

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2019-0055

WASTE DISCHARGE REQUIREMENTS

FOR

CAMPBELL SOUP SUPPLY COMPANY, LLC  
CAMPBELL SOUP SUPPLY COMPANY DIXON FACILITY  
SOLANO COUNTY

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

1. On 30 November 2018, Campbell Soup Supply Company, LLC (Discharger) submitted a Report of Waste Discharge (RWD) that describes the discharge of tomato and vegetable processing wastewater to on-site land application areas (LAAs).
2. The Discharger owns and operates the facility that generates the waste and is responsible for compliance with these Waste Discharge Requirements (WDRs).
3. The facility, consisting of the processing plant and the LAAs, is at 8380 Pedrick Road, in Dixon (Section 6, 7, and 8, T7N, R2E MDB&M), approximately 2 miles northeast of the City of Dixon. The processing plant occupies Assessor's Parcel Number (APN) 111-050-110 and 111-050-150, and the LAAs occupy APNs 111-050-050; 111-100-040; 111-100-110; 111-100-120; and 111-100-130. The facility location is shown on **Attachment A**, which is incorporated herein.
4. WDRs Order R5-2010-0038, adopted by the Central Valley Water Board on 18 March 2010, prescribes requirements for the discharge. Order R5-2010-0038 allows a discharge of up to 5.0 million gallons per day (mgd) with a total annual flow not to exceed 490 million gallons. Due to facility changes, Order R5-2010-0038 no longer adequately reflects changes to the wastewater system. Therefore, Order R5-2010-0038 will be rescinded and replaced with this Order.

**Existing Facility and Discharge**

5. Tomato processing consists of the production of tomato paste and diced tomatoes. During the tomato processing season, the facility operates 24 hours a day, seven days a week generally between July to mid-October. Approximately 6,500 tons of tomatoes are processed daily. In 2009, 2010, and ending in 2011, vegetables including carrots, beets, celery, lettuce, and watercress were processed at the processing plant to produce V8® Vegetable Juice. The production of V8® Vegetable Juice was moved to other Campbell Soup facilities and is no longer produced at the Dixon facility.

6. The facility consists of tomato receiving areas, the processing plant, associated structures, 586 acres of cropped LAAs, and parking lots.
7. Wastewater is generated at the processing plant primarily from tomato washing. Wastewater is also generated from equipment cleaning and sanitizing activities, boiler blowdown (less than 0.2% of the effluent volume), reverse osmosis reject and other various plant activities.
8. The wastewater treatment system consists of screens, settling ponds, and LAAs for the disposal of wastewater. Site features are shown on **Attachments B and C**, which are incorporated herein.
9. Three deep supply wells, the East, South, and North Agricultural Wells, provide the processing water for the processing plant. The North Agricultural Well is only used for emergency back-up. Water from the wells is chlorinated at the well heads and used onsite for washing and conveyance of tomatoes, cooling, cleaning, and for other process related activities. Approximately 10-11% of the supply water is sent to the reverse osmosis units. Water quality and characteristics for the processing sources wells are shown below.

Parameter	Units	North Ag Well <sup>1</sup>	South Ag Well <sup>2</sup>	East Ag Well <sup>2</sup>
Well Depth	feet bgs	907	1,090	1,120
Depth to Water	feet bgs	73	55	56
pH	--	8.11	8.11	8.04
Nitrate as N	mg/L	5.5	10	2.3
TDS	mg/L	290	300	290
Sulfate as SO <sub>4</sub>	mg/L	29	29	33
Chloride	mg/L	14	14	20
Sodium	mg/L	47	54	69
Boron	mg/L	0.55	0.55	0.58
Manganese	mg/L	ND	ND	ND
Total coliforms	MPN/100 mL	<1.8	<1.8	<1.8

<sup>1</sup> Samples collected 24 September 2014

<sup>2</sup> Samples collected 2 July 2018

bgs = below ground surface

mg/L = milligrams per liter

MPN/100 mL = most probable number per 100 milliliters

ND = non-detect

TDS = total dissolved solids

Table reference: 2018 RWD

10. The various chemicals used at the processing plant that may impact wastewater quality, including sodium hypochlorite, are included in the **Information Sheet**, which is incorporated herein.

11. Tomatoes from offsite fields are unloaded at one of three flume stations. The tomatoes are washed out of the trailers by means of large water nozzles and conveyed to the plant for processing.
12. Wastewater from the flumes is screened and then pumped to Pond B, which is an unlined, aerated settling pond. The wastewater typically contains sediment that has washed off the tomatoes as well as sugars and other dissolved organic materials.
13. Pond B is approximately 245 feet by 105 feet and six feet deep, including two feet of freeboard, with a capacity of approximately 885,000 gallons (530,000 gallons not including two feet of freeboard). The residence time in the pond allows sediment to settle out and aeration provides oxygen to bacteria that break down organic material. Wastewater from Pond B discharges via an adjustable overflow weir to Pond C.
14. Pond C measures approximately 17,000 square feet at the top and is five feet deep, with a capacity of approximately 379,400 gallons, not including two feet of freeboard. Pond C is aerated and unlined and provides additional residence time for settling out material. Wastewater from Pond C is conveyed to the main lift station via an underground pipe before discharging to the LAAs.
15. Other sources of wastewater generated at the processing plant include equipment cleaning and sanitation activities, boiler blowdown, and other various sources. This wastewater flows to the main wastewater pit through a network of floor drains extending throughout the processing buildings and surrounding areas. The wastewater is screened and commingled with overflow from the main cooling tower before flowing to the main lift station where it is commingled with wastewater from Ponds B and C prior to discharge to the LAAs.
16. Wastewater samples are collected after all waste streams are commingled in the lift station, prior to discharging to the LAAs, as shown on **Attachment D**, which is incorporated herein. Wastewater quality is summarized below.

Constituent	Units	Average (2010 to 2016)	Average (2017)
EC	µmhos/cm	726	646
BOD	mg/L	522	450
Nitrate as N	mg/L	1.23	0.6
TKN	mg/L	19	12.9
TDS	mg/L	716	612
FDS	mg/L	346	282
Boron <sup>1</sup>	mg/L	0.51	0.55
Sodium	mg/L	73	58
Chloride	mg/L	58	28
Iron	mg/L	2	3.6
Manganese	mg/L	0.34	0.4

Constituent	Units	Average (2010 to 2016)	Average (2017)
Sulfate	mg/L	30	30

<sup>1</sup> Samples were analyzed for boron in 2011, 2012, 2015, 2016, and 2017.  
 BOD = biochemical oxygen demand  
 EC = electrical conductivity  
 FDS = fixed dissolved solids  
 N = nitrogen  
 TKN = total Kjeldahl nitrogen  
 μmhos/cm = microohms per centimeter

17. Flow rates to the LAAs are measured by a flow meter located after the lift station, as shown on **Attachment D**. Monthly average, minimum, and maximum flow rates to the LAAs are summarized below.

Year	Month	Average (mgd)	Minimum (mgd)	Maximum (mgd)
2016	July	2.9	1.2	4.2
	August	3.8	3.6	4.1
	September	3.8	3.7	4.1
	October	3.3	3.3	3.3
2017	July	3.0	1.8	3.9
	August	3.9	3.5	4.2
	September	3.7	3.1	4.0
	October	3.1	2.7	4.0

**Permitted Flow Rate = 5 mgd**

18. Wastewater in the lift station is conveyed via an 18-inch transmission line, under the railroad tracks, to 586 acres of LAAs, divided into 29 fields (CPB01 to CPB23). The fields are flood irrigated and irrigation occurs in 10- to 27-day irrigation cycles to each field.
19. Annual constituent loading rates for BOD, TDS, and FDS and daily loading rates for BOD are shown below.

Year	Hydraulic Loading (inches)	BOD (lbs/ac)	TDS (lbs/ac)	FDS (lbs/ac)
2013	23	3,338	3,945	1,654
2014	24	2,406	4,166	1,694
2015	19	2,938	2,889	1,202
2016	20	2,243	2,774	1,252
2017	18	2,031	2,663	1,206
<b>5 Year Average</b>	20.8	2,591	3,287	1,401

<b>Daily BOD Loading Rates</b>	<b>Year</b>	<b>Maximum (lb/ac/day)</b>
	2015	47.09
	2016	43.16
	2017	36.75

20. Wastewater is contained within the LAA boundaries, with tailwater collected in ditches along the edges of the fields, before it is returned to the irrigation system by sump pumps and reapplied to the fields. If the fields become saturated, wastewater is collected in a 9.6-acre unlined tailwater pond and contained until the water can be reapplied to the fields.
21. The LAAs are cropped with pasture grasses, including ryegrass, fescue, orchard grass, and trefoil. Cattle graze the pastures as conditions allow, but typically from April through October. The cattle are grazed to minimize soil compaction after irrigation water infiltrates the soil and the surface has completely dried. Cattle grazing is then rotated between the 29 fields generally following the application and infiltration of the wastewater.
22. Solids collected from the processing plant include dry solids (tomato pomace) and wet solids (tomatoes and other organic material such as corn cobs and husks, and sunflower stalks). The dry and wet solids are hauled offsite for use as animal feed or soil amendments. The material hauling is performed by a vendor under contract.
23. Pond B is dredged each year in mid to late June, prior to the tomato processing season. Excavators and bulldozers are used to remove the collected sediment from the pond. The excavated sediment is piled on the side of the pond, allowed to dry for up to a week, and then hauled to abandoned former domestic waste ponds on the site property and used as fill material. The annual volume of sediment dredged is approximately 500 to 600 cubic yards. Once there is no longer capacity in the former domestic waste ponds, the Discharger plans to land apply the sediment to an unused area in the northeast section of the facility and disk it into the soil.
24. Pond C has not required sediment to be removed from the pond. The pond will continue to be monitored and sediment will be removed as necessary to ensure adequate capacity in the pond and to maintain two feet of required freeboard.
25. Water balances were included in the 2018 RWD; one for an average rainfall year and one for a 100-year rainfall event. Based on the water balances, wastewater is being applied at agronomic rates. The total crop demand is generally greater than the volume of wastewater applied; therefore, supplemental irrigation is needed in the spring and early summer to maintain crops.
26. Supplemental irrigation water is typically required from late April through June, outside the tomato processing season, to meet crop demands before wastewater is available. Supplemental irrigation wells (SW1-SW3) are located on the LAAs, as shown on

