INFORMATION SHEET

ORDER NO. R5-2014-XXXX
VICTOR PACKING, INC.
RAISIN PROCESSING AND DEHYDRATING PLANT
MADERA COUNTY

Background

Victor Packing, Inc. (Victor Packing or Discharger) owns and operates a raisin processing and dehydrating plant (Plant) at 11687 Road 27½ in Madera County. The Plant has been in operation since prior to 1975 where it processes and packs raisins for local growers. The Plant also operates a dehydrator from late August through October to dehydrate grapes and recondition rain damaged grapes and raisins. The Plant generally operates up to 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 in the fall during the harvest.

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 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 Order 94-352 is out of date and no longer adequately describes the discharge or regional board plans and policies.

On 29 November 2000, Victor Packing submitted a Report of Waste Discharge (RWD) to support the discharge of process wastewater from its raisin processing and dehydrating plant. Additional information to complete the RWD was submitted on 26 December 2000. In 2001, a revised set of Tentative WDRs were prepared for the Plant. The revised set of Tentative WDRs were circulated for public review but were never adopted.

Wastewater

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.

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 to remove excess solids. The wastewater then passes through a secondary screen and is discharged to a settling tank before being pumped to the land application areas. From late-August through October the Plant process 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 a secondary screen and is co-mingled in the settling tank with wastewater from the raisin processing operation.

Table 1 presents average, minimum, and maximum wastewater concentrations for constituents analyzed from 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

In addition, 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
Chloride	mg/L	57	38
Sulfate	mg/L	6.9	460

The Discharger calculates wastewater flows by taking a weekly meter reading and dividing it by the number of days in the week that the Plant is discharging. Current flows at the Plant over the last three years range from about 3,000 to 38,000 gallons per day, with annual flows of less than 3 million gallons per year. This is significantly less than the current flow limit. The Discharger has indicated that it does not plan to expand or increase operations at the Plant in the near future.

Solids removed from the wastewater are collected in bins and applied as a soil amendment on approximately 15 acres of vineyard directly south of the Plant. Approximately 200 to 500 pounds of residual solids are generated on a daily basis. 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 over the 100-acre vineyard. 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.

Discharge

Wastewater from the raisin processing and dehydrating operations is co-mingled in an aboveground settling tank before being discharged to the land application areas. From the settling tank the wastewater is blended with fresh irrigation water and applied to approximately 100 acres of grape 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.

When not irrigating the vineyard, the wastewater is applied to a 9-acre sprinkler field (expanded from the 4 acres specified in Order 94-352). Discharge to the sprinkler field occurs primarily between late-August and October and December and January during the harvest and when the vineyard is being pruned. In addition, from August through November the Discharger may use a portion of its wastewater for dust control around the Plant and on dirt roads around the land application areas.

The nitrogen load to the land application areas assuming an average nitrogen concentration of 56 mg/L and an annual discharge of 10 million gallons per year would be about 47 lbs/acre/year, which is less than the annual nitrogen uptake for grapes of approximately 127 lbs/acre/year (Western Fertilizer Handbook, 8th edition).

With BOD concentrations ranging from 60 to 16,000 mg/L, the cycle average BOD loading rate to the 100-acre vineyard at the permitted limit of 0.06 mgd would be between 0.3 and 83 lbs/acre/day assuming a minimum resting period of six days as 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 the vineyard may be limited due to the harvest.

This Order sets specific BOD loading limits for the vineyard and the sprinkler fiend and includes a Provision that requires the Discharger to submit a Wastewater and Nutrient Management plan to ensure wastewater and nutrient applications are at reasonable agronomic rates.

Groundwater Conditions

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 flow in the area is to the southwest.

There are no monitoring wells at the site. However, the Golden Valley Grape Juice and Wine Facility to the west of the site, has a monitoring well network. These monitoring wells are generally cross- or down-gradient of the Discharger's land application areas. According to the most recent groundwater monitoring reports for 2013, groundwater in the area is generally first encountered at about 140 feet bgs. However, a shallow perched zone was encountered during drilling of MW-4 with depth-to groundwater of about 9 to 16 feet bgs. MW-4 was drilled to the north and west of Victor Raisin near the 10-acre disposal field used by Golden Valley Grape Juice and Wine. Shallow groundwater was not encountered at the other monitoring well locations. Based on the direction of groundwater flow and the placement of the monitoring wells at the Golden Valley Grape Juice and Wine Facility, MW-1 and MW-2 most likely represent groundwater quality down-gradient of Victor Raisin.

In addition, a search was done of the *Water Quality Database* published by the California Department of Water Resources and United State Geological Survey. 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. The database identified one well (USGS Well 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 sample collected in 2008 indicated that groundwater up-gradient of Victor Packing is relatively good with an EC of 467 umhos/cm, TDS of 337 mg/L, and NO_3-N of 5.9 mg/L.

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 for the sampled 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	

TABLE 3. Groundwater Quality

Constituent	Unit	MW-1	MW-2	MW-3	MW-4	MW-5	USGS Well (2008)	MCLs
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.

