CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2020-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
HORIZON NUT, LLC
HORIZON NUT PISTACHIO HULLER
FRESNO COUNTY

FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) hereby finds as follows:

Introduction

1. The Horizon Nut, LLC (Discharger) owns and operates the Horizon Nut Pistachio Huller plant (Facility) located at 4946-4998 N. Jerrold Avenue, Firebaugh in Fresno County (Sections 13 and 14, T13S, R13E, MDB&M). The location is depicted on Attachment A (Site Location Map), included herein. Facility details are shown on Attachment B (Site Features Map), included herein. The Facility is comprised of Fresno County Assessor's Parcel Numbers (APNs) 011-100-07, -14, -15, -16, -17, and -24.

2. The Discharger submitted a Report of Waste Discharge (RWD), dated 3 December 2014, that described Facility operations and the land application of wastewater generated from the Facility. A RWD addendum was submitted on 1 January 2020 that provided updated and additional information.

3. This Facility has not been previously regulated under Waste Discharge Requirements (WDRs). The Discharger is responsible for compliance with the WDRs prescribed in this Order.

Existing Facility and Discharge

4. The Facility was constructed in 2014 and began operation in 2015. The Facility consists of a processing plant where nut hulling is conducted, a guard shack, offices, silos to store the hulled nuts until they are shipped offsite for additional processing, and 1,000 acres of LAAs. The processing plant hulls, dries, and stores approximately 50 million pounds of pistachios per year. The amount of pistachios hulled since 2015 is shown below.

Table 1. Pistachios Processed per Year

Year	Million Pounds
2015	5
2016	20
2017	13
2018	20
2019	17

5. The pistachio harvesting season generally lasts between 30 to 45 days per year usually between August and October. While the hulling activities are limited to the harvest season, the drying, storage, and fumigation operations are conducted year around.

6. Fumigation products include phosphine and sulfuryl fluoride which are both very volatile compounds that are not likely to impact wastewater quality. No other chemicals are reportedly used at the Facility.

7. Source water for the Facility is supplied by the Westlands Water District. Source water is chlorinated prior to use and is used for processing pistachios, cleaning the Facility, and domestic use. Source water quality, prior to chlorination, is presented below.

Table 2. Source Water Quality (14 November 2019)

Parameter	Units	Result
Total Dissolved Solids	mg/L	290
Fixed Dissolved Solids	mg/L	180
Total Nitrogen	mg/L	0.44
Total Kjeldahl Nitrogen	mg/L	0.15
Biochemical Oxygen Demand	mg/L	<1.5
Hardness as CaCO3	mg/L	110
Chloride	mg/L	89
Total Recoverable Sodium	mg/L	64
Total Recoverable Potassium	mg/L	3.3
Total Recoverable Iron	µg/L	250
Total Recoverable Manganese	µg/L	21

8. Nut trailers arriving at the processing plant are weighed and unloaded. The nuts are sent through a dry, pre-cleaning process. Leaves, twigs, and other debris from the pre-cleaners are transferred to a temporary on-site green waste area. Pre-cleaning green waste is used as a soil supplement (mulch) for the LAAs.

9. After pre-cleaning, the pistachios are conveyed to hoppers to remove the hulls (pistachio skin). During this process, source water is introduced to facilitate the removal of the hulls and to clean the pistachios. Process wastewater is generated from pistachio hulling and cleaning. Hulls and minor amounts of shells and skins removed by the hullers and any wastewater are discharged into a concrete vault (sump), located just outside the processing building, as shown on Attachment B. The hulled pistachios are then dried and stored in silos until packaging and shipping.

10. From the sump, wastewater is pumped through parabolic screens to separate the solids from the wastewater. The screened solids are temporarily stored on a paved storage pad prior to being applied to the LAAs or shipped off-site for animal feed, compost feedstock, or fuel feedstock. The screened wastewater is then collected in another concrete vault/sump where it is pumped into the irrigation system for the LAAs. If irrigation is delayed, such as during rain events, the wastewater in the sump maybe chemically neutralized to avoid odors and protect equipment.

11. Wastewater samples are collected from the concrete sump prior to wastewater discharging to the LAAs, as shown on Attachment C (Wastewater Flow Schematic). Average concentrations for select constituents for each year are shown below.