**Attachment C.** Supplemental irrigation water quality for select constituents for SW1 is shown below.

<b>Constituent</b>	<b>Units</b>	<b>Result</b>
EC	µmho/cm	500
pH	--	7.8
Nitrate as N	mg/L	1.4
TKN	mg/L	0.1
Total N	mg/L	1.5
BOD	mg/L	1.5
TDS	mg/L	300
FDS	mg/L	240
Sulfate	mg/L	30
Boron	mg/L	0.62
Chloride	mg/L	14
Iron	mg/L	0.05
Sodium	mg/L	57
Manganese	mg/L	0.005

27. During the processing season, storm water is commingled with wastewater streams and is pumped to the LAAs. Historically, during the processing season, the area has experienced very little precipitation. In 2017, the Dixon, California weather station recorded 0.14 inches of rainfall during the processing season. All storm water is contained on-site.
28. After processing season, the surface drainage system is cleaned and switched over to accommodate storm water. During the winter months, Pond A serves as a storm water retention pond. A significant portion of the surface area in the processing plant area drains to the wastewater collection system and facility lift station. Storm water is pumped from the lift station to Pond A and stored until it percolates into the soil or evaporates. If the stormwater pond were to reach capacity due to large amounts of precipitation, the valves that are closed after the season to direct stormwater into the pond would be opened and it would discharge onto the LAA and the Dixon Resource Conservation District (RCD) ditch.
29. On 5 December 2016, the Discharger was issued a Notice of Violation (NOV) for deficiencies in monitoring reports, a dry monitoring well (MW4), and failure to maintain a tailwater ditch along the east side of the LAAs. In response to the NOV, the Discharger:
  - a. Submitted revised monitoring reports; and
  - b. Submitted an *Updated Salinity Reduction Workplan, a Management Plan for LAA Tailwater Ditches and Pipelines, a LAA Field Grading Evaluation, and a Monitoring Well Installation Work Plan.*

A letter dated 8 January 2018 from the Central Valley Water Board to the Discharger also required the Discharger to:

- a. submit a *Mosquito and Vegetation Management Monitoring Plan*;
- b. install a replacement well for MW4 by 30 June 2018;
- c. submit a letter describing the operation changes and improvements that have been implemented based on the required plans;
- d. submit a letter certifying that all improvements in to the LAAs have been completed; and submit a *Monitoring Well Completion Report*.

All requirements have been met by the Discharger, with the exception of the installation of a replacement well for MW4. During the drilling of the replacement well, very low permeable soils were encountered and a water bearing zone was not encountered; therefore, the well was not installed. The Discharger continues to monitor existing MW4 and collect samples when groundwater is present.

#### **Site-Specific Conditions**

30. The nearest surface water drainage courses are Putah Creek located approximately 3 miles north, Dudley Creek located approximately 1.5 miles southwest, and the Resource Conservation District drainage ditches located on the north, south, and east sides of the LAAs.
31. The majority of the facility is located outside the 100-year floodplain, with the exception of an approximate 1-acre portion of the LAA located in northeastern corner of field CPB 19.
32. From 2013 through 2017, the average annual precipitation and evaporation are 15.74 inches and 57.65 inches, respectively, measured at Station ID#121 (Dixon, California).
33. Based on the Solano County Soil Survey (1977), the soils underlying the facility are classified with the Yolo-Brentwood and Capay-Clear Lake soil associations. The underlying soils consist primarily of clay, clay loam, and to a lesser extent, silty clay.
34. The neighboring land uses to the west, north, and east of the facility are agricultural. To the south is a commercial building that has been used in the past for auto part sales and service. It is currently in operation as a vehicle storage location. Railroad tracks and the processing plant are located just west of the LAAs.

### Groundwater Conditions

35. Groundwater monitoring at the facility began in 1998. During the fourth quarter 2017 groundwater monitoring event, the groundwater elevation ranged from 13.18 feet above mean sea level (38.5 feet bgs) in well MW1 to 32.43 feet above mean sea level (31.1 feet bgs) in MW5. In 2017, the horizontal groundwater flow direction was to the east at an approximate gradient of 0.0015 ft/ft, which is consistent with historical groundwater flow directions.
36. The existing groundwater monitoring well network consists of five groundwater monitoring wells. MW1, MW2, and MW4 are located downgradient from the LAAs and MW5 and MW6 are hydraulically upgradient. Monitoring well details are summarized below.

Well ID <sup>1</sup>	Screen Interval (feet bgs)	Well Depth (feet bgs)
MW1	95-115	115
MW2	16-36 <sup>2</sup>	56 <sup>2</sup>
MW4	15-35	35
MW5	11-43	43
MW6	13-48	48

<sup>1</sup> In 2011, upgradient well MW3 was abandoned and replaced with upgradient wells MW5 and MW6 to better represent upgradient groundwater conditions

<sup>2</sup> There is some uncertainty in the screen interval and total depth of this well. The Discharger will be inspecting this well to confirm the well construction details.

bgs = below ground surface

37. A summary of groundwater quality in upgradient monitoring wells MW5 and MW6 for select constituents is shown below.

Constituent (units)	MW5	MW5	MW5	MW6	MW6	MW6	Concentrations Protective of Beneficial Use
	2015	2016	2017	2015	2016	2017	
EC (µmhos/cm)	784	763	763	856	853	848	900 <sup>1</sup>
Nitrate as N (mg/L)	8.8	9.3	11.9	9.7	10.2	10.1	10 <sup>2</sup>
TKN (mg/L)	0.3	0.3	0.3	0.28	<0.2	0.3	--
Total N (mg/L)	9.0	9.5	12	9.9	10.3	10.2	--
TDS (mg/L)	434	409	398	453	441	415	1,000 <sup>3</sup>
Sodium (mg/L)	11	27	27	24	25	25	69 <sup>4</sup>



	<b>MW5</b>	<b>MW5</b>	<b>MW5</b>	<b>MW6</b>	<b>MW6</b>	<b>MW6</b>	<b>Concentrations Protective of Beneficial Use</b>
<b>Constituent (units)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	
Chloride (mg/L)	27	11	11	10	10	10	250 <sup>1</sup>
Boron (mg/L)	0.5	0.5	0.4	0.46	0.48	0.47	0.7 <sup>4</sup>
Dissolved Iron (mg/L)	0.153	<0.100	<0.100	<0.100	<0.100	<0.10	0.30 <sup>5</sup>
Dissolved Manganese (mg/L)	0.09	<0.010	<0.010	0.010	<0.010	<0.010	0.050 <sup>1</sup>

Concentrations in **bold** exceed a concentration protective of beneficial use.

<sup>1</sup> Secondary Maximum Contaminant Level

<sup>2</sup> Primary Maximum Contaminant Level

<sup>3</sup> Secondary Maximum Contaminant Upper Level

<sup>4</sup> Lowest agricultural water quality goal

<sup>5</sup> Secondary Maximum Contaminant Recommended Level

-- = not established

38. Nitrate as nitrogen concentrations in upgradient wells MW5 and MW6 exceed the concentration protective of beneficial use.
39. Annual average concentrations of select constituents in downgradient monitoring wells MW1, MW2, and MW4 are summarized below.

	<b>MW1</b>	<b>MW1</b>	<b>MW1</b>	<b>MW2</b>	<b>MW2</b>	<b>MW2</b>	<b>Concentration Protective of Beneficial Use (mg/L)</b>
<b>Constituent (units)</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	
	<b>1,300</b>	<b>1,300</b>	<b>1,225</b>	<b>981</b>	<b>1,001</b>	<b>1,048</b>	900 <sup>1</sup>
Nitrate as N (mg/L)	6.1	6.1	5.3	9.5	9.9	<b>10.9</b>	10 <sup>2</sup>
TKN (mg/L)	0.31	0.27	0.27	0.2	0.2	0.2	--
Total N (mg/L)	6.3	6.2	5.5	9.5	10	11	--
TDS (mg/L)	667	659	705	557	568	618	1,000 <sup>3</sup>
Sodium (mg/L)	47	48	48	37	38	42	69 <sup>4</sup>
Chloride (mg/L)	76	78	84	20	22	28	250 <sup>1</sup>
Boron (mg/L)	0.7	<b>0.71</b>	0.7	0.62	0.63	0.66	0.7 <sup>4</sup>

	MW1	MW1	MW1	MW2	MW2	MW2	
Constituent (units)	2015	2016	2017	2015	2016	2017	Concentration Protective of Beneficial Use (mg/L)
Dissolved Iron (mg/L)	<0.100	<0.100	<0.100	<0.100	0.190	<b>0.350</b>	0.300 <sup>5</sup>
Dissolved Manganese (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.050 <sup>1</sup>

Concentrations in **bold** exceed a concentration protective of beneficial use.

- <sup>1</sup> Secondary Maximum Contaminant Level
- <sup>2</sup> Primary Maximum Contaminant Level
- <sup>3</sup> Secondary Maximum Contaminant Upper Level
- <sup>4</sup> Lowest agricultural water quality goal
- <sup>5</sup> Secondary Maximum Contaminant Recommended Level

Table continued below.

	MW4	MW4	MW4	
Constituent (units)	2015	2016	2017	Concentration Protective of Beneficial Use
EC (µmhos/cm)	<b>1,167</b>	<i>dry</i>	<b>1,100</b>	900 <sup>1</sup>
Nitrate as N (mg/L)	6.8	<i>dry</i>	6.6	10 <sup>2</sup>
TKN (mg/L)	0.18	<i>dry</i>	0.22	--
Total N (mg/L)	6.9	<i>dry</i>	6.7	--
TDS (mg/L)	640	<i>dry</i>	635	1,000 <sup>3</sup>
Sodium (mg/L)	57	<i>dry</i>	61	69 <sup>4</sup>
Chloride (mg/L)	32	<i>dry</i>	44	250 <sup>1</sup>
Boron (mg/L)	<b>0.78</b>	<i>dry</i>	<b>0.82</b>	0.7 <sup>4</sup>
Dissolved Iron (mg/L)	0.160	<i>dry</i>	<0.100	0.30 <sup>5</sup>
Dissolved Manganese (mg/L)	0.010	<i>dry</i>	<0.010	0.050 <sup>1</sup>

MW4 was dry in 2016 and could not be sampled.

