CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2014-XXXX

WASTE DISCHARGE REQUIREMENTS

FOR
DELANO GROWERS GRAPE PRODUCTS
GRAPE JUICE PROCESSING PLANT
KERN COUNTY

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

1. Delano Growers Grape Products submitted a Report of Waste Discharge (RWD) on 15 May 2012 that describes modifications that have been implemented at an existing grape juice processing Plant (the Plant). Additional information to complete the RWD was submitted on 12 September 2013.

2. Delano Growers Grape Products (hereafter "Discharger") owns and operates the Plant that generates the waste and the Land Application Area (LAA) and is responsible for compliance with these Waste Discharge Requirements (WDRs).

3. The Plant is at 32351 Bassett Avenue in Delano (Section 5, T25S, R26E, MDB&M). The Plant occupies Assessor's Parcel Numbers (APN) 049-040-02. The LAA occupies APN 049-035-29, 049-035-30, 049-040-10. The Plant and LAA are shown on Attachment A, which is attached hereto and a part of this Order by reference.

4. WDRs Order 86-068, adopted by the Central Valley Water Board on 28 March 1986, prescribes requirements for the Plant. Order 86-068 allows a maximum daily discharge from the Plant of 205,000 gallons per day (gpd). The Discharger has expanded and changed operations at the Plant. Therefore, Order 86-068 will be rescinded and replaced with this Order.

Existing Plant and Discharge

5. The Plant processes fresh grapes during harvest (July through December) and produces finished concentrate year-round. The Plant normally operates 24 hours per day, five days per week, 52 weeks per year. However, during harvest, the Plant may operate up to seven days per week. The Plant produces about 174 million gallons of effluent annually.

6. During harvest, up to 2,400 tons of fresh grapes are trucked to the Plant each day. Stems are separated from the grapes and the skin is broken on the grapes in the grape crusher. The stems are shipped off-site for cattle feed or compost material. The crushed grapes are transferred to "F" series storage tanks.

7. From the "F" series tanks, the crushed grapes are transferred to the grape press by a screen conveyor. Juice from the grape press is pumped through decanters and is

either stored in holding tanks or directly processed through evaporators. "Free run" grape juice is drawn from the bottom of the "F" series storage tanks and transferred to a holding tank and either directly processed through evaporators or blended with the "pressed" grape juice before entering the evaporation process. The pomace from the grape press is shipped off-site as cattle feed or compost material.

8. The evaporation process removes approximately 75% of the water from the grape juice to produce "rough" grape juice concentrate. The condensed water separated from the rough grape juice concentrate is discharged to Ponds 1 and 2 (Waste Stream 01) and has a relatively low electrical conductivity (EC) of approximately 100 umhos/cm. Waste Stream 01 also includes retentate from the reverse osmosis system that treats the Plant's source water to provide mineral free water to the boiler. From Pond 2, Waste Stream 01 mixes with Waste Stream 02 prior to discharging to Pond 3.

9. The rough grape juice is processed further to make a final product based on customer specifications. All wastewaters (other than the condensed water from the evaporative process and reverse osmosis retentate of Waste Stream 01) from the processes associated with processing rough grape juice into the final product are identified as Waste Stream 02 and include ultrafiltration retentate, boiler blowdown, cooling tower blowdown, process equipment wash water, and vacuum pump seal water. EC data are not available for Waste Stream 02; however, for 2012 and 2013, the EC of combined Waste Streams 01 and 02 ranged from 1,410 umhos/cm to 3,300 umhos/cm with an average of 2,437 umhos/cm.

Combined Waste Streams 01 and 02
Effluent Electrical Conductivity (umhos/cm)

Month	2012	2013
January	2,817	2,700
February	2,460	2,850
March	2,766	1,940
April	2,885	1,737
May	2,822	2,190
June	2,622	2,287
July	2,850	1,500
August	3,300	1,410
September	2,850	1,800
October	2,783	2,140
November	2,650	2,066
December	2,733	2,325

10. Waste Stream 02 is treated by an on-site wastewater treatment plant (WWTP), to reduce the BOD and nitrogen of the waste stream prior to mixing with Waste Stream 01 and discharge to Pond 3. The WWTP consists of screening, coagulation, pH adjustment, dissolved air flotation (DAF), anaerobic and aerobic digestion, and clarification. A wastewater process flow diagram is shown on Attachment B, which is attached hereto and a part of this Order. Solids removed from the waste stream in the WWTP are shipped off-site for compost material.

11. Ponds 1 and 2 are unlined, below ground, aerated holding ponds. They both measure approximately 350 feet long, 100 feet wide, and 10 feet deep and each has a capacity of approximately 1.5 million gallons. The ponds are hydraulically connected via a 12-inch polyvinyl chloride pipe located two feet above the bottom of the ponds.

12. Pond 3 was completed in August 2013 and is lined with a single layer of 40-mil high density polyethylene (HDPE) and has a storage capacity of 65 million gallons. The Discharger submitted a construction quality assurance (CQA) report on 27 September 2013, with an addendum on 4 February 2014, which documents that the pond was constructed in accordance with an approved Design Report. Central Valley Regional Board staff conditionally approved the CQA report in an 11 April 2014 letter.

13. The LAA includes 176 acres of double-cropped winter wheat and sudan grass. The discharger owns the LAA, but contracts with a local farmer to manage the crops. Wastewater is mixed with canal water from the nearby Friant-Kern canal and applied to the LAA via flood irrigation.

14. Effluent samples collected from Pond 2 prior to mixing with canal water are required by Monitoring and Reporting Program Number 86-068. The effluent wastewater analytical results (comingled Waste Streams 01 and 02) from January 2012 through December 2013 are summarized below.

Combined Waste Streams 01 and 02
Effluent Analytical Data
2012 - 2013

Parameter	Units	Number of Samples	Mean Result
Total dissolved solids	mg/L	6	1,787
Fixed dissolved solids	mg/L	6	1,247
Electrical conductivity	umhos/cm	24	2,437
Bicarbonate	mg/L	6	1,417
Carbonate	mg/L	6	24
Nitrate as Nitrogen	mg/L	23	<0.5

Parameter	Units	Number of Samples	Mean Result
Total nitrogen	mg/L	23	56
Calcium	mg/L	6	29
Magnesium	mg/L	6	10
Sodium	mg/L	6	487
Potassium	mg/L	6	157
Sulfate	mg/L	6	91
Chloride	mg/L	6	150
Sulfate	mg/L	6	91
Biochemical oxygen demand	mg/L	23	348
Boron	mg/L	6	0.35
Iron	mg/L	6	0.06
Manganese	mg/L	6	0.04
Sodium Adsorption Ratio	--	6	20
pH	pH units	24	7.9

15. Precipitation on the paved process areas is collected and discharged to the WWTP and precipitation on the remainder of the pervious area of the site is retained on-site and allowed to percolate.

16. The water balance submitted with the RWD was used to model storage and disposal capacity and utilized total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns, with at least two feet of freeboard in every pond. The water balance assumes the EC of the combined Waste Streams 01 and 02 is 1,700 umhos/cm and is mixed at a 1:1 ratio with Friant-Kern Canal water, resulting in an EC of less than 1,000 umhos/cm for water discharged to the LAA. As shown in the table in Finding 9, the EC of combined Waste Streams 01 and 02 has only been less than 1,700 umhos/cm twice since January 2012. This may be related to the diluting effect of the higher flow from Waste Stream 01 produced during the grape crush season and not an overall reduction of effluent EC.

17. Domestic wastewater generated at the Plant is discharged to an on-site septic tank and leach field.

Site-Specific Conditions

18. The source water supply for the Plant comes from an on-site water supply well identified as DW-1. The average EC of six samples collected from DW-1 in 2012 and 2013 is 454 umhos/cm.

