INFORMATION SHEET

ORDER R5-20XX-XXXX
PACIFIC COAST PRODUCERS AND THE CITY OF WOODLAND
WOODLAND TOMATO CANNERY

WASTE DISCHARGE REQUIREMENTS
YOLO COUNTY

Facility Description

Pacific Coast Producers (PCP) owns and operates a tomato processing plant located at 1376 Lemen Avenue in Woodland, California. The facility generates wastewater and residual solids from tomato processing and canning which are discharged to land. The land application area (LAA) is located approximately 4 miles from the processing plant and is owned by the City of Woodland and leased to PCP. Tomato processing wastewater has been applied to the LAA since 1958 by previous facility owners.

The discharge is regulated under WDRs Order R5-2002-0122, adopted on 7 June 2002, with a permitted flow rate of 4 million gallons per day (mgd). Wastewater is generated from receiving, peeling, and processing tomatoes, and canning tomato paste and puree. The facility operates seasonally, generally July through September, and processes approximately 495,000 tons of tomatoes annually. Between 2012 and 2016, average influent flow rates ranged from 1.43 mgd to 2.03 mgd. A list of chemicals used by the Discharger is included at the end of the Information Sheet.

Wastewater is sent through a suspended air flotation (SAF) treatment unit and then to an equalization tank. The wastewater is then pumped to an equalization pond at the LAA. The equalization pond is approximately 30,000 square feet and 7 feet deep and lined with a single high-density polyethylene (HDPE) liner over compacted clay to prevent erosion and minimize percolation. A leak test was conducted in 2017 and repairs were made to the liner. The pond is equipped with brush aerators that run continuously during the processing season.

The wastewater is used for crop irrigation and is applied via a sprinkler system. The LAA consist of 900 acres of which 690 acres are currently cropped with grass crop, including Bermuda grass, or used for solids application. The various grass crops are harvested two to four times annually. Supplemental irrigation water is used when process water and precipitation is not enough to meet crop demands. The irrigation water is not commingled with process water.

Odor complaints for the LAA were received prior to 2012. Due to wastewater treatment and application improvements, odor complaints have not been received since 2012.

A Notice of Violation (NOV) was issued to the Discharger on 27 September 2016. The violations included operational and processing changes to the wastewater treatment system since the adoption of Order R5-2002-0122 and deficiencies in monitoring reports. The Discharger was required to submit a wastewater schematic diagram, a Monitoring and Reporting Program Compliance Plan, amended monitoring reports, updated Solids Waste Management Plan and Operation and Maintenance Plan, a Report of Waste Discharge, and a

schedule for conducting an electronic leak survey on the equalization pond. All requirements of the NOV have been met by the Discharger.

Wastewater Characterization

Wastewater quality from the 2016 processing season is shown below.

Average Wastewater Quality for 2016

Constituent	Units	Concentration	WQO
BOD	mg/L	1,621	--
COD	mg/L	2,861	--
FDS	mg/L	600	--
TSS	mg/L	876	--
TDS	mg/L	**1,447**	1,000 [1]
EC	µmhos/cm	**1,550**	900 [2]
NH3-N	mg/L	22.2	--
Nitrate-N	mg/L	ND	10 [3]
pH	pH units	5.11	--
Alkalinity	mg/L	35	--
Bicarbonate	mg/L	35	--
Carbonate	mg/L	ND	--
Magnesium	mg/L	37	--
Chloride	mg/L	140	500 [1]
Potassium	mg/L	126	--
Sodium	mg/L	**170**	69 [4]
Sulfate	mg/L	48	500 [1]
Copper	mg/L	0.08	1.3 [3]
Iron	mg/L	**29**	0.3 [5]
Manganese	mg/L	**0.76**	0.050 [2]

Concentrations in **bold** exceed a WQO (or other water quality goal)
[1] Secondary Maximum Contaminant Level Upper Level
[2] Secondary Maximum Contaminant Recommended Level
[3] Primary Maximum Contaminant Level
[4] Lowest Agricultural Water Quality Goal
[5] Secondary Maximum Contaminant Level

Various chemicals are used at the processing plant for tomato processing, peeling, and sanitation, and mold and odor control, as described in Finding 9 in the WDRs. Chemicals used in 2015 and 2016 are shown below.