Concentrations in **bold** exceed a concentration protective of beneficial use.

- <sup>1</sup> Secondary Maximum Contaminant Level
  - <sup>2</sup> Primary Maximum Contaminant Level
  - <sup>3</sup> Secondary Maximum Contaminant Upper Level
  - <sup>4</sup> Lowest agricultural water quality goal
  - <sup>5</sup> Secondary Maximum Contaminant Recommended Level
- = not established

40. In all three downgradient wells (MW1, MW2, and MW4), electrical conductivity exceeds the concentration protective of beneficial use. In the most recent samples (collected in 2017), nitrate as nitrogen and dissolved iron concentrations in MW2 exceed concentrations protective of beneficial use. Nitrate as nitrogen and boron

concentrations in up- and downgradient wells are relatively equivalent. Because boron concentrations in the source water and supplemental irrigation water are relatively equivalent to groundwater concentrations, boron is likely naturally occurring in the area or the result of discharges to groundwater from sources out of the Discharger's control.

### **Basin Plan, Beneficial Uses, and Regulatory Considerations**

41. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fifth Edition, rev. May 2018* (Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), 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), WDRs are required to implement the Basin Plan.
42. The nearest surface water drainage courses are Putah Creek located approximately 3 miles north, Dudley Creek located approximately 1.5 miles southwest, and the Resource Conservation District drainage ditches located along the north, south, and east boundaries of the LAAs.
43. The beneficial uses of surface water in the area, as stated in the Basin Plan, are municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); fresh water replenishment; hydropower generation (HYDRO); water contact recreation (REC-1); non-contact water recreation (REC-2); commercial and sport fishing (COMM); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); preservation of biological habitats of special significance; rare, threatened, or endangered species (RARE); and spawning, reproduction, and/or early development (SPAWN).
44. The beneficial uses of underlying groundwater as set forth in the Basin Plan are MUN, AGR, IND, and industrial process supply (PRO).
45. The Basin Plan establishes narrative WQOs for chemical constituents, tastes and odors, and toxicity in groundwater. It also sets forth a numeric WQO for total coliform organisms.
46. The Basin Plan's numeric WQO 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.
47. The Basin Plan's narrative WQOs for chemical constituents, at a minimum, require MUN-designated waters to meet the MCLs in California Code of Regulations, title 22 (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.

48. The narrative toxicity WQO 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.
49. Quantifying a narrative WQO 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 WQO 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 WQO.
50. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700  $\mu\text{mhos/cm}$ . There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000  $\mu\text{mhos/cm}$  if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. 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.
51. 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. These programs, once effective, could change how the Central Valley Water Board permits discharges of salt and nitrate. 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 could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would 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. This Order may be amended or modified to incorporate any newly-applicable requirements.
52. The stakeholder-led Central Valley Salinity Alternatives for Long-Term Sustainability (CS-SALTS) initiative has been coordinating efforts to implement the new salt and nitrate management strategies. The Central Valley Water Board expects dischargers that may be affected by new salt and nitrate management policies to coordinate with the CV-SALTS initiative.

### **Special Considerations for High Strength Waste**

53. 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.
54. 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 by overloading the soil profile and causing waste constituents (i.e., organic carbon, nitrates, other salts, and metals) to percolate below the root zone. 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.
55. 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.
56. With regard to BOD, excessive application of high organic strength wastewater 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.
57. 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.

58. *Pollution Abatement in the Fruit and Vegetable Industry*, published by the United States Environmental Protection Agency (USEPA), cites BOD loading rates in the range of 36 to 600 lb/acre-day to prevent nuisance, but indicates the loading rates can be even higher under certain conditions. The studies that supported this report did not evaluate actual or potential groundwater degradation associated with those rates. There are few studies that have attempted to determine maximum BOD loading rates for protection of groundwater quality. Those that have been done are not readily adapted to the varying soil, groundwater, and climate conditions that are prevalent throughout the region.
59. 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 (boarder check method) makes uniform application difficult, especially for coarse textured soils.

60. 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.
61. This Order sets an irrigation cycle average BOD loading rate for the LAAs of 100 lb/acre/day consistent with Risk Category 2 in the *Manual of Good Practice* and requires the Discharger to ensure reasonably even application of wastewater over the available land application areas.

### Antidegradation Analysis

62. The State Water Board's *Statement of Policy with Respect to Maintaining High Quality Waters of the State*, Resolution No. 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.
63. Degradation of groundwater by some of the typical waste constituents associated with discharges from a food processing facility, 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 provides full time and seasonal employment to produce tomato products. In addition, the Discharger provides a needed service for local growers, trucking services, and equipment manufacturers as well as a tax base for local and county governments. 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.
64. The Discharger has been monitoring groundwater quality at the site since 1998. Based on the data available, it is not possible to determine pre-1968 groundwater quality. Therefore, determination of compliance with the *Antidegradation Policy* for this facility must be based on existing background groundwater quality.
65. Constituents of concern that have the potential to degrade groundwater include salts (primarily TDS, sodium, and chloride), nitrates, and iron. Average concentrations for each constituent is shown.

Constituent (units)	Effluent <sup>1</sup>	Upgradient Groundwater <sup>2</sup>	Downgradient Groundwater <sup>3</sup>	Concentration Protective of Beneficial Use
BOD (mg/L)	549	--	--	--
TDS (mg/L)	654	457	623	1,000 <sup>4</sup>
FDS (mg/L)	292	344	459	--

Constituent (units)	Effluent <sup>1</sup>	Upgradient Groundwater <sup>2</sup>	Downgradient Groundwater <sup>3</sup>	Concentration Protective of Beneficial Use
Nitrate as N (mg/L)	0.8	9	7.5	10 <sup>5</sup>
Sodium (mg/L)	53.9	27	47	69 <sup>6</sup>
Chloride (mg/L)	27	11	43	250 <sup>7</sup>
Iron (mg/L)	2.60 <sup>9</sup>	2.21 <sup>10</sup>	1.51 <sup>10</sup>	0.300 <sup>8</sup>

<sup>1</sup> Flow weighted average from 2014-2017

<sup>2</sup> Compiled from MW5 and MW6; average of data collected from 2014-2017

<sup>3</sup> Compiled from MW1, MW2, and MW4; average of data collected from 2014-2017

<sup>4</sup> Secondary Maximum Contaminant Upper Level

<sup>5</sup> Primary Maximum Contaminant Level

<sup>6</sup> Lowest agricultural water quality goal

<sup>7</sup> Secondary Maximum Contaminant Level

<sup>8</sup> Secondary Maximum Contaminant Recommended Level

<sup>9</sup> Total Iron

<sup>10</sup> Dissolved Iron

- a. **Total Dissolved Solids.** For the purposes of evaluation, TDS is representative of overall salinity. The best measure for total salinity in groundwater samples is TDS. FDS is the inorganic fraction of TDS that have the potential to percolate or leach into shallow groundwater. Therefore, the best measure for salinity of process wastewater is FDS. Data show that concentrations of TDS in downgradient groundwater monitoring wells are higher than TDS concentrations in upgradient wells, indicating discharges may have caused some degradation of shallow groundwater. However, concentrations in the wastewater effluent and up- and downgradient wells are less than the concentration protective of beneficial use of 1,000 mg/L. TDS concentration trends for the upgradient (MW5 and MW6) show decreasing trends, while the downgradient wells (MW1, MW2, and MW4) show stable or decreasing TDS trends.

In August 2011, the Discharger replaced the ion-exchange water softeners with reverse osmosis filtration to provide soft water for boilers and the pump seal water system. Replacement of the ion-exchange water softeners reduced FDS concentrations in the effluent. In October 2010 and July 2011, FDS concentrations in the wastewater were 1,000 mg/L and 850 mg/L, respectively, and in August 2011, FDS was 280 mg/L. As described in the *Salinity and TDS Reduction Study*, dated 30 November 2018, the reverse osmosis reject water was not identified as a source of TDS or salinity. The reject water and the soft water produced by the reverse osmosis system evenly recombine in the wastewater system prior to discharging to the LAAs. No effluent limitations were established in the previous WDRs for TDS or FDS. While the historic discharges to the LAAs were conducted in accordance with previous WDRs, the wastewater deposited salts to the vadose zone. It is likely that salts remaining in the soil from previous discharges will continue to be flushed over time to groundwater.



However, concentrations of TDS in downgradient groundwater monitoring wells show stable or decreasing trends. This indicates that while some fraction of TDS in groundwater is likely the result of discharges, TDS groundwater concentrations should not increase as a result of continued discharges of wastewater. This Order requires continued monitoring of groundwater, does not allow an exceedance of the concentration protective of beneficial use for TDS, and sets an effluent limit for FDS.

- b. **Nitrate.** 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. Most of the nitrogen in the process wastewater is present as TKN, which can readily mineralize and convert to nitrate (with some loss via ammonia volatilization) in the LAAs.

Upgradient groundwater quality is poor with respect to nitrate as nitrogen and concentrations exceed the primary MCL of 10 mg/L in upgradient monitoring wells MW5 and MW6. The poor-quality upgradient groundwater is likely due to the predominantly agricultural land use in the area, which is impacting groundwater at the facility. Nitrate as nitrogen in downgradient monitoring wells are generally equivalent or lower in concentrations when compared to upgradient concentrations, indicating the discharge to the LAAs is likely not degrading groundwater with respect to nitrate. The LAA system maximizes nitrogen uptake by crops and minimizes the potential for nitrate to migrate to groundwater. This Order sets a total nitrogen loading limit for the LAAs and requires that the discharge does not cause any statistically significant increase in groundwater nitrate concentrations.