Table 3. Wastewater Quality

Constituents	Units	2015	2016	2017	2018	2019
Total Recoverable Sodium	mg/L	96	86	36	67	33
Total Recoverable Potassium	mg/L	745	650	550	647	570
Chloride	mg/L	180	128	54	127	45
Nitrate as N	mg/L	1	1	1	1	ND
pH	standard	5	6	5	5	5
EC	µmhos/cm	2,830	2,348	1,623	2,057	1,940
TDS	mg/L	4,300	3,650	3,150	2,867	3,933
FDS	mg/L	945	1,275	1,015	777	1,200
TSS	mg/L	NA	NA	1,868	1,833	3,167
Total N	mg/L	245	222	143	230	257
TKN	mg/L	245	222	143	230	257
Nitrite as N	mg/L	ND	ND	ND	ND	ND
BOD	mg/L	6,000	2,348	3,500	3,167	3,133

NA = not analyzed
ND = not detected

12. Approximately 1,000 acres are used as LAAs. Wastewater is generally applied to 600 acres to irrigate crops, which include forage crops, and wheat/grain. The remaining 400 acres are used for solids application. The application of wastewater and solids are rotated within the LAAs as needed to limit constituent loadings in any one area within the LAAs. The LAAs are flood irrigated and bermed to keep wastewater on the LAAs.

13. Loading rates to the LAAs for BOD_5, total nitrogen, potassium, and FDS, using the maximum annual average concentration of constituents reported between 2017 to 2019 and a maximum flow of 66 million gallons per year, as presented in the 2020 RWD, are summarized below.

Table 4. Loading Rates

Discharge Type	LAAs (acres)	BOD (lb/ac/year)	Total Nitrogen (lb/ac/year)	Potassium (lb/ac/year)	FDS (lb/ac/year)
Wastewater	1,000	1,928	142	356	661

14. There are two irrigation sumps within the LAAs to hold excess irrigation water (tailwater). Any water collected in the sumps evaporates.

15. A water balance for a 100-year return precipitation event was included in the 2020 RWD. Using 600 acres of LAAs, the water balance showed that crop demand exceeds the volume of process wastewater generated from the Facility. For a 100-year return precipitation event, supplemental irrigation water of approximately 53 inches/acre/year will be required to maintain crops and will be supplied by Westlands Water District. A water quality sample was collected on 14 November 2019 and the results are summarized below.

Table 5. Supplemental Irrigation Water Quality

Constituent	Result (mg/L)
BOD	510
TDS	340
FDS	190
Total Nitrogen	30
TKN	30
Nitrate as Nitrogen	not detected
Chloride	99
Total Recoverable Sodium	73
Total Recoverable Potassium	18
Total Recoverable Manganese	0.21
Total Recoverable Iron	5.9

16. There is an existing storm water pond on-site, which collects storm water only (no process wastewater). The storm water is pumped to the LAAs and used for irrigation when needed. Storm water is not discharged off-site.

17. The on-site well, shown on Attachment B, is used for dust control only.

18. Domestic wastewater discharged to an onsite septic system permitted through Fresno County.

Site-Specific Conditions

19. The processing plant and LAAs bordered by lands predominately zoned as exclusive agricultural, 20 acres minimum.

20. The nearest surface water is Lift Canal, approximately 0.5 miles south of the southern Facility boundary.

21. Annual precipitation is 7.68 inches, with a 100-year precipitation of 15.58 inches. The evapotranspiration rate is approximately 55 inches annually.

22. The Facility and LAAs are located within Federal Emergency Management Agency (FEMA) Zone X, which indicates that the area is outside of the 100-year and 500-year (1% and 0.2% annual chance, respectively) floodplain areas.

23. The project site and general vicinity slopes gently to the northeast with a slope of 10 to 15 feet per mile at elevations ranging from approximately 195 to 225 feet above mean sea level. Soils consist primarily of Tranquillity-Tranquillity complex and Calflax clay loam in the eastern portion of the site. Both are saline-sodic with 0 to 1 percent slopes. Tranquility clay is described as alluvium derived from calcareous sedimentary rock with slow permeability. Its major uses are irrigated crops that are tolerant of saline-sodic conditions and homesite development. Calfax clay loam's permeability is described as moderately slow and slow surface runoff.