Chemical Usage 2015 and 2016

Chemicals	Units	2015	2016
Carbon Dioxide	lbs	375,076	252,423
Nitrogen for aseptic head space	100 cubic feet	44,290	24,973
Cleaner L-145 to lye out process Equipment	gallons	2,820	4,930
Cleaner L-175	gallons	55	55
12.5% Sodium Hypochlorite	gallons	146,953	68,381

Chemical Usage 2015 and 2016

Chemicals	Units	2015	2016
Sodium Bromide	lbs	--	76,586
Potassium Hydroxide	lbs	551,068	150,219
RO 1000 for RO units	gallons	275	330
Sodium Bisulfite-JT Sales and Service for RO units	gallons	1,100	1,210
6203 Can Cooler Treatment-Triton Chemical	lbs	10,403	12,154
6112 Line 2/Rotel Treatment-Triton Chemical	lbs	46	--
Bromide Plus-Triton Chemical	lbs	6,848	4,282
4130 Vessel Boilout Chemistry-Triton Chemical	lbs	--	1,127
5210 Boiler Oxygen Scavenger-Triton Chemical	lbs	8,391	4,962
5311 Boiler Steam Line Treatment-Triton Chemical	lbs	6,017	7,440
5550 NaOH for Evap-Meras Engineering-Triton Chemical	lbs	18,725	16,841
6450 Antifoam-Triton Chemical	lbs	25,051	21,293
Foam Chlor 50	lbs	37,560	35,942
Force P-4-Triton Chemical	lbs	8,360	5,280
Perasan (Kobe System)-Triton Chemical for HP water system	lbs	695	45
Bioside HS 15		5,682	7,105
Sure Peel 1B Peel Aid-Triton Chemical	lbs	6,748	4,042
EnviroBac2	lbs	22,165	30,800
Sic 101 (Organic Antifoam) Triton Chemical		3,200	3,200
Organic Coagulant HeronFloc 440	gallons	265	265
Polymer-HeronFloc 680	gallons	2,470	2,839
Frothing Agent-FlocAid A01	gallons	480	1,235

Source: Appendix B, Table B-1, of the RWD, 2017.

Site-Specific Conditions

The facility, the LAA, and the surrounding lands are relatively flat. Soils at the LAA consist of clay from the ground surface to approximately 15 feet below ground surface (bgs), and gravelly sand from 15 to 30 feet bgs. Alternating clay, sand, and gravel layers exist down to approximately 180 feet bgs. Surface waters in the area consist of drainage ditches to the east and Willow Slough south of the LAA, which predominately flows east. Based on previous investigations, soil in the portions of the LAA was identified as having high levels of salinity and is considered alkaline soils.

Groundwater Conditions

Groundwater is approximately 3 to 19 feet bgs, with an average depth of 10 feet bgs and flow direction generally to the north-northeast.

Twenty-four groundwater monitoring wells are located in and around the LAA. Eleven of the monitoring wells are sampled regularly and are shown below. Data from the remaining 13 wells have been used in previous evaluations, including the *Natural Background Quality*

Report (Brown and Caldwell, 2005). The wells were installed between 1990 and 2015. Background (upgradient) groundwater quality is poor with respect to electrical conductivity, total dissolved solids, chloride, sodium, manganese, and iron. Background concentrations are greater than water quality objectives or water quality goals. In 2016, average concentrations of constituents in downgradient wells were generally less than the upgradient background concentrations.

Monitoring Well Details

Monitoring Well ID [1]	Type of Monitoring Well	Screen Interval (feet bgs)	Year Installed
IMW1	Upgradient	20-35	2015
IMW2	Downgradient	15-30	1990-1992
IMW4	Downgradient	8-18	1990-1992
IMW5	Mid-field	8-18	1990-1992
IMW6	Upgradient	18.75-33.75	2015
IMW7	Mid-field	10-20	1990-1992
IMW8	Mid-field	33-48	2003
IMW9	Downgradient	21-41	2003
IMW10	Upgradient	20-35	2003
IMW11	Upgradient	20-35	2003
WWTPMW5 [2]	Upgradient	15-25	1998

[1] Wells are owned and maintained by PCP, unless noted otherwise.
[2] Well is owned by the City of Woodland as part of the City of Woodland Water Pollution Control Facility and is sampled by PCP.

