 mg/L.
2. For constituents identified in Title 22 of the California Code of Regulations, the MCLs quantified therein.

G. Provisions

1. The Discharger shall comply with Monitoring and Reporting Program R5-2014-XXXX, 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.
2. 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)."
3. 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.

4. 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.
5. 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.
6. 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, 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.
7. The Discharger shall operate and maintain all treated and untreated wastewater and storm water ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow).
8. 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.
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 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 subsequent provisions by the due dates specified.
11. 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.
12. 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.
13. **Groundwater Tasks:** The Discharger shall install and maintain a groundwater monitoring well network to monitor for changes in groundwater quality associated with its operations. At a minimum the Discharger shall install at least one up-gradient or background monitoring well to establish background groundwater quality and two monitoring wells down-gradient of its land application areas. As part of this Provision the Discharger shall submit a Work Plan and proposed time schedule to install the monitoring wells.

The Work Plan shall satisfy the information needs specified in the monitoring well installation section of Attachment B, *Standard Monitoring Well Provisions for Waste Discharge Requirements*. The monitoring wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by local agencies pursuant to Water Code section 13801.

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

	<u>Task</u>	<u>Compliance Date</u>
a.	Submit Work Plan and time schedule for monitoring well installation.	<90 days> following adoption of this Order
b.	Commence installation.	<120 days> following approval of the Work Plan
c.	Submit technical report describing the installation procedures and results of the first sampling event.	<90 days> following installation

14. **By <6 months following adoption of the Order>**, the Discharger shall submit a Salinity Control Plan, with salinity source reduction goals and an implementation schedule for Executive Officer approval. The control plan shall identify existing salinity control measures as well as any additional methods that could be used to further reduce the salinity of the discharge to the maximum extent feasible, include; (a) estimates of load reductions that may be obtained, and (b) provide a description of the tasks, cost, and time required to investigate and implement various elements in the Salinity Control Plan.

15. **By <6 months following adoption of the Order>**, the Discharger shall submit a Wastewater and Nutrient Management Plan for Executive Officer approval. At a minimum, the Plan must include; (a) procedures for monitoring Plant operations and discharge, (b) measures to ensure even application of wastewater, and (c) an action plan to deal with objectionable odors and/or nuisance conditions. The Plan should also include: (a) supporting data and calculations for monthly and annual water and nutrient balances, and management practices that will ensure wastewater, irrigation water, and fertilizers are applied at agronomic rates to the land application areas; and (b) evaluate the loading conditions associated with the application of wastewater for dust control around the Plant and the land application areas to ensure that the discharge will not cause or contribute to nuisance conditions or groundwater degradation.

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

17. 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 or with the WDRs may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

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

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

or will be provided upon request.

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

PAMELA C. CREEDON, Executive Officer

Order Attachments:

- A Site Location Map
- B Standard Monitoring Well Provisions for Waste Discharge Requirements

Monitoring and Reporting Program R5-2014-XXXX
Information Sheet
Standard Provisions (1 March 1991)