24. As discussed in the 2014 RWD, two exploratory borings were drilled by Kleinfelder at the Facility in May 2013 for a geotechnical study. The soils encountered consisted of 19.5 to 21.5 feet of fat clay with varying amounts of sand, overlying a 1.5 to 3.5-foot layer of clayey sand, approximately 17 feet of poorly graded sand and sand with gravel, and clayey sand to sandy lean sand. The clay soils were firm to hard, and the sands were medium to dense.

Groundwater Conditions

25. Groundwater beneath the Facility is not currently monitored. Based on the 2013 geotechnical study summarized in the 2014 RWD, groundwater was encountered at a depth of 19.5 feet below ground surface (bgs).

26. Hydrographs for four wells located on the property were identified in the Department of Water Resources' (DWR) online well database (http://www.wdl.water.ca.gov). The last recorded depths to groundwater are shown below and approximate well locations are shown on Attachment B.

Table 6. Depths to Groundwater

DWR Well ID	Test Date	Depth to Groundwater (feet bgs)
368073N1205033W001	10/23/2009	14.2
368000N1205120W001	5/27/2009	8.2
367930N1205220W001	5/27/2009	8.2
368078N1205303W001	5/20/2009	11.6

27. Based on DWR Bulletin 118 on the San Joaquin Valley Groundwater Basin, Delta-Mendota Subbasin (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-B118-Basin-Descriptions/B118_2003_BasinDescription_5_022_07.pdf), groundwater flow directions are historically northwest, parallel to the San Joaquin River, located approximately 6.5 miles east of the Facility. Recent data (2000) show flow directions to the north and east,

towards the San Joaquin River, indicating flow directions likely vary between northwest and northeast. Analytical data were not available.

28. Several groundwater monitoring wells located near the Facility were identified in DWR's database. Analytical data for a few select wells located closest to the Facility are summarized below, including sample dates, and the approximate well locations are shown on Attachment B. Screen intervals and depths to groundwater for these wells, with the exception of one well, are unknown.

Table 7. Historical Groundwater Data

Parameter	13S13E10 R001M (8/1951)	13S14E07 N001M (8/1951)	13S14E18 M001M (8/1951)	13S13E13 N001M (8/1951)	13S13E14 N001N (7/1954)
Well Depth (feet bgs)	unknown	825	unknown	unknown	1,432
pH	7.6	7.4	7	7.2	8.2
EC (µmhos/cm)	2,750	1,620	4,170	2,350	5,390
Dissolved Sodium (mg/L)	460	315	750	250	1,010
Dissolved Chloride (mg/L)	448	107	1,030	225	1,380
Nitrate (mg/L)	No data	<0.1 (sample date is 1/1947)	No data	No data	2.6
Dissolved Sulfate (mg/L)	543	436	415	815	477

28. While the depths of most of the wells and screen intervals are unknown, it appears that the quality of groundwater, regardless of depth, is poor quality groundwater. Concentrations of EC, sodium, and chloride are greater than the concentrations Protective of Beneficial Use of 900 µmhos/cm (Secondary Maximum Contaminant Level [MCL], 69 mg/L (lowest agricultural water quality goal), and 500 mg/L (Secondary MCL), respectively. These concentrations indicate high salinity groundwater in this area.

Basin Plan, Beneficial Uses, and Regulatory Considerations

29. *The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, revised May 2018* (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 subdivision(a), must implement the Basin Plan.

30. The beneficial uses of the San Joaquin River, as stated in the Basin Plan, are municipal and domestic supply; agricultural supply; industrial service supply; industrial process supply; water contact recreation; non-contact water recreation; warm freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat.

31. Beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

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

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

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

36. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective.

37. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as Water Quality for Agriculture by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. The list of crops in Finding 12 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.

Salt and Nitrate Control Programs Reopener

38. The Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting. The Basin Plan amendments were conditionally approved by the State Water Board on 16 October 2019 (Resolution 2019-0057) and by the Office of Administrative Law on 15 January 2020 (OAL Matter No. 2019-1203-03).

    a. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers may comply with the new nitrate program either individually or collectively with other dischargers. For the Nitrate Control Program, the Facility falls within Groundwater Basin 5-022.03 (San Joaquin Valley Turlock Sub-basin), a Priority 1 Basin. Notices to Comply for Priority 1 Basins were issued May 2020.

    b. For salinity, dischargers that are unable to comply with stringent salinity requirements will instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. Dischargers will receive a Notice to Comply with instructions and obligations for the Salt Control Program within one year of 17 January 2020, the effective date of the amendments. Upon receipt of the Notice to Comply, the discharger had no more than six months to inform the Central Valley Water Board of their choice between Option 1 (Conservative Option for Salt Permitting) or Option 2 (Alternative Option for Salt Permitting).