- c. **Sodium and Chloride.** Data for the background monitoring wells MW5 and MW6 indicate that background sodium and chloride concentrations are less than concentrations protective of beneficial uses and show stable and decreasing concentration trends over time. Concentrations of sodium and chloride in effluent and downgradient monitoring wells MW1, MW2, and MW4 are higher than upgradient groundwater concentrations. However, sodium and chloride concentrations in effluent and groundwater are relatively equivalent to concentrations in source water, indicating salts maybe naturally occurring in the area or are present as the result of long-term agricultural use of the area. As discussed in Finding 65.a for TDS, prior discharges to the LAAs may have contributed to degradation of groundwater with respect to salts. Concentrations in downgradient groundwater show stable and decreasing concentration trends. Due to the replacement of the ion-exchange system, along with other BPTCs implemented by the discharger, concentrations of sodium and chloride in groundwater should not increase as a result of discharges to the LAAs. This Order does not allow sodium and chloride concentrations in groundwater to exceed concentrations protective of beneficial use.

- d. **Iron.** The presence of iron in groundwater at concentrations greater than the concentration protective of beneficial use can be the result of excessive BOD loading rates. Excessive BOD can deplete oxygen, resulting in anoxic conditions that can solubilize naturally occurring metals in soil. The average iron concentration in groundwater between 2014 and 2017 exceeds the concentration protective of beneficial use in downgradient monitoring wells. Concentrations in upgradient wells are less than downgradient wells and are less than the concentration protective of beneficial use. Based on monthly monitoring reports from 2015 to 2017, BOD loading rates are less than the limitation of 100 lb/ac/day. The maximum loading rates were reported at less than 50 lb/ac/day between 2015 and 2017. Iron concentrations exceeding the Secondary Maximum Contaminant Recommended Level do not appear to coincide with periods when wastewater is applied to the LAAs. Although the iron in groundwater may not be the result of excessive BOD loading, it appears that groundwater may have been degraded as a result of discharges to the LAAs based on comparisons between upgradient and downgradient iron groundwater concentrations and the presence of iron in the wastewater. Therefore, this Order sets a BOD loading limit for the LAAs and requires that the discharge does not cause any statistically significant increase in groundwater iron concentrations.

66. The Discharger provides treatment and control of the discharge that incorporates:
  - a. the limited use of a reverse osmosis system in place of the ion-exchange system for water softening;
  - b. steam peeling of tomatoes rather than caustic peeling;
  - c. screening wastewater to remove solids prior to discharging to the ponds and LAAs;
  - d. controlling and evenly applying wastewater to the LAAs;
  - e. implementing a *Nutrient Management Plan* and a *Land Application Area Management Plan*;
  - f. using over 580 acres of LAAs cropped pasture grasses, which take up nutrients in the wastewater if application rates are controlled; and
  - g. a tailwater return system that captures irrigation runoff for reapplication to the LAAs as irrigation water.

The Board finds that these treatment and control practices are reflective of BPTCs.

### **Other Regulatory Considerations**

67. Pursuant to Water Code section 106.3, subdivision (a), it is “the established policy of the state that every human being has the right to safe, clean, affordable, and

accessible water adequate for human consumption, cooking, and sanitary purposes.” Although this Order is not necessarily subject to Water Code section 106.3 because it does not revise, adopt or establish a policy, regulation or grant criterion (see § 106.3, subd. (b)), it nevertheless promotes that policy by requiring discharges to meet MCLs designed to protect human health and ensure that water is safe for domestic use.

68. 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 subsurface disposal) or any Class 2 or Class 3 waste management units.”
69. 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 Regulations, title 27 (Title 27). (See Title 27, § 20090, subds. (b)-(d).)
70. Statistical data analyzes methods set forth in the USEPA’s 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance) are appropriate for determining whether the discharge complies with Groundwater Limitations of this Order.
71. The Facility is currently covered under the statewide General Permit for Storm Water Discharges Associated with Industrial Activities, State Water Board Order 2014-0057-DWQ (NPDES General Permit CAS000001).
72. 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 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 **Order R5-2019-0055** 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.

73. The California Department of Water Resources (DWR) sets standards for the construction and destruction 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.
74. The action to adopt waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality (CEQA), in accordance with the California Code of Regulations, title 14, section 15301.
75. Pursuant to Water Code section 13263, subdivision (g), the ability to discharge waste is a privilege, not a right, and adoption of this Order does not create a vested right in the continuance of any discharge.

### **Public Notice**

76. 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.
77. 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.
78. All comments pertaining to the discharge were heard and considered in a public hearing.

**IT IS HEREBY ORDERED** that Order R5-2010-0038 is rescinded and, pursuant to Water Code sections 13263 and 13267, the Campbell Soup Supply Company, 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 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 WDRs dated 1 March 1999 (Standard Provisions)
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.
7. Application of residual solids to the land application areas is prohibited, with the exception of the sediment dredged from the wastewater ponds, as described in Finding 23.
8. Discharge of domestic wastewater to the process wastewater treatment system is prohibited.
9. Discharge of process wastewater to the domestic wastewater treatment system (septic system) is prohibited.
10. Discharge of domestic wastewater to the process wastewater ponds, land application areas, or any surface waters is prohibited.

## B. Flow Limitations

1. **Effectively immediately**, flows to the land application areas shall not exceed the following limits:

Flow Measurement	Flow Limit
Total Annual Flow <sup>1</sup>	490 MG
Maximum Average Daily Flow <sup>2</sup>	5 MGD

<sup>1</sup> As determined by the total flow for the calendar year

<sup>2</sup> As determined by the total flow during the calendar month divided by the number of days in that month.

**C. Effluent and Mass Loading Limitations**

1. The blend of treated wastewater, storm water, and supplemental irrigation water applied to the LAAs shall not exceed the following effluent limit:

Constituent	Units	Annual Maximum
Average FDS Concentration	mg/L	600 <sup>1</sup>

<sup>1</sup> Flow-weighted average based on total flow and concentration for each source of water discharged

2. The blend of treated wastewater, storm water, 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	lb/ac/day	100	--
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.

**D. 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 for wastewater shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
6. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.

7. The Discharger shall design, construct, operate, and maintain all ponds sufficiently to protect the integrity of containment dams and berms and prevent overtopping and/or structural failure. The operating freeboard in any pond shall never be less than **two** feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.
8. Wastewater treatment, storage, and disposal ponds or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
9. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications D.7 and D.8.
10. All ponds and open containment structures shall be managed to prevent breeding of mosquitoes. Specifically:
  - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
  - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
11. Newly constructed or rehabilitated 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.
12. The Discharger shall monitor sludge accumulation in the wastewater treatment/storage ponds at least every five years beginning in **2021** and shall periodically remove sludge as necessary to maintain adequate storage capacity.
13. Storage of residual solids, including organic food processing byproducts such as culls, pulp, stems, leaves, and seeds, on areas not equipped with means to prevent storm water infiltration, or a paved leachate collection system is prohibited.

**E. 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. The wells to which these requirements apply are specified in the Monitoring and Reporting Program.

<b>Constituent (mg/L)</b>	<b>Maximum Allowable Concentration <sup>1</sup></b>
TDS	Current groundwater quality <sup>1</sup> or the Concentration Protective of Beneficial Use <sup>2</sup> , whichever is greater
Nitrate as nitrogen	Current groundwater quality <sup>1</sup> or the Concentration Protective of Beneficial Use <sup>2</sup> , whichever is greater
Sodium	Current groundwater quality <sup>1</sup> or the Concentration Protective of Beneficial Use <sup>2</sup> , whichever is greater
Chloride	Current groundwater quality <sup>1</sup> or the Concentration Protective of Beneficial Use <sup>2</sup> , whichever is greater
Iron	Current groundwater quality <sup>1</sup> or the Concentration Protective of Beneficial Use <sup>2</sup> , whichever is greater

<sup>1</sup> Applies only the specific compliance monitoring wells listed in the Monitoring and Reporting Program.

<sup>2</sup> Current groundwater quality means the quality of groundwater as evidenced by the monitoring completed in 2017 and included in the 2018 RWD for each of the specified compliance monitoring wells listed in the Monitoring and Reporting Program but may be redefined using approved statistical methods described in an approved *Groundwater Limitation Compliance Assessment Plan* (Provision H.1.a). When comparing groundwater results to Groundwater Limitations, annual averages shall be used.

2. For all compliance monitoring wells, except as specified in E.1 above, contain constituents in concentrations that exceed either the Primary or Secondary MCLs established in Title 22.
3. For all compliance monitoring wells, except as specified in E.1 above, contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.
4. Compliance with these limitations shall be determined annually as specified in the Monitoring and Reporting Program using approved statistical methods.

**F. Land Application Area Specifications**

1. Crops or other vegetation (which may include, but is not limited to, pasture grasses, 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 loadings.
4. Hydraulic loading of wastewater and irrigation water shall be at reasonable agronomic rates.
5. Land application of wastewater shall be managed to minimize erosion.
6. The LAAs shall be managed to prevent breeding of mosquitoes or other vectors. In particular:
  - a. Conveyance or tailwater ditches shall be maintained essentially free of emergent, marginal, and floating vegetation.
  - b. Low-pressure and unpressurized pipelines or ditches accessible to mosquitos shall not be used to store wastewater.
7. LAAs shall be designed, maintained, and operated to comply with the following setback requirements:

<b>Setback Definition</b>	<b>Minimum Irrigation Setback (feet) <sup>1</sup></b>
Edge of LAA to property boundary	25
Edge of LAA to manmade or natural surface water drainage course	25
Edge of LAA to domestic water supply well	100

<sup>1</sup> This is an existing facility, which may not comply with updated setbacks. However, this facility will still be permitted if nuisance conditions do not result from noncompliance. Expansion of a noncomplying treatment system may trigger further evaluations of the setbacks.

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 in the area of concern, such as the specific field where an issue has occurred, 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 tailwater pond and shall not enter any surface water drainage course or storm water drainage system.

## G. Solids Disposal Specifications

For the purposes of this Order, “sludge” 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; and “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 (solids originating from meat processing are excluded from this definition).

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. Sludge and residual solids may be discharged to land in accordance with the Land Application Area Specifications of this Order.
4. 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.
5. 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.

## H. Provisions

1. The following reports shall be submitted pursuant to Water Code section 13267, and shall be prepared as described in Provision H.5:
  - a. By **1 January 2020**, the Discharger shall submit a *Groundwater Limitations Compliance Assessment Plan*. The plan shall propose and justify the statistical methods used to evaluate compliance with the groundwater limitations of this Order for the compliance wells and constituents specified in the MRP. Compliance shall be determined using intrawell evaluations and appropriate statistical methods that have been selected based on site-specific information and the U.S. EPA Unified Guidance document cited in Finding 70 of this Order. The report shall explain and justify the selection of the appropriate statistical methods.