19. The Plant and LAA are at an elevation of approximately 390 feet above the North American Vertical Datum of 1988, and the area around the site is relatively flat. Elevated berms and tail water collection ponds preclude irrigation water from leaving the LAA.

20. Review of the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) Number 06029C0225E, effective 26 September 2008, indicates the Plant and an eastern and southeastern portion of the LAA are in Zone A, areas with a 1% annual chance of flooding. The remainder of the LAA is in unshaded Zone X, an area of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

21. According to the Kern County Crop Survey from 2011, the primary land uses in the vicinity of the Plant were: grapes, almonds, alfalfa, and pistachios.

22. Annual precipitation in the vicinity of the Plant averages 7.55 inches, the 100-year total annual precipitation is 15.71 inches, and the evapotranspiration rate is 46.91 inches per year.

23. According to the US Department of Agriculture, surface soils at the Plant and LAA consist of Hesperia loam, Hanford sandy loam, Greenfield loam and Wasco sandy loam. These soil types are moderately to well-drained soils.

Groundwater Considerations

24. Three groundwater monitoring wells were installed in April 2004 (MW-1 through MW-3). The monitoring well locations are shown on Attachment A. According to the monitoring well installation report, soils encountered in the boreholes for the monitoring wells consist of unconsolidated, moderate to highly permeable fine to coarse-grained sand to a depth of 81 feet below ground surface (bgs) with gravel and cobbles observed between 56 and 81 feet bgs. Underlying this is a zone of consolidated, low-permeable, clayey sand to a depth of 100 feet bgs followed by interbedded sand, gravel, and silty sand that extends to the bottom of the boreholes at 135 feet bgs. The monitoring wells are screened between 85 and 135 feet bgs. Since the end of 2007, groundwater elevation has dropped below the bottom of the wells.

25. Prior to installing the monitoring wells, the regional groundwater gradient was to the west-southwest; therefore, MW-1 was to be upgradient of the Plant and MW-2 and MW-3 were to be downgradient of the LAA. However, the local groundwater gradient has been observed to be to the east or southeast since the wells were installed.

26. The Discharger has performed quarterly groundwater monitoring in accordance with Monitoring and Reporting Program Number 86-068 from 2004 through 2007. Groundwater analytical data are summarized below.

Groundwater Monitoring Results
Monitoring Wells MW-1, MW-2, and MW-3

Parameter	Units	DW-1[1]	Mean Analytical Results (2004 – 2007) MW-1	MW-2	MW-3
Screen Interval	ft. bgs.[2]	--	85-135	85-135	85-135
Electrical Conductivity	umhos/cm	492	1,065	2,467	2,822
Total Dissolved Solids	mg/L	334	712	1,760	2,313
Fixed Dissolved Solids	mg/L	298	588	1,375	1,895
Alkalinity	mg/L	153	419	1,057	909
Bicarbonate	mg/L	195	499	1,257	1,079
Nitrate as Nitrogen	mg/L	6	9	0.3	5
Chloride	mg/L	25	47	58	73
Boron	mg/L	0.08	0.12	0.15	0.18
Calcium	mg/L	28	99	329	387
Potassium	mg/L	4	12	16	18
Sodium	mg/L	72	108	150	215
Iron	mg/L	0.08	0.11	0.17	0.13
Manganese	mg/L	0.01	0.19	0.67	0.17
Magnesium	mg/L	5	29	110	116
Sulfate	mg/L	47	98	355	738
Total Organic Carbon	mg/L	<2.0	<2.0	3.4	3.4

1. DW-1 is the on-site water supply well
2. ft. bgs. = feet below ground surface

27. In September 2013, three deeper groundwater monitoring wells (MW-1A, MW-2A, and MW-3A) were installed at the Plant. Soils encountered in these wells are similar to those encountered in the shallower wells (MW-1, MW-2, and MW-3). Locations of the deeper groundwater monitoring wells are shown on Attachment A. Depth to groundwater in the three deeper monitoring wells was approximately 140 feet below ground surface. Based on groundwater elevations in the deeper monitoring wells, the direction of groundwater flow in October 2013 was to the north-northwest.

28. Groundwater analytical data from the initial round of sampling of the deeper wells are summarized below.

Groundwater Monitoring Results
Monitoring Wells MW-1A, MW-2A, and MW-3A

		Analytical Results (October 2013)		
Parameter	Units	MW-1A	MW-2A	MW-3A
Screen Interval	ft. bgs.[1]	150-190	150-190	150-190
Electrical Conductivity	umhos/cm	2,720	1,330	2,140
Total Dissolved Solids	mg/L	2,570 [2]/2,030 [3]	1,180 [2]/870 [3]	2,050 [2]/1,440 [3]
Alkalinity	mg/L	960	510	1,000
Bicarbonate	mg/L	1,170	620	1,220
Nitrate as Nitrogen	mg/L	1.1	14.6	3.6
Chloride	mg/L	67	34	55
Boron	mg/L	0.1	<0.1	0.1
Calcium	mg/L	368	147	263
Potassium	mg/L	16	8	13
Sodium	mg/L	243	124	211
Iron	mg/L	<0.05	<0.05	<0.05
Manganese	mg/L	0.12	<0.01	0.03
Magnesium	mg/L	99	40	71
Sulfate	mg/L	600	138	199
Total Organic Carbon	mg/L	1.5	0.7	1.4

1. ft. bgs. = feet below ground surface
2. Total dissolved solids determined by summation of analytes detected by EPA Method 200.7.
3. Total dissolved solids determined by Standard Methods 2540CE.

Basin Plan, Beneficial Uses, and Regulatory Considerations

29. The *Water Quality Control Plan for the Tulare Lake Basin,* Second 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.

30. The Plant is in Detailed Analysis Unit 256 within the Kern County Basin hydrologic unit. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply; agricultural supply; and industrial service and process supply.

31. The Basin Plan establishes narrative water quality objectives for chemical constituents, tastes and odors, and toxicity in groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. The 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.

32. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until a valley wide drain is constructed to carry salts out of the basin. Until the drain is available, the Basin Plan establishes several salt management requirements, including:

    a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum electrical conductivity (EC) in the discharge shall not exceed the EC of the source water plus 500 umhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.

    b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 umhos/cm, a chloride content of 175 mg/L, or a boron content of 1.0 mg/L.

33. The Basin Plan allows an exception to the EC limit of source water plus 500 umhos/cm where the discharge exhibits a disproportionate increase in EC over the EC of source water due to unavoidable concentrations of organic dissolved solids from the raw food product, provided water quality objectives are met. With an average TDS concentration of 1,787 mg/L and an average FDS concentration of 1,247 mg/L, the discharge meets the incremental EC limit exception.

34. 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.

35. In the absence of specific numerical water quality limits, objectives for receiving waters must be considered case-by-case. 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 umhos/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 umhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

36. The list of crops in Finding 21 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. The effluent concentrations for the discharge permitted by this Order are consistent with water quality objectives to support these crops and will not limit the use of shallow groundwater for irrigation on all but the most salt-sensitive crops.

37. 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.

38. 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.

39. *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 pounds per acre per day (lbs/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.

40. According to the Discharger, the 176-acre LAA is irrigated every 5 days in the summer; therefore it can be irrigated about 6 times per month. The maximum monthly volume of wastewater applied to the LAA occurs in July and is approximately 32

million gallons. Therefore, approximately 5.3 million gallons of wastewater is applied per irrigation cycle. With an average wastewater BOD concentration of 348 mg/L, the BOD loading of the LAA is approximately 17 pounds per acre per day per irrigation cycle.

41. The *Western Fertilizer Handbook*, produced by the California Plant Health Association, indicates wheat and Sorghum-sudan grass will take up 175 pounds per acre per year (lbs/acre/yr) and 325 lbs/acre/yr, respectively, of nitrogen.