39. As these strategies are implemented, the Central Valley Water Board may find it necessary to modify the requirements of these WDRs to ensure the goals of the Salt and Nitrate Control Programs are met. This order may be amended or modified to incorporate newly applicable requirements.

40. This Order may be amended or modified to incorporate any newly applicable requirements.

Special Considerations for High Strength Waste

41. For the purpose of this Order, high strength waste is defined as wastewater that contains concentrations of readily degradable organic matter that exceed typical concentrations for domestic sewage. Such wastes contain greater than 500 mg/L BOD and often contain commensurately high levels of total Kjeldahl nitrogen (TKN), which is a measure of organic nitrogen and ammonia nitrogen. Typical high strength wastewaters include septage, some food processing wastes, winery wastes, and rendering plant wastes.

42. Excessive application of high organic strength wastewater to land can create objectionable odors, soil conditions that are harmful to crops, and degradation of underlying groundwater with nitrogen species and metals, as discussed below. Such groundwater degradation can be prevented or minimized through implementation of best management practices which include planting crops to take up plant nutrients and maximizing oxidation of BOD to prevent nuisance conditions.

43. Unless groundwater is very shallow, groundwater degradation with nitrogen species such as ammonia and nitrate can be prevented by minimizing percolation below the root zone of the crops and ensuring that the total nitrogen load does not exceed crop needs over the course of a typical year. Where there is sufficient unsaturated soil in the vadose zone, excess nitrogen can be mineralized and denitrified by soil microorganisms.

44. Regarding 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.

45. 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.

46. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency, cites BOD loading rates in the range of 36 to 600 lb/acre-day to prevent nuisance conditions, 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.

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

    a. Risk Category 1: (less than 50 lb/ac/day; depth to groundwater greater than 5 feet)

Indistinguishable from good farming operations with good distribution important.

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

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

The *Manual of Good Practice* recommends allowing a 50 percent increase in the BOD loading rates in cases where sprinkler irrigation is used but recommends that additional safety factors be used for sites with heavy and/or compacted soils. The Manual of Good Practice also states that the use of surface irrigation (border check method) makes uniform application difficult, especially for coarse textured soils.

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

49. This Order sets an irrigation cycle average BOD loading rate for the LAAs of 100 lb/ac/day for flood irrigated areas and 150 lb/ac/day for sprinkler irrigated areas consistent with Risk Category 2 in the Manual of Good Practice and requires the Discharger to ensure the even application of wastewater over the available land application areas.

Antidegradation Analysis

50. The State Water Resources Control Board's *Statement of Policy with Respect to Maintaining High Quality Waters of the State*, Resolution 68-16 (*Antidegradation Policy*) prohibits degradation of groundwater unless it has been shown that:

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

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

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

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

51. Degradation of groundwater by some of the typical waste constituents associated with discharges from food processors, after effective source control, treatment, and control measures are implemented, is consistent with the maximum benefit to the people of the state. The Discharger's operation employs approximately 96 full time employees year-

round and an additional 41 employees during the harvest season. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

52. Groundwater monitoring specifically related to determining potential impacts of wastewater discharges on first-encountered groundwater have not been conducted. Groundwater data from wells located near the Facility and included in DWR's database, contain analytical data from 1951 and 1954. While these data may represent pre-1968 groundwater quality, the depths of samples and screen intervals are unknown. Direct comparisons between effluent quality to the data in DWR's database cannot be made. However, as discussed in Finding 28, groundwater quality in this area is considered poor with respect to salinity.

53. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride), nitrate as nitrogen, and potassium.

    Effluent quality is presented as a flow-weighted average using an estimated annual flow of 66 million gallons per year between 2015 and 2019. Concentrations Protective of Beneficial Use are based on the following: Secondary Maximum Contaminant Level (MCL) for EC; Primary MCL for nitrate as nitrogen; Secondary Maximum Contaminant Upper Level for TDS; Upper Level Secondary MCL for chloride; and lowest agricultural water quality goal for sodium.