- b. By **1 January 2020**, the Discharger shall submit a *Solids Management Plan* that includes a detailed plan for sludge and sediment removal from the ponds and disposal. If sediment or sludge is to be dried onsite, the plan shall specifically describe measures to be used to control runoff or percolate from the sludge and/or sediment as it is drying. The plan shall also include a schedule that shows how sediment from the ponds will be land applied to the area north of the processing plant or removed from the site prior to the onset of the rainy season (**1 October**). Solids monitoring shall be conducted and reported as required by the MRP included in this Order.
- c. By **1 January 2020**, the Discharger shall submit a *Sampling and Analysis Plan* (SAP) for approval. The SAP shall be utilized as a guidance document that is referred to by individuals responsible for conducting effluent and groundwater monitoring and sampling activities. The SAP shall include a written description of standard operating procedures including but not limited to the following:
  - i. Equipment to be used during sampling;
  - ii. Equipment decontamination procedures;
  - iii. Water level measurement procedures;
  - iv. Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged);
  - v. Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used);
  - vi. Purge water disposal;
  - vii. Analytical methods and required reporting limits;
  - viii. Sample containers and preservatives;
  - ix. General sampling techniques;
  - x. Record keeping during sampling;
  - xi. QA/QC samples;
  - xii. Chain of Custody; and
  - xiii. Sample handling and transport.
- d. **Within 30 days of surveying MW2**, please submit a technical memorandum that includes the well construction details, including the screen interval, for MW2.

2. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain any waste constituents in concentrations statistically greater than the Groundwater Limitations of this Order based on intrawell evaluation, within 120 days of the request of the Executive Officer, the Discharger shall submit a BPTC Evaluation Workplan that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the facility's waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. The workplan shall contain a preliminary evaluation of each component of the wastewater treatment, storage and disposal system and propose a time schedule for completing the comprehensive technical evaluation. The schedule to complete the evaluation shall be as short as practicable, and shall not exceed one year.
3. A discharger whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment, collection, and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the discharger shall notify the Central Valley Water Board by **31 January**.
4. In accordance with 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.
5. 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.
6. The Discharger shall comply with Monitoring and Reporting Program **R5-2019-0055**, 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.

7. The Discharger shall comply with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements dated 1 March 1991 (Standard Provisions), which are attached hereto and made part of this Order by reference.
8. 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.
9. 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.
10. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.
11. Per 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.
12. 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.
13. 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.

14. In the event of any change in control or ownership of the facility, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
15. 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.
16. A copy of this Order including the MRP, Information Sheet, Attachments, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
17. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order 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 are available on the Internet (at the address below) and will be provided upon request.

[http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality)

I, PATRICK PULUPA, Executive Officer, do hereby certify that the foregoing is a full true, and correct copy of an Order adopted by the California Regional Water Quality Control Board on 7 June 2019.



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PATRICK PULUPA, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2019-0055

FOR

CAMPBELL SOUP SUPPLY COMPANY, LLC  
CAMPBELL SOUP SUPPLY COMPANY DIXON FACILITY  
SOLANO COUNTY

This Monitoring and Reporting Program (MRP) for the Campbell Soup Supply Company, LLC (Discharger) is issued pursuant to Water Code section 13267. A glossary of terms used in this MRP is included on the last page.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of water, wastewater, soil, solids/sludges, and groundwater.

The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, 1 March 1991 ed. (SPRRs). Field test instruments (such as those used to measure pH, electrical conductivity, dissolved oxygen, wind speed, and precipitation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated at the frequency recommended by the manufacturer;
3. The instruments are serviced and/or calibrated at the manufacturer's recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

- *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 U.S. Environmental Protection Agency or the State Water Resources Control Board's Environmental Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower



than concentrations that implement applicable water quality objectives/limits for the constituents to be analyzed.

If monitoring consistently shows no significant variation in a constituent concentration or parameter after at least 8 consecutive groundwater monitoring events, the Discharger may request this MRP be revised to reduce monitoring frequency, constituent analyses, or monitoring parameters. The proposal must include adequate technical justification for a reduction in monitoring frequency. 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.

### SOURCE WATER MONITORING

Samples of source water shall be collected from each source (North, South, and East Agricultural Wells). At a minimum, the Discharger shall monitor the source water as follows, beginning in the 2020 processing season:

Constituent	Units	Sample Type	Sampling and Reporting Frequency <sup>2</sup>
pH	pH units	Grab	Every three years
Electrical Conductivity	µmhos/cm	Grab	Every three years
Total Dissolved Solids	mg/L	Grab	Every three years
Fixed Dissolved Solids	mg/L	Grab	Every three years
Nitrate as Nitrogen	mg/L	Grab	Every three years
Metals/Inorganics <sup>1</sup>	mg/L	Grab	Every three years

<sup>1</sup> Metals/Inorganics shall include, at a minimum, the following: boron, chloride, sodium, sulfate, iron (dissolved), and manganese (dissolved)

<sup>2</sup> Data shall be reported in the corresponding annual monitoring report.

### WASTEWATER EFFLUENT MONITORING

Wastewater samples shall be collected from effluent from the lift station prior to discharging to the LAAs, as shown on Attachment D to the WDRs Order, and shall be representative of wastewater quality. Sampling is only required when wastewater is discharged to the LAAs. At a minimum, wastewater monitoring shall include the following:

Constituents	Units	Sample Type	Sample Frequency <sup>1</sup>	Reporting Frequency
pH	pH units	Composite Sampling	Weekly	Quarterly
Electrical Conductivity	µmhos/cm	Composite Sampling	Weekly	Quarterly
BOD <sub>5</sub> <sup>2</sup>	mg/L	Composite Sampling	Weekly	Quarterly

<b>Constituents</b>	<b>Units</b>	<b>Sample Type</b>	<b>Sample Frequency <sup>1</sup></b>	<b>Reporting Frequency</b>
FDS	mg/L	Composite Sampling	Monthly	Quarterly
Total Nitrogen	mg/L	Composite Sampling	Monthly	Quarterly
TKN	mg/L	Composite Sampling	Monthly	Quarterly
Nitrate as Nitrogen	mg/L	Composite Sampling	Monthly	Quarterly
Standard Minerals <sup>3</sup>	mg/L	Composite Sampling	Annually	Annually <sup>4</sup>

BOD<sub>5</sub> = biochemical oxygen demand

FDS = fixed dissolved solids

<sup>1</sup> Samples are to be collected when wastewater is discharged to the LAAs.

<sup>2</sup> 5-day, 20° Celsius biochemical oxygen demand.

<sup>3</sup> Standard minerals shall include at a minimum, the following: boron, chloride, sodium, sulfate, and dissolved manganese and iron. Manganese and iron samples shall be filtered with a 0.45-micron filter at the laboratory prior to sample preservation.

<sup>4</sup> The annual report can include the fourth quarter report.

### **POND MONITORING (Pond B, Pond C, and Tailwater Pond)**

The Discharger shall monitor wastewater Ponds B and C and the Tailwater Pond in accordance with the following. Sampling and monitoring will be conducted from permanent locations that will provide representative samples and observations of the ponds. Freeboard shall be measured vertically from the water surface to the lowest elevation of pond berm (or spillway/overflow pipe invert) and shall be measured to the nearest 0.10 feet. Samples shall be collected at a depth of one foot, opposite the inlet. If any pond is dry, the monitoring report shall so state. Pond monitoring shall include, at a minimum, as specified below:

<b>Condition/ Constituent</b>	<b>Units</b>	<b>Type of Sample</b>	<b>Sampling and Monitoring Frequency <sup>1</sup></b>	<b>Reporting Frequency</b>
Freeboard	0.1 feet	Measurement	Weekly/Monthly	Quarterly
Odors	--	Observation	Weekly/Monthly	Quarterly
Berm Condition	--	Observation	Weekly/Monthly	Quarterly
Dissolved Oxygen <sup>2</sup>	mg/L	Grab	Weekly/Monthly	Quarterly

<sup>1</sup> Sampling and monitoring frequencies are weekly during the processing season, generally July to mid-October, and monthly during the off-season.

<sup>2</sup> Required for wastewater Ponds B and C only.

## FLOW MONITORING

When wastewater is discharged to the LAAs, the Discharger shall monitor wastewater flows from the meter location depicted on Attachment D as follows:

Flow Source	Units	Sample Type	Sampling Frequency	Reporting Frequency <sup>2</sup>
Flow Meter (location shown on Attachment D)	Gallons	Meter	Daily <sup>1</sup>	Quarterly/Annually <sup>3</sup>

<sup>1</sup> Report as total daily flow.

<sup>2</sup> The Fourth Quarter Monitoring Report can be included in the Annual Monitoring Report.

<sup>3</sup> The total annual flow shall be included in the Annual Report.

## LAND APPLICATION AREA MONITORING

### A. Field Inspections

The Dischargers shall inspect the LAAs at least once weekly during irrigation events, and observations from those inspections shall be documented for inclusion in the quarterly monitoring reports. The following items shall be documented for field to be irrigated on that day:

1. Berm condition;
2. Condition of each standpipe and flow control valve (if applicable);
3. Condition of all ditches used for the conveyance of wastewater and tailwater;
4. Ponding;
5. Condition of tailwater ditches; and
6. Potential and actual runoff or discharge to off-site areas, including surface water; and
7. Odors that have the potential to be objectionable at or beyond the property boundary.

Temperature, wind direction, and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log shall be submitted as part of the Quarterly Monitoring Report.

## B. Routine Monitoring

The Dischargers shall perform the following routine monitoring and loading calculations during all months when land application occurs and shall present the data in the Quarterly and Annual Monitoring Reports.