42. With average wastewater total nitrogen and fixed dissolved solids concentrations of 56 mg/L and 1,247 mg/L, respectively, and approximately 174 million gallons of wastewater generated annually at the Plant, the nitrogen and fixed dissolved solids loading of the 176-acre LAA is approximately 451 pounds per acre per year (lbs/acre/year) and 10,045 lbs/acre/year, respectively.

Antidegradation Analysis

43. State Water Resources Control Board Resolution 68-16 (*"Policy with Respect to Maintaining High Quality Waters of the State"*) (hereafter Resolution 68-16 or "Antidegradation Policy") 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 of the people of the State.

44. Constituents of concern that have the potential to cause degradation of high quality waters include, in part, organics, nutrients, and salts.

    a. To reduce the organic load of its discharge, the Discharger added a DAF unit and a WWTP in 2009. The WWTP includes aerobic and anaerobic digestion. The addition of the DAF and WWTP significantly reduced the organic load to the LAA and minimized the potential for anoxic and reducing conditions in soil. This is expected to prevent odor and nuisance conditions and preclude iron and manganese degradation of groundwater from organic loading.

    b. For nitrogen and nitrates, the application of wastewater at agronomic rates to the LAA for both nutrient and hydraulic loading should preclude degradation of groundwater to the extent that it exceeds water quality objectives. Groundwater

down-gradient of the discharge does not exceed the MCL for NO_3-N of 10 mg/L, and is not expected to exceed it in the future.

c. For salinity, Waste Stream 02 is discharged to the HPDE lined wastewater storage pond. In addition, this Order includes an effluent limitation for electrical conductivity of 1,100 umhos/cm for discharge to the LAA. This effluent limitation is based on the background groundwater electrical conductivity measured in monitoring well MW-1 (see Finding 26).

Treatment and Control Practices

45. The Discharger provides treatment and control of the discharge that incorporates:

a. Removal of solids from the waste stream,

b. Hauling of solids offsite for use as cattle feed or compost material,

c. Using calcium hydroxide for pH control instead of sodium hydroxide,

d. Anaerobic and aerobic digestion of wastewater to reduce effluent BOD and total nitrogen concentrations,

e. Storage of high salinity wastewater in a pond lined with HPDE,

f. Organic loading rates consistent with EPA recommendations and unlikely to cause unacceptable groundwater degradation,

g. Application of nitrogen at agronomic rates,

h. Hydraulic loading at rates to preclude standing water on the LAA; and

i. Groundwater monitoring to monitor the impact of the discharge on groundwater.

Antidegradation Conclusions

46. This Order establishes groundwater limitations that allow some degradation, but that will not unreasonably threaten present and future anticipated beneficial uses of groundwater or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan.

47. The treatment and control measures described above in Finding 45, in combination with the requirements of this Order, represent BPTC. Adoption of this Order will result in the implementation of BPTC. In addition, this Order requires monitoring to evaluate potential groundwater impacts from the discharge and confirm that the BPTC measures are sufficiently protective of groundwater.

48. The Discharger aids in the economic prosperity of the region by direct employment and provides a tax base for local and county governments. Provided the discharge from the Plant complies with State and Central Valley Water Board plans and policies, authorized degradation due to the continued operation of the Plant is to the maximum benefit to the people of the State. In addition, the use of process wastewater for

irrigation in place of higher quality groundwater is of further benefit to people of the State.

49. The discharge and the potential for groundwater degradation allowed in 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 of groundwater, (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

50. Based on the threat and complexity, the discharge is determined to be classified as 2B 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 B complexity, defined as: "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management unit."

51. 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.

***

52. 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 to the unlined and HPDE lined ponds and LAA is exempt pursuant to Title 27, section 20090(b) because:

        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 ponds and LAA does not need to be managed as hazardous waste

53. 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. All storm water from the Plant is collected and disposed of in the HPDE lines storage pond or allowed to percolate on-site. The Discharger is therefore not required to obtain coverage under NPDES General Permit CAS000001.

54. 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 Plant that discharges the waste subject to this Order.

55. 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.

56. 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.

57. 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 ensure that groundwater is safe for domestic uses.

CEQA

58. The Plant has been in existence since at least 1959, as documented by the Central Valley Water Board's adoption of Resolution No. 59-160 for the discharge of wastewater from the Plant to land. Expansion of the Plant since then includes: increase in wastewater discharge flow, discontinued stillage operations, increased LAA from 20 fallow acres to 176 double-cropped acres, construction of an on-site WWTP, and installation of a lined wastewater storage pond. No permits or discretionary actions on the part of Kern County were required for the Plant's expansion, as these expansions needed only ministerial approvals (at most) under the County's General Plan. Furthermore, the Central Valley Water Board only began its environmental review of the Plant and its potential to cause significant effects on the environment following the Discharger's 15 May 2012 RWD submittal. These WDRs ensure that the operation of the Plant will not have any significant effects on the environment, authorize no additional expansion, and is in compliance with Resolution 68-16. As such, the adoption of this Order for an existing facility is exempt from the requirements of California Environmental Quality Act in accordance with California Code of Regulations, title 14, section 15301.

Public Notice

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

60. 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.

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

IT IS HEREBY ORDERED that Order No. 86-068 is rescinded except for purposes of enforcement, and, pursuant to Water Code sections 13263 and 13267, Delano Growers Grape Products, its 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. 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 toxic substances into the wastewater treatment system or LAA such that biological treatment mechanisms are disrupted is prohibited.

6. Discharge of domestic wastewater to the process wastewater treatment system or LAA is prohibited.

B. Discharge Specifications

1. As determined by measuring the flow at monitoring locations EFF-001 and EFF-002[1], the discharge from the Plant (combined Waste Stream 01 and Waste Stream 02) shall not exceed a total annual discharge of 174 million gallons.

2. 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.

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 LAA at all times.

[1] Monitoring locations EFF-001 and EFF-002 are described in Monitoring and Reporting Program R5-2014-XXXX.

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 related to the discharge shall not be perceivable beyond the limits of where the waste is generated, treated and/or stored, and discharged at an intensity that creates or threatens to create nuisance conditions.

8. The discharge shall be distributed uniformly on adequate acreage within the LAA in compliance with the Discharge Specifications.

9. The Discharger shall periodically monitor solids accumulation in all ponds and shall remove solids from them to maintain adequate storage capacity. Solids shall be removed from the waste stream, including the ponds, and shall be shipped off-site as cattle feed or compost material.

C. Effluent Limitations

1. As determined by collecting samples from monitoring location EFF-003[1], effluent discharged to the LAA shall not exceed the following limits:

Constituent	Units	Average Monthly	Maximum Daily
Electrical Conductivity	umhos/cm	1,100	--
Chloride	mg/L	--	175
Boron	mg/L	--	1.0

2. No wastewater contained in any pond shall have a pH of less than 6.5 or greater than 8.5.

D. Land Application Area Specifications

1. Crops shall be grown in the LAA. Crops shall be selected based on nutrient uptake, consumptive use of water, and irrigation requirements to maximize crop uptake of water and nutrients.

2. Application of waste constituents to the LAA shall be at reasonable agronomic rates to preclude creation of a nuisance or unreasonable degradation of

[1] Monitoring location EFF-003 is described in Monitoring and Reporting Program R5-2014-XXXX.

groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAA, including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand.

3. Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates.

4. The BOD loading to the LAA calculated as a cycle average as determined by the method described in the attached Monitoring and Reporting Program, shall not exceed 100 pounds per day per acre.

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

6. The Discharger may not discharge process wastewater to the LAA within 24 hours of a storm event of measurable precipitation or when soils are saturated.

7. Any runoff of wastewater or irrigation shall be confined to the LAA and shall not enter any surface water drainage course or storm water drainage system.