Table 8. Antidegradation Summary

Constituent	Effluent Quality	Concentration Protective of Beneficial Uses
EC	2,159 µmhos/cm	900 µmhos/cm
TDS	3,580 mg/L	1,000 mg/L
FDS	1,042 mg/L	Not established
Nitrate as N	0.8 mg/L	10 mg/L
Total N	219 mg/L	Not established
TKN	219 mg/L	Not established
Sodium	64 mg/L	69 mg/L
Chloride	107 mg/L	500 mg/L
Potassium	632 mg/L	Not established

a. **Electrical Conductivity**. Electrical conductivity is a measure of the capacity of water to conduct electrical current and is an indicator of total salinity. EC concentrations in effluent are high when compared to the concentration protective of beneficial use for EC of 900 µmhos/cm, indicating a high salinity discharge. EC levels in shallow groundwater are unknown but in general, the quality of groundwater in this area is considered poor. If groundwater monitoring is required, this Order sets a groundwater limitation for EC.

b. **Total Dissolved Solids**. For the purpose of evaluation, TDS is representative of overall salinity. FDS is the inorganic faction of TDS that has the potential to percolate or leach to groundwater. Therefore, the best measure of salinity in process wastewater is FDS and in groundwater, TDS is the best measure of salinity.

   TDS and FDS concentrations in effluent are relatively high (>1,000 mg/L). Concentrations of TDS in shallow groundwater are unknown. For the protection of groundwater, this Order sets an FDS effluent limit and if groundwater monitoring is required, this Order set a groundwater limitation for TDS.

c. **Nitrate as Nitrogen**. For nutrients such as nitrate, the potential for groundwater degradation depends on wastewater quality; crop uptake, and the ability of the vadose zone below the LAAs to support nitrification and denitrification to convert the nitrogen to nitrogen gas before it reaches the water table. Total nitrogen in the effluent consists entirely of TKN, which consists of organic nitrogen and ammonia nitrogen. TKN has the potential to mineralize and convert to nitrate (with some loss via ammonia volatilization) in the LAAs.

   For the protection of groundwater, this Order requires that nutrients associated with the wastewater and other sources be applied to the LAAs at rates consistent with crop demand and requires wastewater be applied to the LAAs as evenly as possible to prevent areas of excessive nutrient loading and to ensure sufficient time for nitrification and denitrification. If groundwater monitoring is required, this Order sets a groundwater limit for total nitrogen in groundwater.

d. **Potassium**. The discharge is high in salts, specifically potassium. A maximum contaminant level or other numeric limit for potassium has not been established. In addition, potassium is an important nutrient for crops, and if readily available, plants will generally take up potassium in excess of their needs. Further, while potassium that is not bound to soil particles is readily soluble in water, the positively charged ion impedes transport through the soil column allowing for greater retention time within the root zone. This Order requires the Discharger to prepare a Nutrient and Salt Management Plan to implement pollution prevention measures and ensure compliance with this Order. In addition, if groundwater monitoring is required, groundwater limits for TDS and EC in groundwater are set in this Order, which will be used identify increases in salt concentrations potentially associated with the discharge.

e. **Sodium and Chloride**. Sodium and chloride are known to be key salinity constituents in food processing wastewater. While sodium and chloride concentrations in effluent are less than concentrations protective of beneficial use, this Order requires these constituents to be monitored in the effluent and groundwater as part of the overall monitoring for salinity in groundwater. If groundwater monitoring is required, this Order sets groundwater limitations for both constituents.

54. The Discharger provides treatment and control of the discharge that incorporates:
    a. limited use of chemicals.
    b. solids are screened out of the wastewater prior to use at the LAAs.
    c. application of wastewater on the LAAs at agronomic rates.
    d. crop selection based on nutrient uptake rates.
    e. BOD cycle average loading rate have been less than 100 lbs/acre/year.
    f. Preparation and implementation of a Nutrient and Salt Management Plan.
    g. Compliance with the Salt and Nitrate Control Programs.

55. The Discharger's implementation of the above-listed BPTC measures will minimize the extent of the water quality degradation resulting from the Facility's continued operation.

56. Based on the foregoing, the adoption of the Order is consistent with the State Water Board's Antidegradation Policy.

Other Regulatory Considerations

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 for adequate for human consumption, cooking, and sanitary purposes. Although this order is not subject to section 106.3, it nevertheless promotes that policy requiring discharges to meet maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.