Constituent	Units	Measurement	Measurement Frequency	Reporting Frequency
Precipitation	0.1 inch	Rain Gauge <sup>1</sup>	Daily	Quarterly/Annually
Irrigation fields	--	Observation	Daily	Quarterly/Annually
Hydraulic Loading Rate (from each source)	inch	Calculated <sup>2</sup>	Daily	Quarterly/Annually
BOD <sub>5</sub> Loading Rate	lb/ac/day	Calculated <sup>3,4</sup>	Daily	Quarterly/Annually
Total Nitrogen Loading	lb/ac/year	Calculated <sup>3,5</sup>	Monthly	Quarterly/Annually
Flow-weighted FDS Concentration <sup>6</sup>	mg/L	Calculated	Monthly	Quarterly/Annually

<sup>1</sup> Data obtained from the nearest National Weather Service rain gauge is acceptable.

<sup>2</sup> Rate shall be calculated for each check within each LAA field. Volumes for each check can be estimated based on the duration of flow, the number of checks being irrigated at any one time, and the daily flow rates for each field. Calculations and assumptions shall be clearly documented.

<sup>3</sup> Rate shall be calculated for each LAA.

<sup>4</sup> BOD<sub>5</sub> shall be calculated using the daily applied volume of wastewater, actual application area, and most recent BOD<sub>5</sub> results for the wastewater.

<sup>5</sup> Total nitrogen loading rates shall be calculated using the applied volume of wastewater, actual application area, and the most recent total nitrogen results for the wastewater. Loading rates for supplemental nitrogen (including commercial fertilizers, manure from cattle, etc.) shall be calculated using the actual load and application area.

<sup>6</sup> Flow-weighted FDS concentration when wastewater is applied to the LAAs.

## C. Land Application Area Management Plan

Results of sampling and monitoring conducted as part of the *Land Application Area Management Plan*, dated 1 March 2018, shall be included in the Annual Monitoring Reports.

## GROUNDWATER MONITORING

The Discharger shall maintain the groundwater monitoring well network. If a groundwater monitoring well is dry for more than four consecutive sampling events or is damaged, the Discharger shall submit to the Central Valley Water Board a workplan and proposed time

schedule for its replacement, and the well shall be replaced following approval of the workplan. Alternatively, the Discharger shall submit a report with supporting evidence that a replacement well is not needed.

Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for review and approval. Once installed, all new monitoring wells shall be appropriately incorporated into monitoring conducted under this MRP and shall be monitored on a semiannual basis for a minimum of eight consecutive sampling events before a reduction in monitoring frequency, parameters, or constituents can be considered.

The groundwater monitoring program applies to groundwater monitoring wells tabulated below and any wells subsequently installed under approval of the Central Valley Water Board.

Monitoring Well	Well Function
MW1	compliance
MW2	
MW4	
MW5	upgradient
MW6	

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction. Sampling activities shall be conducted in accordance with an approved Sampling and Analysis Plan. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to Groundwater	0.01 feet	Measurement	Semi-Annually	Annually
Groundwater Elevation <sup>1</sup>	feet	Calculated	Semi-Annually	Annually
Gradient	feet/feet	Calculated	Semi-Annually	Annually
Gradient Direction	degrees	Calculated	Semi-Annually	Annually
pH	pH units	Grab	Semi-Annually	Annually
EC	µmhos/cm	Grab	Semi-Annually	Annually
TDS	mg/L	Grab	Semi-Annually	Annually
TKN	mg/L	Grab	Semi-Annually	Annually
Nitrate Nitrogen	mg/L	Grab	Semi-Annually	Annually

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Dissolved Manganese <sup>2</sup>	mg/L	Grab	Semi-Annually	Annually
Dissolved Iron <sup>2</sup>	mg/L	Grab	Semi-Annually	Annually
Standard Minerals <sup>3</sup>	mg/L	Grab	Annually	Annually

<sup>1</sup> Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation.

<sup>2</sup> Samples shall be filtered with a 0.45-micron filter, at the laboratory, prior to sample preservation.

<sup>3</sup> Standard minerals shall include, at a minimum, the following: boron, chloride, sodium, and sulfate.

### GROUNDWATER LIMITATIONS

The Groundwater Limitations set forth in Section E of WDRs Order R5-2019-0055 shall apply to the specific compliance monitoring wells identified below. Groundwater quality and compliance with Groundwater Limitations will be conducted using intrawell evaluations. This table is subject to revision by the Executive Officer following construction of any new compliance monitoring wells.

Constituent	Groundwater Limitation <sup>1</sup>	Compliance Wells
TDS	1,000 mg/L <sup>2</sup>	MW1, MW2, MW4
Nitrate as Nitrogen	10 mg/L <sup>3</sup>	MW1, MW4
Nitrate as Nitrogen	Current Groundwater Quality <sup>4</sup>	MW2
Sodium	69 mg/L <sup>5</sup>	MW1, MW2, MW4
Chloride	250 mg/L <sup>6</sup>	MW1, MW2, MW4
Iron (dissolved)	0.3 mg/L <sup>7</sup>	MW1, MW4
Iron (dissolved)	Current Groundwater Quality <sup>4</sup>	MW2

<sup>1</sup> Groundwater Limitations apply to all compliance wells and compliance is determined by intrawell evaluations. For numerical groundwater limitations, annual average concentrations from the specified compliance wells shall be used. For the current groundwater quality limitation, concentration trends shall be evaluated. If exceedances of numerical limitations or increasing concentrations are occurring, upgradient wells shall also be evaluated

<sup>2</sup> Secondary Maximum Contaminant Upper Level

<sup>3</sup> Primary Maximum Contaminant Level

<sup>4</sup> Current groundwater quality means the quality of groundwater as evidenced by the monitoring completed as of 2017 and included in the 2018 RWD for each of the specified compliance monitoring wells listed in the Monitoring and Reporting Program but may be redefined using approved statistical methods described in an approved *Groundwater Limitation Compliance Assessment Plan* (Provision H.1.a).

<sup>5</sup> Lowest agricultural water quality goal

<sup>6</sup> Secondary Maximum Contaminant Level

<sup>7</sup> Secondary Maximum Contaminant Recommended Level

If groundwater quality performed pursuant to this MRP shows that an exceedance of the Groundwater Limitation is occurring, as defined using approval statistical methods for intrawell evaluations described in an approved *Groundwater Limitation Compliance Assessment Plan* (Provision H.1.a in this Order), the Discharger shall submit a technical evaluation of the reason

for the exceedance and a discussion on possible mitigation measures that could be taken, if needed. The evaluation shall also include a discussion of changes in upgradient conditions to determine if exceedances are the result of changing upgradient conditions which are likely out of the Discharger's control.

As required per Provision H.2 of WDRs Order R5-2019-0055, a BPTC Evaluation Workplan shall be submitted by the Discharger that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the Dischargers' waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. If it is determined that the exceedance is not the result of discharges by the Discharger, the Discharger shall submit a technical report with supporting evidence that the exceedance is out of the Discharger's control.

### Groundwater Trigger Concentrations

The following groundwater trigger concentration is intended only to serve as a means of assessing whether the discharge might potentially cause a violation of one or more of the Groundwater Limitations of the WDRs at some later date.

Constituent	Trigger Concentration (mg/L)	Compliance Wells
TDS	900	MW1, MW2, MW4
Chloride	120	MW1, MW2, MW4

If the annual evaluation of groundwater quality performed pursuant to this MRP shows that the annual average concentration exceeds the trigger concentration in a compliance well listed, the Discharger shall submit the following technical report by **1 May of the following calendar year** (i.e., if the trigger concentration is exceeded for calendar year 2022, the appropriate report is due by 1 May 2023):

- a. A technical evaluation of the reason[s] for the concentration increase[s] and a technical demonstration that, although the concentration has increased more than expected in one or more compliance wells, continuing the discharge without additional treatment or control will not result in exceedance of the applicable groundwater limitation (1,000 mg/L). The evaluation shall also include a discussion of changes in upgradient conditions to determine if exceedances are the result of changing upgradient conditions which are likely out of the Discharger's control. If groundwater monitoring results show that the discharge of waste is causing groundwater to contain any waste constituents in concentrations greater than the Groundwater Limitations of this Order, see requirements in Provision H.2 of Order R5-2019-0055.

## **SOLIDS MONITORING**

The Discharger shall monitor volumes of residual solids generated and disposed of and reported in annual monitoring reports:

1. Volume of Solids Generated. Solids may include pomace, seeds, stems, screenings, and sump solids, or other material.
2. Volume Disposed of Off-site. Describe the disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.); the amount disposed (tons); and the name of the hauling company.
3. Volume Disposed of On-site. Describe the amount disposed (tons); location of on-site disposal (e.g. former domestic wastewater pond or the area north of the processing plant); method of application, spreading, and incorporation. The volume of pond sediments shall be reported when sediments are removed to maintain adequate capacity in the pond.

## **REPORTING**

All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to the following address:

[centralvalleysacramento@waterboards.ca.gov](mailto:centralvalleysacramento@waterboards.ca.gov)

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board  
ECM Mailroom  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, California 95670

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any correspondence used to transmit documents to this office:

County: Solano  
Facility: Campbell Soup Supply Company Dixon Facility  
Program: Non-15 Compliance  
Order Number: R5-2019-0055  
CIWQS Place ID: 220383



In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the MRP shall be reported to the Central Valley Water Board.

As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Professional Geologist and signed by the registered professional.

#### A. Quarterly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in the quarterly monitoring report. Quarterly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following the quarter** (i.e. the January - March quarterly report is due by **1 May**). The fourth quarter monitoring report may be submitted as part of the corresponding annual monitoring report. At a minimum, the report shall include:

1. Results of Wastewater Effluent Monitoring in tabular format for each week and month during the reported quarter.
2. Results of Pond Monitoring in tabular format for each month during the reported quarter.
3. Results of Flow Monitoring in tabular format for each month during the reported quarter, including calculated values for the total flow and average daily flow for each month and total annual flow to date.
4. Results of Solids Monitoring.
5. Irrigation methods used for each LAA and crop type grown.
6. Results of LAA Monitoring, including:
  - a. Calculated hydraulic loading rate for each month during the reported quarter and cumulative annual loading.
  - b. Calculated **mass of BOD** applied to each LAA on a daily basis shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{A}$$

Where:

$M$	=	mass of BOD applied to an LAA in lb/ac/day
$C$	=	concentration of BOD in mg/L based on the most recent monitoring result
$V$	=	volume of wastewater applied to the LAA in millions of gallons per day
$A$	=	area of the LAA irrigated in acres
8.345	=	unit conversion factor

c. Calculated **nitrogen loading rate** for each LAA using the following formula:

$$M = \sum_{i=1}^{12} \frac{8.345(C_i V_i)}{A} + M_x$$

Where:

$M$	=	mass of nitrogen applied to LAA in lb/ac/yr.
$C_i$	=	Monthly average concentration of total nitrogen for month $i$ in mg/L.
$V_i$	=	volume of wastewater applied to the LAA during calendar month $i$ in millions of gallons.
$A$	=	area of the LAA irrigated in acres.
$i$	=	the number of the month (e.g., Jan. = 1, Feb. = 2, etc.).
$M_x$	=	nitrogen mass from other sources (e.g., fertilizer, manure, and compost) in pounds per acre.
8.345	=	unit conversion factor.