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

9. The LAA shall be managed to prevent breeding of mosquitos. More specifically:

    a. All applied irrigation water must infiltrate completely within 48-hours;

    b. Ditches not serving as wildlife habitat shall be maintained free of emergent, marginal, and floating vegetation; and

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

E. 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 in excess of natural background quality for the specified constituents, whichever is greater:

i. Nitrate as nitrogen of 10 mg/L.

ii. For constituents identified in Title 22 of the California Code of Regulations, the MCLs quantified therein.

F. Provisions

1. The Discharger shall comply with Monitoring and Reporting Program (MRP) 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 a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provisions."

3. **By (6 months following the adoption of this Order)**, the Discharger shall submit a Nutrient and Wastewater Management Plan. At a minimum, the Plan must include management practices to ensure wastewater, irrigation water, and commercial fertilizers are applied at reasonable agronomic rates and will allow viable crop production in the LAA.

4. **By (9 months following the adoption of this Order)**, the Discharger shall submit a Solids Management Plan. The Plan shall describe how the Discharger will manage and dispose of all solids generated at the Plant to comply with Discharge Specification B.2 and to preclude nuisance and odor conditions and damage to the liner in Pond 3.

5. As a means of discerning compliance with Discharge Specification B.7, the dissolved oxygen (DO) content in the upper one foot of any treatment/storage pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the 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.

6. 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).

7. The wastewater ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, seasonal precipitation, and ancillary

inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order.

8. **On or about 1 October** of each year, available capacity shall at least equal the volume necessary to comply with Provision F.7.

9. Any new construction or rehabilitation of 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.

10. 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.

11. 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.

12. 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.

13. 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 only when the operation is necessary to achieve compliance with the conditions of this Order.

14. 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.

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 Plant, 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 Plant for reference by operating personnel. Key operating personnel shall be familiar with its contents.

19. If the Central Valley Water Board determines that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective, or to create a condition of nuisance or pollution, this Order may be reopened for consideration of additional requirements.

20. 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.

21. 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 the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on XX June 2014.

PAMELA C. CREEDON, Executive Officer

Order Attachments:
A. Site Location Map
B. Wastewater Process Flow Diagram

Monitoring and Reporting Program R5-2014-XXXX
Information Sheet
Standard Provisions (1 March 1991) (separate attachment to Discharger only)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2014-XXXX

FOR
DELANO GROWERS GRAPE PRODUCTS
GRAPE JUICE PROCESSING PLANT
KERN COUNTY

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267.

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with ***Standard Provisions and Reporting Requirements for Waste Discharge Requirements***, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH, temperature, and electrical conductivity (EC)) may be used, provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 sampling events, the Discharger may request this MRP be revised to reduce monitoring and/or reporting frequency. The proposal must include adequate technical justification for reduction in monitoring and/or reporting frequency.

A glossary of terms used within this MRP is included on page 12.

The Discharger shall monitor the following locations to demonstrate compliance with the requirements of this Order:

MONITORING LOCATIONS

Monitoring Location Name	Monitoring Location Description
EFF-001	Waste Stream 01 prior to discharge to Pond 1.
EFF-002	Waste Stream 02 after discharge from the wastewater treatment plant (WWTP) and prior to mixing with Waste Stream 01 and discharging to Pond 3.
EFF-003	Combined Waste Stream 01, Waste Stream 02, and Friant-Kern canal water (if any) prior to discharge to the Land Application Area.
LAA-001	Cropland where Waste Stream 01, Waste Stream 02, and Friant-Kern Canal water are applied. Also referred to the Land Application Area or LAA.
SOIL-1@2, SOIL-2@2, etc.	Soil samples collected from the LAA at 2 feet below ground surface.
SOIL-1@4, SOIL-2@4, etc.	Soil samples collected from the LAA at 4 feet below ground surface.
SOIL-1@6, SOIL-2@6, etc.	Soil samples collected from the LAA at 6 feet below ground surface.
SOIL-BGD@2	Soil sample collected from a representative background soil location at 2 feet below ground surface.
SOIL-BGD@4	Soil sample collected from a representative background soil location at 4 feet below ground surface.
SOIL-BGD@6	Soil sample collected from a representative background soil location at 6 feet below ground surface.
PND-001	North unlined Pond 1 that receives Waste Stream 01.
PND-002	South unlined Pond 2 that is hydraulically connected to Pond 1.
PND-003	Lined storage Pond 3 that receives comingled Waste Stream 01 and Waste Stream 02.
SPL-001	On-site water supply well DW-01.
SPL-002	Friant-Kern Canal water.
RGW-001	Groundwater monitoring well MW-1
RGW-002	Groundwater monitoring well MW-1A
RGW-003	Groundwater monitoring well MW-2
RGW-004	Groundwater monitoring well MW-2A
RGW-005	Groundwater monitoring well MW-3
RGW-006	Groundwater monitoring well MW-3A

EFFLUENT MONITORING EFF-001

Effluent samples shall be collected from the condensed water (i.e., Waste Stream 01) separated from the rough grape juice concentrate and prior to discharge to Pond 1 and shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
Weekly	Electrical Conductivity	umhos/cm	Grab
Monthly[1]	Five-day Biochemical Oxygen Demand (BOD_5)	mg/L	Grab
Monthly[1]	General Minerals[2]	mg/L	Grab

1. Monthly samples shall be collected for one year following adoption of this Order.
2. General minerals shall include: alkalinity (as $CaCO_3$), aluminum, bicarbonate (as $CaCO_3$), boron, calcium, carbonate (as $CaCO_3$), chloride, copper, hardness (as $CaCO_3$), iron, magnesium, manganese, phosphate, potassium, sodium, and sulfate. General minerals analysis results shall include a cation/anion balance. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

EFFLUENT MONITORING EFF-002

Effluent samples shall be collected from the discharge of the WWTP (i.e., Waste Stream 02) prior to mixing with Waste Stream 01 and shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
Weekly	EC	umhos/cm	Grab

EFFLUENT MONITORING EFF-003

Effluent samples shall be collected after Waste Stream 01, Waste Stream 02, and Friant-Kern Canal water (if any) have been mixed and prior to discharge to the LAA and shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter [1]
Weekly	pH	pH Units	Grab
Weekly	Electrical Conductivity	umhos/cm	Grab
Weekly	Dissolved Oxygen	mg/L	Grab
Monthly	Five-day Biochemical Oxygen Demand (BOD_5)	mg/L	Grab
Monthly	Nitrate as Nitrogen (NO_3-N)	mg/L	Grab
Monthly	Total Kjeldahl Nitrogen	mg/L	Grab
Monthly	Total Nitrogen	mg/L	Calculated
Monthly	Total Dissolved Solids	mg/L	Grab
Monthly	Fixed Dissolved Solids	mg/L	Grab

Frequency	Constituent/Parameter	Units	Sample Type
Semiannually	General Minerals [2]	mg/L	Grab

1. EFF-003 flow can be calculated by adding flow from EFF-001 and EFF-002 and SPL-002.
2. General minerals shall include: alkalinity (as $CaCO_3$), aluminum, bicarbonate (as $CaCO_3$), boron, calcium, carbonate (as $CaCO_3$), chloride, copper, hardness (as $CaCO_3$), iron, magnesium, manganese, phosphate, potassium, sodium, and sulfate. General minerals analysis results shall include a cation/anion balance. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

LAND APPLICATION AREA MONITORING LAA-001

The Discharger shall perform the following routine monitoring and loading calculations for the LAA. In addition the Discharger shall keep a log of routine monitoring observations for example: areas of ponding, broken irrigation pipes, odors and/or flies within the LAA. Data shall be collected and presented in tabular format and shall include the following:

Frequency	Constituent/Parameter	Units	Sample Type
Daily	Location of Wastewater Application Area	Field # & Acreage	n/a
Daily	Wastewater flow	Gallons	Metered
Daily	Wastewater loading	inches/day	Calculated
Daily	Supplemental irrigation	Gallons	Metered
Daily	Precipitation	inches	Rain gauge [1]
Daily	BOD_5 loading (day of application) [2]	lbs/acre	Calculated
Daily	BOD_5 loading (cycle average) [2]	lbs/acre-day	Calculated
Monthly	Nitrogen loading from wastewater [3]	lbs/acre	Calculated
Monthly	Nitrogen loading from fertilizer	lbs/acre	Calculated
Annually	Cumulative nitrogen loading	lbs/acre-year	Calculated
Monthly	Salt loading [3]	lbs/acre	Calculated
Annually	Cumulative Salt loading	lbs/acre-year	Calculated

[1] National Weather Service data from the nearest weather station is acceptable.
[2] Loading rates to be calculated using the applied volume of wastewater, applied acreage, and average of the three most recent concentrations for BOD. The BOD loading rate shall be divided by the #days between applications to determine cycle average.
[3] Nitrogen and salt loading shall be calculated using the applied volume of wastewater, applied acreage, and average of the three most recent concentrations for total nitrogen and FDS.