58. Based on the threat and complexity of the discharge, the Facility 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 [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with substantial disposal) or any Class 2 or 3 waste management units.*"

59. As authorized under this Order, discharges of wastewater and decomposable food processing residual solids to land are exempt from the prescriptive requirements of California Code of Regulation, title 27 (Title 27). See Title 27, §20090, subds. (b)-(d).

60. The State Water Board adopted Order 2014-0057-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 at the Facility is collected in the storm

water basin or commingled with process wastewater and discharged to the LAAs. Storm water is not discharged offsite or discharged to waters of the U.S. Coverage under NPDES General Permit CAS000001 is not required at this time.

61. Water Code section 13267, subdivision (b)(1) states:

    [T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste 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 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 **R5-2020-XXXX** are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and operates the Facility that discharges the waste subject to this Order.

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

63. All wastewater management systems at the facility have already been installed and are currently in use. This Order places additional requirements on the continued operation of the facility to ensure the protection of waters of the state. The issuance of this Order is therefore exempt from the provisions of CEQA in accordance with California Code of Regulations, title 14, (Title 14), Article 19 §15301, which exempts from environmental review the “operation, repair, maintenance, [and] permitting … of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or not expansion or exiting or former use”. This Order is further exempt from CEQA procedural requirements insofar as it is adopted for protection of the environment and does not authorize construction activities or the relaxation of standards allowing for environmental degradation, in accordance with Title 14 Article 19 §15308.

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

Procedural Matters

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

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

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

68. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

REQUIREMENTS

IT IS HEREBY ORDER that Horizon Nut, LLC, 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 22 (Title 22), section 66261.1 et seq., is prohibited.

3. Discharge of waste classified as 'designated', as defined in Water Code section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

4. Treatment system 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* (SPRRs or Standard Provisions), which is incorporated herein.

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

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

8. Discharge of domestic wastewater to the process wastewater treatment system, land application areas, or any surface waters is prohibited.

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

B. Flow Limitations

1. Wastewater flows to the LAAs shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow	67 MG (as determined by the total flow for the calendar year)
Monthly Average Daily Flow	3.5 MG (as determined by the total flow during the calendar month divided by the number of days in that month)

C. Effluent Limitations

1. The total volume of treated wastewater applied to the LAAs shall not exceed **an FDS annual flow-weighted average concentration of 1,400 mg/L.** The FDS flow weighted average is based on total flow and annual average concentration of wastewater discharged to the LAAs.

D. Mass Loading Limitations

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

Constituent	Units	Irrigation Cycle Average	Annual Maximum
BOD Mass Loading (cycle average for flood irrigated fields)	lb/ac/day	100	--
BOD Mass Loading (cycle average for sprinkler irrigated fields)	lb/ac/day	150	--
Total Nitrogen Mass Loading	lb/ac/year	--	Crop Demand

Compliance with the above requirements shall be determined as specified in the Monitoring and Reporting Program.

E. Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will cause a violation of the Groundwater Limitations of this Order.

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

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

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

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

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

7. All open containment structures shall be managed to prevent breeding of mosquitos. Specifically:
   a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of open containment structures.
   b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
   d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

8. Storage of residual solids, including pomace and/or diatomaceous earth on areas not equipped with means to prevent storm water infiltration or a paved leachate collection system is prohibited.

F. Groundwater Limitations

Release of waste constituents from any portion of the Facility shall not cause groundwater to:

1. Contain any of the specified constituents in a concentration statistically greater than the maximum allowable concentration tabulated below.

Constituent	Maximum Allowable Concentration
EC	900 µmhos/cm (Secondary MCL) or Current Concentrations, whichever is higher
TDS	1,000 mg/L (Secondary Maximum Contaminant Upper Level) or Current Concentrations, whichever is higher
Total Nitrogen	10 mg/L (Primary MCL) or Current Concentrations, whichever is higher
Sodium	69 mg/L (lowest agricultural water quality goal) or Current Concentrations, whichever is higher
Chloride	500 mg/L (Secondary MCL) or Current Concentrations, whichever is higher

Note: current groundwater quality will be defined using appropriate statistical methods described in an approved Groundwater Limitation Compliance Assessment Plan, if required (see Provision I.4.b).

2. Groundwater monitoring wells, if required, shall not contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22.

G. Land Application Area Specifications

1. Crops or other vegetation (which may include pasture grasses, Sudan grass, winter forage, native grasses and trees, and/or ornamental landscaping) shall be grown in the LAAs.