7. A comparison of monitoring data to the flow limitations, effluent limitations, and discharge specifications and an explanation of any violation of those requirements;
8. A calibration log verifying calibration of all handheld monitoring instruments and devices used to comply with the prescribed monitoring program; and
9. Copies of the laboratory analytical data reports shall be maintained by the Discharger and provided upon request by the Central Valley Water Board.

## B. Annual Monitoring Reports

An Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February** each year and shall include the following:

### Flow Monitoring

1. Total annual flow discharged to LAAs and determination of compliance with the annual flow limitation of the WDRs.

### Process Supply Water Monitoring

1. Analytical data table showing historical and current results. A narrative description of changes in water quality over time, if any, and the potential impact on the wastewater quality.

### Groundwater Monitoring

1. A narrative description of all preparatory, monitoring, sampling, handling, and analytical testing for groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs Order R5-2019-0055, this MRP, and the SPRRs.
2. A field log for each well documenting depth to groundwater; method of purging, parameters measured before, during, and after purging; sample preparation (e.g., filtering); and sample preservation. Low or no-purge sampling methods are acceptable if described in an approved Sampling and Analysis Plan.
3. Summary data tables of historical and current water table elevations and analytical results, comparison with previous flow direction and gradient data, and discussion of seasonal trends if any.
4. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to an appropriate datum (e.g., NGVD).
5. An evaluation of the groundwater quality beneath the site and determination of compliance with the Groundwater Limitations per WDRs Order R5-2019-0055, based on statistical analysis for each constituent monitored for each compliance well in accordance with the approved Groundwater Limitations Compliance Assessment Plan. Include all calculations and data input/analysis tables derived from use of statistical software, as applicable.
6. Copies of the laboratory analytical data reports shall be maintained by the Discharger and provided upon request by the Central Valley Water Board.

### Land Application Area Monitoring

1. Calculated flow-weighted annual average FDS effluent concentration and determination of compliance with Effluent Limitations of the WDRs. The **flow-weighted annual average FDS effluent concentration** shall be calculated using the following formula:

$$C_a = \frac{\sum_{i=1}^{12} [(C_{Pi} \times V_{Pi}) + (C_{Si} \times V_{Si})]}{\sum_{i=1}^{12} (V_{Pi} + V_{Si})}$$

Where:	$C_a$	=	Flow-weighted average annual FDS concentration in mg/L.
	$i$	=	the number of the month (e.g., Jan. = 1, Feb. = 2, etc.).
	$C_{P_i}$	=	Monthly average wastewater FDS concentration for calendar month $i$ in mg/L.
	$C_{S_i}$	=	Monthly average supplemental irrigation water FDS concentration for calendar month $i$ in mg/L (considering each supplemental source separately).
	$V_{P_i}$	=	Volume of wastewater applied to LAA during calendar month $i$ in millions of gallons.
	$V_{S_i}$	=	Volume of supplemental irrigation water applied to LAA during calendar month $i$ in millions of gallons (considering each supplemental source separately).

### Land Application Area Management Plan

1. Results of any monitoring or sampling conducted as part of the Land Application Area Management Plan, dated 1 March 2018, shall be included in the annual monitoring report.

### Additional Reporting

1. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the WDRs.
2. Monitoring equipment maintenance and calibration records, as described in Section C.4 of the SPRRs, shall be maintained by the Discharger and provided upon request by the Central Valley Water Board.
3. A discussion of the following:
  - a. Waste constituent reduction efforts implemented in accordance with any required workplan;
  - b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order; and
  - c. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
4. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring network or reporting program.

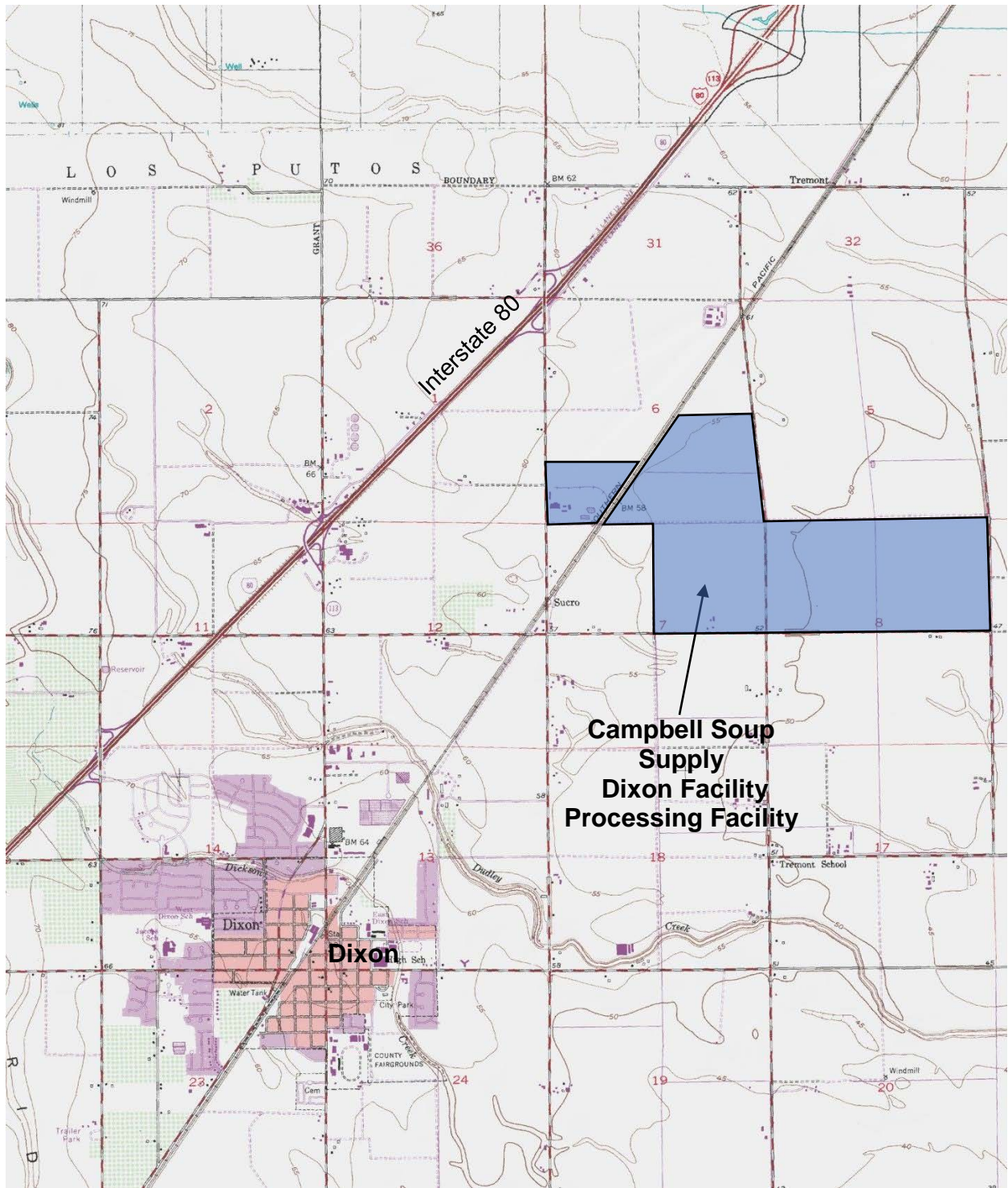
A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the submitting Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the submitting Discharger, or its authorized agent, as described in the Section B.3 of the SPRRs (General Reporting Requirements).

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region on 7 June 2019.

  
\_\_\_\_\_  
PATRICK PULUPA, Executive Officer

## GLOSSARY

BOD <sub>5</sub>	Five-day biochemical oxygen demand
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
Daily	Every day except weekends or holidays
Weekly	Once per week
Monthly	Once per calendar month
Quarterly	Once per calendar quarter
Semiannually	Once every six calendar months (i.e., two times per year) during non-consecutive quarters
Annually	Once per year
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
gpd	Gallons per day
mgd	Million gallons per day



~ 1 mile

Locations are approximate

**SITE LOCATION MAP**



CAMPBELL SOUP SUPPLY COMPANY, L.L.C.