SOIL MONITORING

The Discharger shall establish, with the concurrence of Central Valley Water Board staff, soil profile monitoring locations within the Land Application Area and background (i.e., that historically have not received process wastewater). The samples shall be collected and analyzed for the constituents and frequencies specified below:

Frequency	Constituent/Parameter	Units	Sample Depth
Annually	Soil pH	pH units	2, 4, and 6 feet
Annually	Electrical Conductivity	umhos/cm	2, 4, and 6 feet
Annually	Sodium	mg/kg	2, 4, and 6 feet
Annually	Nitrate as Nitrogen	mg/kg	2, 4, and 6 feet

Annually	Total Kjeldahl Nitrogen	mg/kg	2, 4, and 6 feet
Annually	Total Nitrogen	mg/kg	2, 4, and 6 feet

GROUNDWATER MONITORING RGW-001 THROUGH RWG-006

After measuring water levels and prior to collecting samples, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or filter pack pore volume.

The Discharger shall monitor all wells in its Groundwater Monitoring Well Network, and any subsequent additional wells, for the following:

Frequency	Constituent/Parameter	Units	Sample Type
Monthly [1]	Depth to groundwater [2]	Feet	Measured
Monthly [1]	Groundwater Elevation [3]	Feet	Computed
Quarterly	pH	pH Units	Grab
Quarterly	Temperature	°C	Grab
Quarterly	Electrical Conductivity	umhos/cm	Grab
Quarterly	Nitrate as Nitrogen	mg/L	Grab
Quarterly	Total Kjeldahl Nitrogen	mg/L	Grab
Quarterly	Ammonia as Nitrogen	mg/L	Grab
Quarterly	Total Nitrogen	mg/L	Computed
Quarterly	Total Dissolved Solids	mg/L	Grab
Quarterly	Fixed Dissolved Solids	mg/L	Grab
Quarterly	Total Organic Carbon	mg/L	Grab
Quarterly	General Minerals [4]	mg/L	Grab

1. Depth to groundwater and groundwater elevation monitoring shall be conducted monthly for two years or until the predominant direction of groundwater flow can be determined. Following Executive Officer approval, the monitoring frequency for these constituents can be reduced to quarterly.
2. Depth to groundwater shall be measured to the nearest tenth of a foot.
3. Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point.
4. General minerals shall include: alkalinity (as $CaCO_3$), aluminum, bicarbonate (as $CaCO_3$), boron, calcium, carbonate (as $CaCO_3$), chloride, copper, hardness (as $CaCO_3$), iron, magnesium, manganese, phosphate, potassium, sodium, and sulfate. General minerals analysis results shall include a cation/anion balance. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

The Discharger shall maintain its groundwater monitoring well network. If a groundwater monitoring well(s) are dry for more than two consecutive sampling events, the Discharger shall submit a work plan and proposed time schedule to replace the well(s). The well(s) shall be replaced following written Executive Officer approval of the work plan and time schedule.

SOURCE WATER MONITORING SPL-001

For each source (either well or surface water supply), the Discharger shall calculate the flow-weighted average concentrations for the specified constituents utilizing monthly flow data and the most recent chemical analysis conducted in accordance with Title 22 drinking water requirements. Alternatively, the Discharger may establish representative sampling stations within the distribution system serving the same area as is served by the Plant.

Frequency	Constituent/Parameter	Units	Sample Type
Quarterly	Electrical Conductivity	µmhos/cm	Computed average
Annually	Total Dissolved Solids	mg/L	Grab
Annually	Nitrate as Nitrogen	mg/L	Grab
Annually	General Minerals [2]	mg/L	Grab

1. General minerals shall include: alkalinity (as $CaCO_3$), aluminum, bicarbonate (as $CaCO_3$), boron, calcium, carbonate (as $CaCO_3$), chloride, copper, hardness (as $CaCO_3$), iron, magnesium, manganese, phosphate, potassium, sodium, and sulfate. General minerals analysis results shall include a cation/anion balance. Samples collected for metals shall be filtered with a 0.45 micron filter prior to preservation, digestion, and analysis.

FRIANT-KERN CANAL WATER MONITORING SPL-002

The Discharger shall perform the following monitoring of Friant-Kern Canal water that is mixed with wastewater prior to discharge to the LAA.

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	meter
Annually	Electrical Conductivity	umhos/cm	grab

UNLINED POND MONITORING PND-001 AND PND-002

Pond monitoring shall be in effect so long as the ponds contain wastewater and shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Weekly	Freeboard	0.5 feet	Measured
Weekly	Dissolved Oxygen	mg/L	Grab
Monthly	Visual Inspection [1]	--	--

[1] Visual inspection shall include observing the pond sides and surface area from items such as: weeds, algae, animal holes, and erosion.

LINED POND MONITORING PND-003

Pond monitoring shall be in effect so long as the ponds contain wastewater and shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Daily	Freeboard	feet	Measured
Daily	Dissolved Oxygen	mg/L	Grab
Monthly	Visual Inspection [1]	--	--
1/Five Years [2]	Leak Detection Monitoring [3]	--	--

[1] Visual inspection shall include observing the pond sides and surface area from items such as: weeds, algae, animal holes, integrity of liner, and erosion.
[2] The first leak detection monitoring shall be completed during 2014.
[3] Leak detection monitoring shall be conducted in accordance with American Society of Testing and Materials (ASTM) Method D7002, also known as the, "Water Puddle Method," or an alternative approved by the Executive Officer.

REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

First Quarter Monitoring Report: **1 May**

Second Quarter Monitoring Report: **1 August**

Third Quarter Monitoring Report: **1 November**

Fourth Quarter Monitoring Report: **1 February**.

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

The following information is to be included on all monitoring and annual reports, as well as any report transmittal letters, submitted to the Central Valley Water Board:

Discharger: Delano Growers Grape Products
Facility: Grape Juice Processing Plant
MRP: R5-2014-XXXX
Contact Information (telephone number and email)

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be

summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3.

All monitoring reports that involve planning, investigation, evaluation or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

At any time henceforth, the State or Central Valley Regional Water Board may notify the Discharger to electronically submit monitoring reports using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html) or similar system. Until such notification is given, the Discharger shall submit hard copy monitoring reports.

A. All Quarterly Monitoring Reports, shall include the following:

Effluent reporting

1. The results of effluent monitoring from sample locations EFF-001, EFF-002, and EFF-003 specified on pages 3 and 4.
2. For each month of the quarter, calculation of the maximum daily flow, monthly average flow, and cumulative annual flow of combined Waste Stream 01 and Waste Stream 02.
3. For each month of the quarter, calculation of the average monthly effluent EC and BOD of combined Waste Stream 01 and Waste Stream 02.

Land Application Area reporting

1. The results of the routine monitoring and loading calculations for BOD, nitrogen, and salts as specified on page 4.
2. Provide a Site Map of the LAA showing predominant features, and include field numbers and applied acreages.