2. Wastewater shall be distributed uniformly on adequate acreage within the LAAs to preclude the creation of nuisance conditions or unreasonable degradation of groundwater.

3. The Discharger shall maximize the use of the available LAAs to minimize waste constituent loading.

4. Nutrient loading from wastewater and irrigation water shall be at reasonable agronomic rates.

5. Irrigation of LAAs with wastewater shall not be initiated during saturated conditions on the LAAs.

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

7. The LAAs, including tailwater ditches, shall be managed to prevent breeding of mosquitoes or other vectors.

8. LAAs shall be inspected periodically to determine compliance with the requirements of this Order. If an inspection reveals noncompliance or threat of noncompliance with

this Order, the Discharger shall temporarily stop discharging immediately and implement corrective actions to ensure compliance with this Order.

9. Any irrigation runoff (tailwater) shall be confined to the LAAs or returned to the irrigation sumps and shall not enter any surface water drainage course or storm water drainage system.

H. Solids Disposal Specifications

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

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

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

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

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

I. Provisions

1. The Discharger shall comply the Standard Provisions, dated 1 March 1991, which are a part of the Order.

2. The Discharger shall comply with the separately issued **Monitoring and Reporting Program (MRP) R5-2020-XXXX**, 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.

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

4. The following reports shall be submitted pursuant to Water Code section 13267:

   a. **By 1 May 2021**, the Discharger shall submit a *Nutrient and Salt Management Plan* that identifies known sources of salinity, evaluates the nutrient load to each land application area, and develops and implements pollution prevention management practices to restrict nutrient loading for the specified crop and ensures compliance with this Order.

   b. **By 1 August 2020,** the Discharger shall submit a *Groundwater Evaluation Plan* to determine if groundwater monitoring is required at this facility. If it can be demonstrated that impacts to groundwater from wastewater discharges to the LAAs will not likely degrade groundwater quality, the Discharger shall document those findings in a report to be submitted to the Central Valley Water Board. If Central Valley Water Board staff concur with the determination in the report and upon approval by the Central Valley Water Board Executive Officer, groundwater monitoring will not be required. However, if at any time it can be shown that discharges are impacting groundwater, groundwater monitoring may be required.

      If groundwater monitoring is warranted, the Discharger shall work with Central Valley Water Board staff to submit the following documents:

      i. *Groundwater Monitoring Well Installation Workplan* that proposes an adequate number of groundwater monitoring wells to ensure sufficient monitoring of groundwater quality beneath the LAAs.

      ii. *Groundwater Monitoring Well Installation Completion Report* that describes the installation and development of all new monitoring wells and explains any deviations from the approved workplan.

      iii. *Groundwater Limitations Compliance Assessment Plan* that proposes and justifies the methods to be used to determine compliance with the Groundwater Limitations in this Order, using the methods set forth in the U.S. EPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance (Unified Guidance).

   c. **By 1 August 2020**, the Discharger shall submit a *Solids Handling and Management Plan*. The plan shall describe how dry solids (from dry cleaning the pistachios) and wet solids (screened from the wastewater) are handled and stored at the Facility. The plan shall describe the concrete pad where wet solids are stored, including how leachate is minimized, controlled, and contained in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate the groundwater limitations of this Order. If changes to the storage pad are required to meet these conditions, a report will be submitted to the Central Valley Water Board describing the changes and upgrades to be made and how these changes will meet the requirements in this Order.

d. **By 1 May 2020**, the Discharger shall submit a *Flow Meter Installation Completion Report* that documents the type of meter installed, the location of the meter, and describes the operations and maintenance requirements for the meter.

5. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.

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

7. The Discharger shall comply with 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.

8. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this Order.

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

10. Per the SPRRs, 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.

11. In the event that the Discharger reports toxic chemical release data to the State Emergency Response Commission (SERC) pursuant to section 313 of the Emergency Planning and Community Right to Know Act (42 U.S.C. § 11023), the Discharger shall also report the same information to the Central Valley Water Board within 15 days of the report to the SERC.

12. In the event of any change in control or ownership of the Facility or LAA, 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.

13. 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.

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

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

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. The State Water Board must receive the petition by 5:00 p.m. on the 30th day after the date of this Order; if the 30th day 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 (http://www.waterboards.ca.gov/public_notices/petitions/water_quality) are available on the Internet and will be provided upon request

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region on XX October 2020.

PATRICK PULUPA, Executive Officer