From the data it appears that groundwater down-gradient of Victor Packing has been degraded for EC, TDS, calcium, and sulfate, though except for TDS, the concentrations observed in MW-1 and MW-2 are still below water quality objectives. However, 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 is the result of the discharge from Victor Packing, Golden Valley Grape Juice and Wine, or local agricultural practices. This Order requires Victor Raisin to install a monitoring well network and begin monitoring groundwater beneath the site.

Source Water: Source water for the Plant is provided by an on-site well is relatively good. A sample of the source water collected on 28 May 2014 reported an electrical conductivity (EC) of 440 umhos/cm, total dissolved solids (TDS) of 300 mg/L, and NO_3-N of 4 mg/L. There are no samples of the irrigation water from the irrigation well used to supplement wastewater in the land application areas.

Basin Plan, Beneficial Uses, and Regulatory Considerations

The Plant and land application areas lie within the Madera Hydrologic Area (545.2) of the San Joaquin Valley Floor Hydraulic Unit. Local drainage is to Cottonwood Creek, an ephemeral stream about a half mile southwest of the site. Cottonwood Creek flows into the San Joaquin River between Friant Dam and the Mendota Pool.

The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, 4th Edition*, revised October 2011 (Basin Plan) designates beneficial uses, establishes numerical and narrative water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Board. Beneficial uses often determine the water quality objectives that apply to a water body. The receiving water for this discharge is groundwater. The beneficial uses of groundwater in the area are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

Antidegradation

State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (Anti-Degradation Policy), requires the regional water boards to maintain high quality waters of the State until it is demonstrated that any change in quality will not result in water quality less than that described in State and Regional Water Board policies or exceed water quality objectives, will not unreasonably affect beneficial uses and is consistent with the maximum benefit to the people of the State.

As discussed in the Findings in the WDRs the discharge as authorized by this Order is not expected to unreasonably affect present and anticipated future beneficial uses or result in groundwater quality that exceeds water quality objectives. The Discharger provides or will provide as a condition of this Order treatment and control measures intended to minimize degradation to the extent feasible.

With wastewater application at the loading rates authorized by this Order, appropriate application and resting periods, and reuse of wastewater on crops, the discharge will not cause impermissible degradation of the underlying groundwater.

Degradation of groundwater by some of the typical waste constituents released with discharge from a food processing facility after effective source reduction is consistent with maximum benefit to the people of the State. Victor Packing contributes to the economic prosperity of the region by direct employment of up to 25 full time and 15 seasonal workers, provides incomes for numerous surrounding raisin growers and associated trucking firms, and provides a tax base for local and state governments. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason to accommodate growth and groundwater degradation provided terms of the Basin Plan are met.

The Order establishes effluent limits and groundwater limits for the Plant that will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

Title 27

Title 27 of the California Code of Regulations, section 20005 et seq (Title 27) contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent in a classified waste is acceptable under Title 27 regulations.

Unless exempt, release of designated waste is subject to full containment pursuant to Title 27 requirements. Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27 containment standards and other Title 27 requirements provided the following conditions are met:

a. The applicable regional water board has issued waste discharge requirements, or waived such issuance;

b. The discharge is in compliance with the applicable basin plan; and

c. The waste is not hazardous waste and need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

The discharge meets the above requirements and is therefore exempt from Title 27.

CEQA
On 15 November 1978, the Madera County Planning Commission, in accordance with the California Environmental Quality Act (CEQA), adopted a Negative Declaration for operation of an existing raisin processing plant and dehydrator at 11687 Road 27½. 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.

Proposed Order Terms and Conditions

Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions
The proposed Order would prohibit discharge to surface waters and surface water drainage courses.

The proposed Order would limit the monthly average daily discharge flow to 60,000 gpd (or 0.06 mgd), and set a maximum annual flow limit of 10 million gallons. The monthly average flow limit is consistent with the limit in the existing WDRs and with current operations at the Plant. The annual flow limit of 10 million gallons is set based on the Discharger's assumptions that the average daily flow would be about 0.03 mgd for the majority of the year and would increase to approximately 0.06 mgd when the dehydrator is operating.

The proposed Order sets an average BOD loading limit of 100 lbs/acre/day for the vineyard and 150 lbs/acre/day for the sprinkler field, and requires that wastewater be applied at agronomic rates. The proposed Order also includes provisions requiring the Discharger to prepare and implement a Salinity Control Plan and Wastewater and Nutrient Management Plan, and requires the Discharger to install a monitoring well network and begin monitoring groundwater beneath the land application areas.

The proposed Order would prescribe groundwater limitations that implement water quality objectives for groundwater from the Basin Plan. The limitations require that the discharge not cause or contribute to exceedance of these objectives or natural background water quality, whichever is greatest, and sets a specific limit for NO_3-N of 10 mg/L consistent with the Primary MCL.

Monitoring Requirements

Section 13267 of the Water Code authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of waste discharges on waters of the State. Water Code Section 13268 authorizes assessment of civil administrative liability where appropriate.

The proposed Order includes effluent, source water, irrigation water, groundwater, and soils monitoring. This monitoring is necessary to evaluate the potential for degradation resulting from the discharge.

Reopener

The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. The proposed Order would set limitations based on the information provided thus far. If applicable laws and regulations change, or once new information is obtained that will change the overall discharge and its potential to impact groundwater, it may be appropriate to reopen the Order.