CAMPBELL SOUP SUPPLY COMPANY DIXON  
FACILITY

SOLANO COUNTY



**Legend**

-  Groundwater Well
-  Processing Plant Boundary



~ 300 feet




**SITE FEATURES**

CAMPBELL SOUP SUPPLY COMPANY, L.L.C.  
 CAMPBELL SOUP SUPPLY COMPANY DIXON FACILITY  
 SOLANO COUNTY





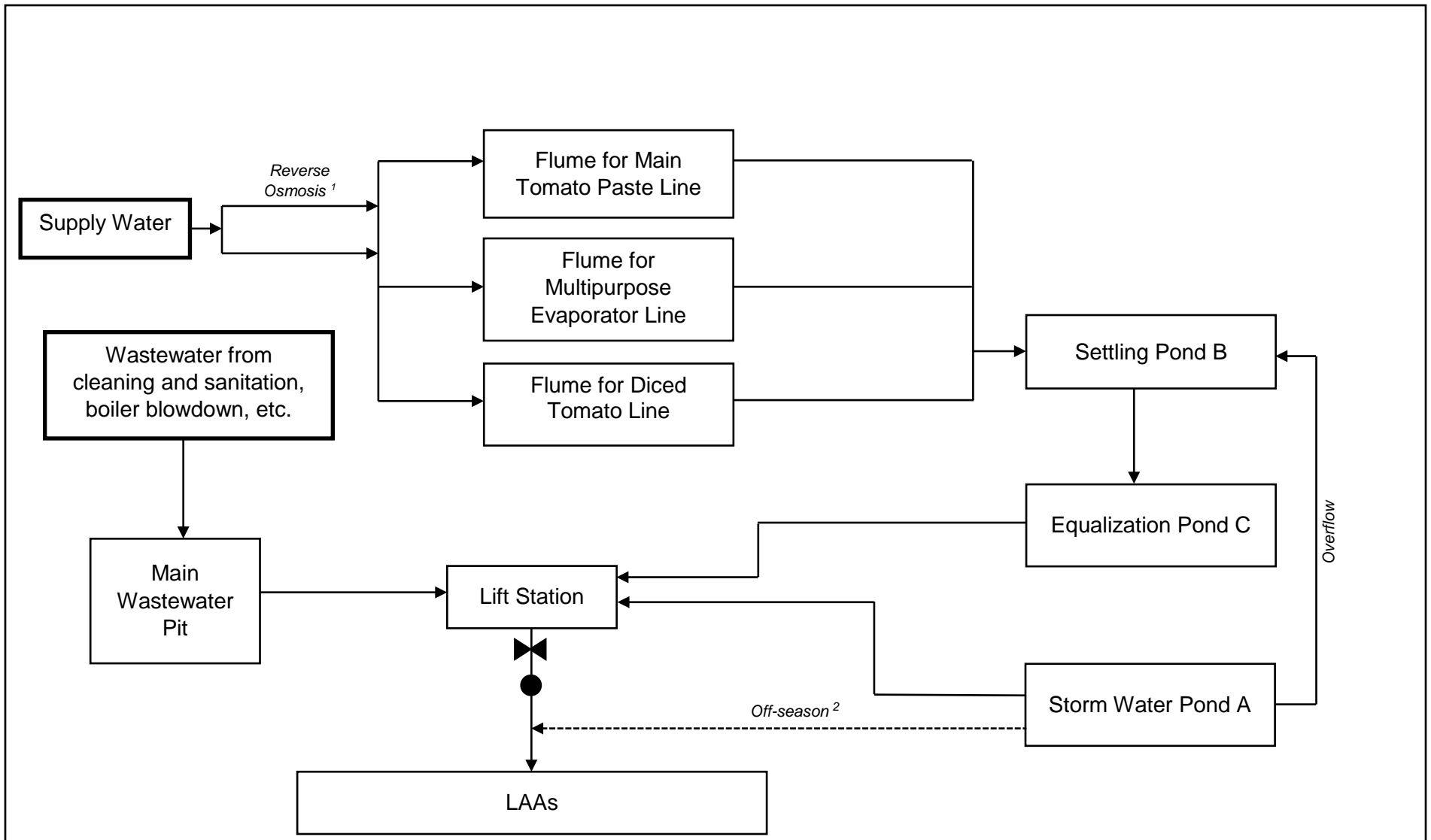
**Legend**

-  Land Application Areas (pastures)  
(boundaries are approximate)
-  Groundwater Monitoring Well
-  Supplemental Irrigation Well





~ 2,000 feet

**LAND APPLICATION AREAS**  
 CAMPBELL SOUP SUPPLY COMPANY, L.L.C.  
 CAMPBELL SOUP SUPPLY COMPANY  
 DIXON FACILITY  
 SOLANO COUNTY



**LEGEND**

-  Flow meter
-  Sample Location

<sup>1</sup> Approximately 10-11% of the supply water is sent to the reverse osmosis units.  
<sup>2</sup> During the off-season, only storm water is collected and discharged to Pond A.

**WASTEWATER PROCESS FLOW SCHEMATIC**

CAMPBELL SOUP SUPPLY COMPANY  
 SOLANO COUNTY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2019-0055

WASTE DISCHARGE REQUIREMENTS

FOR

CAMPBELL SOUP SUPPLY COMPANY, LLC  
CAMPBELL SOUP SUPPLY COMPANY DIXON FACILITY  
SOLANO COUNTY

**INFORMATION SHEET**

***Facility Description***

The facility is located at 8380 Pedrick Road, Dixon in Solano County (Section 6, 7, and 8, T7N, R2E MDB&M), approximately 2 miles northeast of the City of Dixon. The facility processes tomatoes for the production of tomato paste and diced tomatoes and consists of, tomato receiving areas, the tomato processing plant, associated structures, parking lots, and land application areas (LAAs).

WDRs Order R5-2010-0038, adopted by the Central Valley Water Board on 18 March 2010, prescribes requirements for the discharge. Order R5-2010-0038 allows a discharge of up to 5.0 million gallons per day (mgd) with a total annual flow not to exceed 490 million gallons. Due to facility changes, Order R5-2010-0038 no longer adequately reflects changes to the wastewater system. Therefore, Order R5-2010-0038 will be rescinded and replaced with this Order.

***Wastewater***

Wastewater is generated at the processing plant primarily from tomato washing. Wastewater is also generated from cleaning and sanitizing activities, boiler blowdown (less than 0.2% of the effluent volume), reverse osmosis reject, and other various plant activities.

The wastewater treatment system consists of screens, two unlined settling ponds, and 586 acres of LAAs for the disposal of wastewater. In 2016 and 2017, flow rates to the LAAs averaged 2.9 million gallons per day (mgd) to 3.9 mgd, respectively.

Constituents of concern in wastewater include salts (primarily TDS, sodium, and chloride), nitrates, and iron.

Chemicals used at the facility that have the potential to impact wastewater quality are summarized below.

<b>Chemical (gallons) <sup>1</sup></b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Chlor 12 1/2 (sodium hypochlorite)	8,700	7,200	7,852
Anti-Foam	275	55	55
Bromide L-102 (sodium bromide)	3,024	1,764	1,764
Chlorinate Cleaner L-130F (sodium hypochlorite)	2,444	2,288	2,288
Caustic Cleaner L-145 (sodium hydroxide)	6,510	4,650	4,650
Caustic Cleaner L-145 (50/50) (sodium hypochlorite)	1,240	930	930
Salad Oil	4,000 pounds	--	--
Cleaner MSR Acid WA (phosphoric acid and nitric acid)	165	1,100	330
Caustic Cleaner P-120 (sodium hydroxide)	80 bags	80 bags	80 bags
Peraclean	110	55	--
Series 212 Return Line Treatment (cyclohexylamine/morpholine)	660	495	495
Series 418 Boiler Water Treatment	330	385	385
Series 622 Cooling Tower Treatment (organic polymers)	30	55	110
Series 708 Caustic Sludge Conditioner (sodium hydroxide)	660	550	385
Series 725 Liquid Sulfite (sodium bisulfite)	660	935	385

<sup>1</sup> The amounts of chemical listed are the annual purchased amounts, not the amounts used each year, as noted in the 2018 RWD.

Wastewater from tomato washing flows through screens to unlined aeration Pond B and then to equalization Pond C. Pond C discharges to a lift station prior to disposal at the LAAs. Wastewater generated from cleaning and sanitizing, boiler blowdown, and various other activities discharges into the Main Wastewater Pit, where it commingles with wastewater from the ponds in the lift station.

There are 586 acres available for the application of wastewater. The fields are flood irrigated and used to grow pasture grasses for the onsite cattle grazing. A tailwater

system, consisting of tailwater ditches and a tailwater pond, prevents the migration of wastewater off the LAAs.

### ***Groundwater Conditions***

The depth of groundwater beneath the LAAs is approximately 30 to 35 feet below ground surface (bgs). The horizontal flow direction is to the east and there are five groundwater monitoring wells that monitor shallow groundwater conditions at the LAAs.

Based on groundwater data and concentration trends, discharges to the LAAs have likely impacted groundwater with respect to salts. While the historic discharges to the LAAs were conducted in accordance with previous WDRs, the wastewater deposited salts to the vadose zone. It is likely that salts remaining in the soil from previous discharges will continue to be flushed over time to groundwater. However, concentration trends for TDS, sodium, and chloride in upgradient and downgradient wells are either stable or decreasing. This indicates that while some fraction of TDS in groundwater is likely the result of discharges, TDS groundwater concentrations should not increase as a result of continued discharges of wastewater.

For the continued protection of groundwater, this Order:

- requires continued groundwater monitoring;
- does not allow an exceedance of the concentration protective of beneficial use for TDS, chloride, sodium, and iron in groundwater;
- sets an effluent limit for FDS in wastewater;
- a loading limit for total nitrogen and BOD to the LAAs; and
- a flow limit to the LAAs of up to 5.0 million gallons per day (mgd) with a total annual flow not to exceed 490 million gallons.

### ***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 do 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.

### ***Monitoring and Reporting Program***

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

### ***Other Regulatory Considerations (CV-SALTS)***

The Central Valley Water Board is developing amendments to the Basin Plan to incorporate new strategies for addressing ongoing salt and nitrate accumulation in the waters and soils of the Central Valley as part of the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative. The CV-SALTS Salinity Control

Program currently being developed would subject dischargers that do not meet stringent salinity numeric values (700  $\mu\text{S}/\text{cm}$  EC as a monthly average to protect the AGR beneficial use and 900  $\mu\text{S}/\text{cm}$  EC as an annual average to protect the municipal and domestic beneficial uses of water) to performance-based salinity requirements, and would require these dischargers to participate in a basin-wide Prioritization and Optimization Study to develop a long-term strategy for addressing salinity accumulation in the Central Valley.

The level of participation required of dischargers whose discharges do not meet stringent salinity requirements will vary based on factors such as the amount of salinity in the discharge, local conditions, and type of discharge. The Central Valley Water Board anticipates that the CV-SALTS initiative will result in regulatory changes that will be implemented through conditional prohibitions and modifications to many WDRs region-wide, including the WDRs that regulate discharges from the Facility regulated under this Order. More information regarding this regulatory planning process can be found online (at the address below).

[https://www.waterboards.ca.gov/centralvalley/water\\_issues/salinity/](https://www.waterboards.ca.gov/centralvalley/water_issues/salinity/)