3. For each month of the quarter, calculation of the monthly hydraulic load on each individual section for wastewater and supplemental irrigation water in millions of gallons.
4. A summary of the notations made in the LAA monitoring log during each quarter. The entire contents of the log do not need to be submitted.

Groundwater reporting

1. The results of groundwater monitoring specified on page 5. If there is insufficient water in the well(s) for sampling the monitoring well(s) shall be reported as dry for that quarter.
2. For each monitoring well, a table showing groundwater depth, elevation, and constituent concentrations for at least five previous years, up through the current quarter.
3. A groundwater contour map based of groundwater elevations for each monitoring event for that quarter. The map shall show the gradient and direction of groundwater flow under/around the LAA. The map shall also include the locations of all monitoring wells and wastewater storage and/or discharge areas.

Source Water reporting

1. For each quarter include the results of monitoring for EC for sample location SPL-001.

Friant-Kern Canal Water reporting

1. For each quarter include the amount of Friant-Kern Canal water used for irrigation.

Unlined Pond reporting

1. The results of the routine monitoring specified on page 6.

Lined Pond reporting

1. The results of the routine monitoring specified on page 7.

B. Fourth Quarter Monitoring Reports, in addition to the above, shall include the following:

Plant Information

1. The names and general responsibilities of all persons in charge of wastewater treatment and disposal.
2. The names and telephone numbers of persons to contact regarding the Plant for emergency and routine situations.

3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
4. A summary of any changes in processing that might affect waste characterization and/or discharge flow rates.

Land Application Area reporting

1. The type of crop(s) grown, planting and harvest dates, and the quantified nitrogen and fixed dissolved solids uptakes (as estimated by technical references or, preferably, determined by representative plant tissue analysis). Include any soil and/or tissue sampling results.
2. The monthly and annual discharge volumes during the reporting year expressed as million gallons and inches for EFF-001, EFF-002, and EFF-003.
3. A monthly balance for the reporting year that includes:
    a. Monthly crop uptake
        i. Crop water utilization rates are available from a variety of publications available from the local University of California Davis extension office.
        ii. Irrigation efficiency – Frequently, engineers include a factor from irrigation efficiency such that the application rate is slightly greater than the crop utilization rate. A conservative design does not include this value.
    b. Monthly average precipitation – this data is available at http://www.cimis.water.ca.gov/ or at http://www.ncdc.noaa.gov/oa/climate/online/ccd/nrmlprcp.html.
    c. Monthly average and annual average discharge flow rates for EFF-001, EFF-002, and EFF-003.
    d. Monthly estimates of the amount of wastewater percolating below the root zone (i.e., amount of wastewater applied in excess of crop requirements)
4. A summary of average and cycle BOD loading rates.
5. The total pounds of nitrogen applied to the LAA, as calculated from the sum of the monthly loadings, and the total annual nitrogen loading to the LAA in lbs/acre-year.
6. The total pounds of fixed dissolved solids (FDS) that have been applied to the LAA, as calculated from the sum of the monthly loadings, and the total annual FDS loading to the LAA in lbs/acre-year.

Soil Reporting

1. The results of soil monitoring specified on pages 4 and 5.

Source Water reporting

1. Include the results of monitoring for total dissolved solids, nitrate as N, and General Minerals specified on Page 6.

Friant-Kern Canal Water reporting

1. Include the results of monitoring for electrical conductivity specified on Page 6.

Lined Pond reporting

1. Include the results of leak detection monitoring (if applicable to the reporting year).

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

_____

PAMELA C. CREEDON, Executive Officer

_____

(Date)

GLOSSARY

BOD_5	Five-day biochemical oxygen demand
CBOD	Carbonaceous BOD
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-hr Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots.
Daily	Samples shall be collected every day except weekends or holidays.
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.
Weekly	Samples shall be collected at least once per week.
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.
Monthly	Samples shall be collected at least once per month.
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months.
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in March, June, September, and December.
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in June and December.
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in June.
Mg/L	Milligrams per liter
mL/L	Milliliters [of solids] per liter
ug/L	Micrograms per liter
umhos/cm	Micromhos per centimeter
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters

INFORMATION SHEET

ORDER R5-2014-XXXX
DELANO GROWERS GRAPE PRODUCTS
GRAPE JUICE PROCESSING PLANT
KERN COUNTY

BACKGROUND

The Delano Growers Grape Products (DGGP), Grape Juice Processing Plant (the Plant) is at 32351 Basset Avenue in Delano (Section 5, T25S, R26E, MDB&M; Assessor's Parcel Numbers (APN) 049-040-02). The Plant has been in operation since at least the late 1950's and has operated under two sets of Waste Discharge Requirements (Order Nos. 59-160 and 86-068). The Plant produces grape juice concentrate from whole grapes and for a period of time operated a still to produce ethyl alcohol. Historically, wastewater was discharged to several fallow checks of land west of the Plant.

On 15 May 2012, DGGP submitted a Report of Waste Discharge (RWD) that describes modifications implemented at the Plant. Additional information to complete the RWD was submitted on 12 September 2013.

Wastewater

Wastewater at the Plant consists of two waste streams, identified as Waste Stream 01 and Waste Stream 02. Waste Stream 01 consists of the condensed water separated from the rough grape juice concentrate and retentate from a reverse osmosis unit that treats the Plant's source water to provide mineral free water to the boiler and is discharged into the two unlined, aerated storage ponds (Pond 1 and Pond 2). Only one sample from November 1995 has been submitted to characterize this waste stream and is included in the table below.

Waste Stream 01 (November 1995)

Parameter	Units	Number of Samples	Result
Alkalinity as $CaCO_3$	mg/L	1	<2
Hydroxide as $CaCO_3$	mg/L	1	<2
Carbonate as $CaCO_3$	mg/L	1	<2
Bicarbonate as $CaCO_3$	mg/L	1	<2
Phosphate	mg/L	1	0.53
Chloride	mg/L	1	<2
Nitrate as Nitrogen	mg/L	1	<0.1
Sulfate	mg/L	1	<2
Boron	mg/L	1	0.06
Calcium	mg/L	1	0.57
Iron	mg/L	1	<50
Potassium	mg/L	1	8.8
Magnesium	mg/L	1	0.38

Parameter	Units	Number of Samples	Result
Silica	mg/L	1	<1
Sodium	mg/L	1	<1
pH	pH units	1	3.7
Temperature	°C	1	15.9
Total Dissolved Solids	mg/L	1	390
Electrical Conductivity	umhos/cm	1	120
Ammonia	mg/L	1	1.4
Biochemical Oxygen Demand	mg/L	1	1,200

Waste Stream 02 consists of all other wastewaters from the processes associated with processing rough grape juice into the final product and includes: ultrafiltration retentate, boiler blowdown, cooling tower blowdown, process equipment cleaning water, regenerate from electro-dialysis and ion exchange units, and vacuum pump seal water. Waste Stream 02 is treated by an on-site wastewater treatment plant (WWTP) that consists of screening, coagulation, pH adjustment, dissolved air flotation (DAF), anaerobic and aerobic digestion, and clarification prior to being discharged into the new high density polyethylene (HDPE) lined, aerated storage pond (Pond 3).

Data were included in the 2012 RWD to illustrate the effectiveness of the WWTP. The average concentrations of BOD, total suspended solids (TSS), total Kjeldahl nitrogen (TKN), and pH of the Plant discharge prior to the construction of the WWTP (January 2006 through April 2009) were approximately 4,300 mg/L, 2,400 mg/L, 600 mg/L, and 3.7 pH units, respectively. Following construction of the WWTP (May 2009 through August 2011), the concentrations were 175 mg/L, 165 mg/L, 35 mg/L, and 7.4 pH units, respectively.