Concentrations of constituents in downgradient wells have been relatively stable over time, indicating the application of wastewater is not further degrading groundwater quality beyond current conditions or background quality. Poor quality upgradient groundwater is likely to continue to impact groundwater beneath the LAA.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Local drainage is to Tule Canal, a tributary to the Yolo Bypass. The beneficial uses, as stated in the Basin Plan, are agricultural irrigation and stock watering, contact and other non-contact recreation, canoeing and rafting, warm and cold freshwater habitat, warm and cold migration, warm spawning, and wildlife habitat. The beneficial uses of underlying groundwater as set forth in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

Antidegradation

TDS, sodium, chloride, iron, and manganese have the potential to degrade groundwater from the application of the wastewater to the LAA. The average wastewater TDS, sodium, chloride, iron, and manganese concentrations for the 2016 processing season are 1,447 mg/L, 170 mg/L, 140 mg/L, 29 mg/L, and 0.76 mg/L, respectively, which are all greater than water quality objectives (with the exception of chloride). Groundwater quality has been degraded by

agricultural land use of the area, the use of the LAA by previous owners of the facility, and pre-existing soil conditions (high saline-alkaline soils) at the LAA. The magnitude of contribution to the groundwater pollution from each potential source is unknown. However, the effluent from processing plant is not degrading groundwater beyond background conditions. Because the groundwater has constituent concentrations exceeding concentrations protective of beneficial use, the discharge is prohibited from causing further degradation of water quality. Statistical analyses conducted to determine compliance with the Groundwater Limitations shall include an evaluation of upgradient conditions to determine if increases at the LAA are the result of the application of wastewater or impacts from upgradient groundwater.

The Controllable Factors Policy states that,

> *"Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objectives being exceed. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board or Regional Water Board, and that may be reasonable controlled."*

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

Flow and Effluent Limitations

Influent flow rates to the equalization pond are shown below.

During Processing Season (generally July through September) [1]	
Flow Measurements	**Flow Limits**
Average Daily Flow to Equalization Pond [2,3]	4 mgd
Maximum Daily Flow to Equalization Pond [3]	5 mgd
Off Season Flows [4]	
Peak Daily Flow to Pond	1.0 mgd
Average Monthly Flow to Pond	0.5 mgd

[1] When tomatoes are processed.
[2] As determined by the total flow during the calendar month divided by the number of days in that month.
[3] Includes flows to the SAF and any wastewater that bypasses the SAF.
[4] Any wastewater flows to the equalization pond conducted off season, generally October to June.

Wastewater applied to the LAA shall not exceed the following effluent and mass loading limits:

Constituent	Units	Irrigation Cycle Average	Annual Maximum
BOD Mass Loading	lb/ac/day	100	--
Average FDS Concentration	mg/L	--	1,000 [1]
Total Nitrogen Mass Loading	lb/ac/year	--	Crop Demand

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

Groundwater Limitations

The discharge of waste constituents to the LAA shall not cause groundwater to contain concentrations of TDS, sodium, chloride, iron, manganese, and nitrate as nitrogen greater than the maximum allowable concentration. Background concentrations for TDS, sodium, chloride, and nitrate as nitrogen were determined in the Nature Background Quality Report (Brown and Caldwell, 2005). The background levels for iron and manganese have not been established. Therefore, no statistically significant increase from current groundwater conditions, as defined in the *2016 Annual Monitoring and Groundwater Assessment Report*, is allowed. Statistical evaluations for compliance wells shall also include an evaluation of upgradient conditions to determine if the application of wastewater to the LAA is impacting groundwater or upgradient conditions are continuing to degrade groundwater at the LAA.

Provisions

Technical reports are required to be submitted by the Discharger. The required reports and due dates are shown below**.**

- *Groundwater Limitations Compliance Assessment Plan;* due by **1 September 2018**
- *Pond Liner Integrity Evaluation and Sludge Cleanout Workplan;* due by **1 September 2018**
- *Lysimeter Abandonment Report;* due by **1 January 2019**
- *Monitoring Well Installation Work Plan;* due by **1 January 2019**
- *Groundwater Monitoring Well Installation Report;* due by **1 June 2019**
- *Construction Completion Report;* due **2 months** after the SAF bypass system construction is complete

The Monitoring and Reporting Program is designed to verify compliance with effluent limitations, groundwater limitation, and operational requirements of the WDRs.