Effluent samples of combined Waste Streams 01 and 02 collected prior to mixing with Friant-Kern Canal water are required by Monitoring and Reporting Program Number 86-068. The effluent wastewater analytical results (comingled Waste Streams 01 and 02) from January 2012 through December 2013 are summarized below.

Combined Waste Streams 01 and 02
Effluent Analytical Data
2012 - 2013

Parameter	Units	Number of Samples	Mean Result
Total dissolved solids	mg/L	6	1,787
Fixed dissolved solids	mg/L	6	1,247
Electrical conductivity	umhos/cm	24	2,437

Parameter	Units	Number of Samples	Mean Result
Bicarbonate	mg/L	6	1,417
Carbonate	mg/L	6	24
Nitrate as nitrogen	mg/L	23	<0.5
Total nitrogen	mg/L	23	56
Calcium	mg/L	6	29
Magnesium	mg/L	6	10
Sodium	mg/L	6	487
Potassium	mg/L	6	157
Sulfate	mg/L	6	91
Chloride	mg/L	6	150
Sulfate	mg/L	6	91
Biochemical oxygen demand	mg/L	23	348
Boron	mg/L	6	0.35
Iron	mg/L	6	0.06
Manganese	mg/L	6	0.04
Sodium Adsorption Ration	--	6	20
pH	pH units	24	7.9

The chemicals used at the Plant are summarized in the table below.

Annual Chemical Usage

Chemical	Amount	Use
Sodium Hydroxide/Potassium Hydroxide Blend	44,000 gallons	Cleaning Agent
Sodium Hypochlorite	8,000 gallons	Cleaning Agent
Hydrochloric Acid	15,000 gallons	pH Adjustment/Cleaning Agent
Calcium Hydroxide	97,800 gallons	pH Adjustment
Ferric Chloride	10,000 gallons	Clarifying Agent
Klaraid (coagulant)	242,600 pounds	Clarifying Agent
Polyfloc (polymer)	41,400 pounds	Clarifying Agent

Source Water

Source water supply for the Plant comes from an on-site water supply well identified as DW-1. The average electrical conductivity of five samples collected from DW-1 in 2012 and 2013 was 454 umhos/cm.

DISPOSAL METHODS

Solids

Solids, consisting primarily of grape pomace, is shipped off-site as cattle feed or compost material.

Wastewater

Waste Streams 01 and 02 are comingled in Ponds 3 and then discharged to 176 acres of double-cropped wheat and sudan grass (also referred to as the Land Application Area or LAA). The Discharger owns the LAA, but contracts with a local farmer to manage the crops. Wastewater is mixed with canal water from the nearby Friant-Kern Canal and applied to the LAA via flood irrigation. Soil data collected annually from the LAA since the WWTP began operation in 2009 are summarized in the table below.

Average Soil Concentrations (2009 - 2013)

Location	Depth	NO_3-N (mg/kg)[1]	TKN (mg/kg)[1]	Total N (mg/kg)[1]	pH (pH units)	EC (umhos/cm)
Northwest	2 feet	3	206	205	7.4	295
	4 feet	4	155	159	7.4	221
	6 feet	8	99	105	7.3	217
Southwest	2 feet	5	209	213	7.3	360
	4 feet	4	187	191	7.6	283
	6 feet	2	100	101	7.3	430
Northeast (new)[2]	2 feet	180	1,100	1,300	6.3	2,050
	4 feet	67	440	510	5.2	1,170
	6 feet	12	330	340	4.6	3,640
Northeast (old)[3]	2 feet	45	1,250	1,273	5.1	1,633
	4 feet	51	1,015	1,057	4.5	1,463
	6 feet	11	913	923	5.8	1,897
Southeast	2 feet	39	381	415	6.5	563
	4 feet	21	198	218	7.3	342
	6 feet	25	101	123	7.3	446
Background	2 feet	10	375	388	5.2	1,294
	4 feet	6	208	213	7.9	823
	6 feet	3	160	164	8.0	705
Suitable Range	--	<10[4] 10 - 25[5] >25[6]	--	--	5.5 - 7.0[7]	<2,500[8]

1. mg/kg = milligrams per kilogram

2. One sample from 2013 available in the "new" Northeast sample location.
3. Average concentrations from samples collected from 2009 through 2011.
4. Soil NO_3-N concentrations less than 10 mg/kg may be inadequate (Table 9-1, *Western Fertilizer Handbook, Ninth Edition*).
5. Soil NO_3-N concentrations within this range may provide a safe growing environment (Table 9-1, *Western Fertilizer Handbook, Ninth Edition*).
6. Soil NO_3-N concentrations greater than 25 mg/kg may be necessary for some high-yielding plants (Table 9-1, *Western Fertilizer Handbook, Ninth Edition*).
7. Suitable soil pH ranges for wheat and sudan grass from Table 7, *United Stated Department of Agriculture, Soil Quality Test Kit, July 2001*
8. Salt tolerance of wheat and sudan grass from Table 6, *United Stated Department of Agriculture, Soil Quality Test Kit, July 2001*.

The data indicate the soil in the LAA is suitable for crop production of the wheat and sudan grass grown in the LAA. The Northwest and Southwest samples are in areas that have historically been fallow and have not received wastewater. Shortly after the WWTP was constructed in 2009, crops were planted and wastewater discharge was initiated to this area. The "new" Northeast sample is in an area that received wastewater as part of the expansion of the LAA from the original 20-acres to 88-acres in the early 2000's. Only one sample from the "new" Northeast location has been collected and it was in 2013. The "old" Northeast sample is in an area that has historically been used for emergency discharge and did not have crops. In the fall of 2013, excavated soil from the construction of Pond 3 was placed in this area. The excavated soil was leveled and crops were planted and the area now receives wastewater. The Southeast sample is in an area that also received wastewater as part of the expansion of the LAA from the original 20-acres to 88-acres in the early 2000's; however, not as frequently as the area monitored by the "new" Northeast sample.

GROUNDWATER CONDITIONS

Three groundwater monitoring wells were installed in April 2004 (MW-1 through MW-3). According to the monitoring well installation report, soils encountered in the boreholes for the monitoring wells consist of unconsolidated, moderate to highly permeable fine to coarse-grained sand to a depth of 81 feet below ground surface (bgs) with gravel and cobbles observed between 56 and 81 feet bgs. Underlying this is a zone of consolidated, low-permeable, clayey sand to a depth of 100 feet bgs followed by interbedded sand, gravel, and silty sand that extends to the bottom of the boreholes at 135 feet bgs. The monitoring wells are screened between 85 and 135 feet bgs. Since the end of 2007, groundwater elevation has dropped below the bottom of the wells.

The Discharger has performed quarterly groundwater monitoring in accordance with Monitoring and Reporting Program Number 86-068 from 2004 through 2007. Groundwater analytical data are summarized below.

Groundwater Monitoring Results
Monitoring Wells MW-1, MW-2, and MW-3

Parameter	Units	Mean Analytical Results (2004 – 2007) DW-1[1]	MW-1	MW-2	MW-3
Screen Interval	ft. bgs.[2]	--	85-135	85-135	85-135
Electrical Conductivity	umhos/cm	492	1,065	2,467	2,822
Total Dissolved Solids	mg/L	334	712	1,760	2,313
Fixed Dissolved Solids	mg/L	298	588	1,375	1,895
Alkalinity	mg/L	153	419	1,057	909
Nitrate as Nitrogen	mg/L	6	9	0.3	5
Chloride	mg/L	25	47	58	73
Boron	mg/L	0.08	0.12	0.15	0.18
Calcium	mg/L	28	99	329	387
Potassium	mg/L	4	12	16	18
Sodium	mg/L	72	108	150	215
Iron	mg/L	0.08	0.11	0.17	0.13
Manganese	mg/L	0.01	0.19	0.67	0.17
Magnesium	mg/L	5	29	110	116
Sulfate	mg/L	47	98	355	738
Total Organic Carbon	mg/L	<2.0	<2.0	3.4	3.4

1. DW-1 is the on-site water supply well
2. ft. bgs. = feet below ground surface

In September 2013, the Discharger installed three deeper groundwater monitoring wells with screen intervals from 150 to 190 feet bgs. Groundwater was encountered at approximately 140 to 150 feet bgs during well installation activities. Based on depth to groundwater data measured in the monitoring wells, the direction of groundwater flow in October 2013 was to the north-northwest. This groundwater direction is contrary to the data obtained from the shallower groundwater monitoring wells between 2004 and 2007 when the direction of groundwater flow was to the east or southeast.

Laboratory analytical data from samples collected from the new wells in October 2013 are summarized in the table below:

Groundwater Monitoring Results
Monitoring Wells MW-1A, MW-2A, and MW-3A

		Analytical Results (October 2013)		
Parameter	Units	MW-1A	MW-2A	MW-3A
Screen Interval	ft. bgs.[1]	150-190	150-190	150-190
Electrical Conductivity	umhos/cm	2,720	1,330	2,140
Total Dissolved Solids	mg/L	2,570 [2]/2,030 [3]	1,180 [2]/870 [3]	2,050 [2]/1,440 [3]
Alkalinity	mg/L	960	510	1,000
Bicarbonate	mg/L	1,170	620	1,220
Nitrate as Nitrogen	mg/L	1.1	14.6	3.6
Chloride	mg/L	67	34	55
Boron	mg/L	0.1	<0.1	0.1
Calcium	mg/L	368	147	263
Potassium	mg/L	16	8	13
Sodium	mg/L	243	124	211
Iron	mg/L	<0.05	<0.05	<0.05
Manganese	mg/L	0.12	<0.01	0.03
Magnesium	mg/L	99	40	71
Sulfate	mg/L	600	138	199
Total Organic Carbon	mg/L	1.5	0.7	1.4

1. ft. bgs. = feet below ground surface
2. Total dissolved solids determined by summation of analytes detected by EPA Method 200.7.
3. Total dissolved solids determined by Standard Methods 2540CE

REGULATORY CONSIDERATIONS

Basin Plan

The *Water Quality Control Plan for the Tulare Lake Basin,* Second 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. The Plant is in Detailed Analysis Unit 256 within the Kern County Basin hydrologic unit. The Basin Plan designates the beneficial uses of underlying groundwater as municipal and domestic supply; agricultural supply; and industrial service and process supply.

Treatment and Control Practices

The Discharger provides treatment and control of the discharge that incorporates:

a. Removal of solids from the waste stream,

b. Hauling of solids offsite for use as cattle feed or compost material,

c. Using calcium hydroxide for pH adjustment instead of sodium hydroxide,

d. Anaerobic and aerobic digestion of wastewater to reduce effluent BOD and total nitrogen concentrations,

e. Storage of high salinity wastewater in a pond lined with HPDE,

f. Organic loading rates consistent with EPA recommendations and unlikely to cause unacceptable groundwater degradation,

g. Application of nitrogen at agronomic rates,

h. Hydraulic loading at rates to preclude standing water on the LAA; and

i. Groundwater monitoring to monitor the impact of the discharge on groundwater.

In combination with the requirements of this Order, these treatment and control measures represent best practicable treatment and control (BPTC).

Antidegradation

The antidegradation directives of State Water Board Resolution No. 68-16, "*Statement of Policy With Respect to Maintaining High Quality Waters in California*," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Policy and procedures for complying with this directive are set forth in the Basin Plan.

The discharge and the potential for groundwater degradation allowed in 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 of groundwater, (b) the Discharger has implemented BPTC to minimize degradation, and (c) the limited degradation is of maximum benefit to people of the State.

Title 27

Unless exempt, the release of designated waste is subject to full containment pursuant to Title 27 requirements. Here, the discharge is exempt from the requirements of Title 27 pursuant to the wastewater exemption found at Title 27, section 20090(b).

California Environmental Quality Act

The Plant has been in existence since at least 1959, as documented by the Central Valley Water Board's adoption of Resolution No. 59-160 for the discharge of wastewater from the Plant to land. Expansion of the Plant since then includes: increase in wastewater discharge flow, discontinued stillage operations, increased LAA from 20 fallow acres to 176 double-cropped acres, construction of an on-site WWTP, and installation of a lined wastewater

storage pond. No permits or discretionary actions on the part of Kern County were required for the Plant's expansion, as these expansions needed only ministerial approvals (at most) under the County's General Plan. Furthermore, the Central Valley Water Board only began its environmental review of the Plant and its potential to cause significant effects on the environment following the Discharger's 15 May 2012 RWD submittal. These WDRs ensure that the operation of the Plant will not have any significant effects on the environment, authorize no additional expansion, and is in compliance with Resolution 68-16. As such, the adoption of this Order for an existing facility is exempt from the requirements of California Environmental Quality Act in accordance with California Code of Regulations, title 14, section 15301.

PROPOSED ORDER TERMS AND CONDITIONS

Discharge Prohibitions, Effluent Limitations, Discharge Specifications, and Provisions

The proposed Order prohibits discharge to surface waters and drainage courses.

The proposed Order sets the maximum total annual discharge at 174 million gallons.

Effluent discharged from to the LAA shall not exceed the following limits:

Constituent	Units	Monthly Average	Daily Max
Electrical Conductivity	umhos/cm	1,100	--
Chloride	mg/L	--	175
Boron	mg/L	--	1.0

The effluent limitation for electrical conductivity is based on the mean background or upgradient groundwater electrical conductivity measured in monitoring well MW-1 between 2004 and 2007.

Application of waste constituents to the LAA shall be at reasonable agronomic rates to preclude creation of a nuisance or unreasonable degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the wastewater application area, including the nutritive value of organic and chemical fertilizers, manure from non-commercial livestock, and of the wastewater, shall not exceed the annual crop demand.

This Order requires the Discharger to submit a Nutrient and Wastewater Management Plan that identifies the management practices to be implemented that will allow agronomic application of wastewater, irrigation water, and commercial fertilizers at agronomic rates and allow viable crop production in the LAA.

This Order requires the Discharger to submit a Solids Management Plan. The Plan shall describe how the Discharger will manage and dispose of all solids generated at the Plant to

comply with Discharge Specification B.2 and to preclude nuisance and odor conditions and damage to the liner in Pond 3.

The Discharger will not be able to immediately comply with the proposed effluent EC limitation or groundwater limitations for EC, TDS, nitrate as nitrogen, and sulfate. Therefore, Time Schedule Order No. R5-2014-XXXX was adopted by the Central Valley Water Board on XX June 2014 for the discharge.

Monitoring Requirements

Water Code section 13267 authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. Water Code section 13268 authorizes the assessment of administrative civil liability for failure to submit required monitoring and technical reports.

The proposed Order includes monitoring requirements for Waste Streams 01 and 02, the LAA, the unlined and lined wastewater ponds, soil, and groundwater wells. In addition, the proposed Order requires monitoring of the wastewater loading calculations for organics, nutrients, and salts to the LAA and record the amount of Friant-Kern Canal water used during irrigation. This monitoring is necessary to characterize the discharge, and evaluate compliance with effluent limitations and discharge specifications prescribed in the Order.

Pond 3 was completed in August 2013 and was constructed with a single-layer of 40-mil high density polyethylene liner. The Discharger began filling the pond with process wastewater from the Plant prior to conducting a leak detection test as proposed in the Discharger's design report for the pond. It is anticipated that Pond 3 will be empty in August or September of 2014. Therefore, this Order requires the first leak detection monitoring required by Monitoring and Reporting Program R5-2014-XXXX to be completed in 2014.

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. It may be appropriate to reopen the Order if new technical information is provided or if applicable laws and regulations change.