

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

TIME SCHEDULE ORDER R5-2014-XXXX
REQUIRING
BAKER COMMODITIES, INC.
KERMAN RENDERING PLANT
FRESNO COUNTY

TO COMPLY WITH REQUIREMENTS PRESCRIBED IN ORDER R5-2014-XXXX

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

1. Baker Commodities, Inc. (hereafter Baker or Discharger), owns and operates a rendering plant (Plant) at 16801 West Jensen Avenue near Kerman in Fresno County. The Plant and land application areas (LAAs) are within Sections 22 and 23, T14S, R17E, MDB&M.
2. Waste Discharge Requirements (WDRs) Order 95-245, adopted on 27 October 1995, prescribes requirements for the discharge of rendering wastewater to land.
3. On 24 September 2012, Baker Commodities, Inc. submitted a Report of Waste Discharge (RWD) that describes the existing rendering operation and the discharge of rendering wastewater to land near the City of Kerman in Fresno County. Baker submitted additional information to complete the RWD on 21 December 2012. The Executive Officer ordered Baker Commodities, Inc., to submit the RWD pursuant to Water Code section 13267 to obtain sufficient information to update existing Waste Discharge Requirements Order 95-245.
4. Baker renders up to 696 tons per day of farm animal carcasses (primarily bovine) for production of protein and bone meals, tallow, and feeding fats. The Plant has been in operation at least since the 1950s. Baker acquired the Plant in the 1960s and the Central Valley Water Board first adopted WDRs for discharge of wastewater from the Plant in 1970. Baker owns and operates the Plant and is responsible for compliance with the WDRs.

Wastewater Characteristics

5. Sources of wastewater include: condensed moisture from the raw material; boiler blowdown; reverse osmosis reject; and storm water and wash water from the paved loading area. The reverse osmosis unit treats a portion of the supply water to make up water lost to daily boiler blowdown.
6. The Plant operates year-round. Wastewater flows depend primarily on animal mortality rates, which are generally higher during the summer and lower during the winter months. The average annual wastewater flow into the pond system was approximately 0.130 mgd in 2011, 0.120 mgd in 2012, and 0.110 mgd in 2013. Using the proposed average daily flow of up to 0.192 mgd into the pond system, the water balance in the RWD shows an average effluent flow from the ponds to the LAAs of 0.139 mgd after evaporation.
7. The Plant produces wastewater that is high in salinity, nitrogen, and biochemical oxygen demand (BOD). The source of these waste constituents is almost exclusively the bodily fluids and stomach and bowel contents of the Plant feedstock (carcasses). Table 1 presents average wastewater analytical results for samples collected in 2012 and 2013.

Table 1. Average Wastewater Quality (2012 through 2013)

	<u>Units</u>	<u>Pond Influent</u>	<u>Pond Effluent</u>
Biochemical Oxygen Demand	mg/L	3,335	1,053
Nitrate as nitrogen	mg/L	< 0.2	< 0.1
Total Kjeldahl Nitrogen	mg/L	213	563
Specific Conductance	umhos/cm	3,322	5,923
Total Dissolved Solids	mg/L	1,689	1,469
Calcium	mg/L	54 ¹	73 ²
Magnesium	mg/L	11 ¹	17 ²
Sodium	mg/L	215 ¹	345 ²
Potassium	mg/L	82 ¹	170 ²
Chloride	mg/L	197 ¹	295 ²
Bicarbonate	mg/L	540 ¹	3,220 ²
Sulfate	mg/L	158 ¹	< 3.0 ²

¹ Average of three samples.

² Average of two samples.

8. Wastewater is pumped into the irrigation system for mixing with supplemental irrigation water and distribution to the LAAs. Nine onsite irrigation wells supply the supplemental water. The blended discharge is directed by manual valves to checks in the LAAs for flood irrigation. Baker has not submitted any analytical data to characterize the quality of irrigation well water.
9. In June of 2010, Baker completed construction of three new ponds, equipped with a geomembrane liner underlain by a geosynthetic clay liner (GCL). The record includes a final Construction Quality Assurance (CQA) Report, provided to staff electronically on 26 March 2014, describing construction of the ponds and liners. The new ponds are lined with a 45-mil, flexible reinforced polypropylene geomembrane (fPP-R), underlain by a geosynthetic clay liner (GCL) placed over the compacted subgrade. Baker hired a contractor to perform electric leak location in general accordance with ASTM D7002-03 on 23 and 24 June 2010.

Waste Discharge Requirements Order 95-245

10. Order 95-245 includes the following Specifications and Groundwater Limitations:
 - a. Discharge Specification B.1 allows for a maximum daily discharge of up to 0.032 million gallons per day (mgd);
 - b. Discharge Specification B.3 states that the inorganic fraction of TDS of the discharge shall not exceed the TDS of the water supply by more than 330 mg/l;
 - c. Reclamation Area Specification D.2 states that application of wastewater to any portion of the reclamation area shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management system. The nutrient loading of the reclamation area,

including the nutritive value of organic and chemical fertilizers and of the reclaimed water, shall not exceed the crop demand (Provision G.5 of WDRs Order 95-245 requires Baker to submit a plan to come into compliance with this Specification by 1 March 1996).

- d. Provision F of WDRs Order 95-245 states that the discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.
- e. Ground Water Limitation F.1 limits the annual average incremental increase in EC to no more than 4 umhos/cm, based on the most recent five-year period, or a maximum of 900 umhos/cm, whichever is less.

16. In addition, WDRs Order No. 95-245, Provision G.2 of states in part that:

The Discharger shall comply with "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991.

- 1 March 1991, Standard Provisions, General Provisions A.11 states that:

Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the California Water Code, Section 13050.

Waste Discharge Requirements Order R5-2014-XXXX

17. On XX June 2014, the Central Valley Water Board adopted WDRs Order R5-2014-XXXX. WDRs Order R5-2014-XXXX includes the following Specifications and Groundwater Limitations:

- a. Effluent Limitation B.1, states:

The 12-month rolling average EC of the discharge shall not exceed the 12-month flow weighted average EC of the source water plus 500 umhos/cm. Compliance with this effluent limitation shall be determined monthly based on representative samples from location EFF-002, as identified in MRP R5-2014-XXXX.

- b. Effluent Limitation B.2, states:

The discharge (EFF-002) shall not contain chloride in a concentration exceeding 175 mg/L.

- c. Discharge Specification C.2, states:

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

- d. LAA Specification D.2, states:

Application of waste constituents to the LAAs shall be at reasonable agronomic rates to preclude creation of a nuisance or degradation of groundwater, considering the crop, soil, climate, and irrigation management system. The annual nutritive loading of the LAAs,

including the nutritive value of organic and chemical fertilizers and of the wastewater, shall not exceed the annual crop demand.

e. Groundwater Limitations F.1, states in part:

Release of waste constituents from any treatment, reuse, or storage component associated with the discharge shall not cause or contribute to groundwater containing constituent concentrations in excess of the concentrations specified below or background quality, whichever is greater:

- (a) Nitrate (as nitrogen) of 10 mg/L,
- (b) Sodium of 115 mg/L, and
- (c) For constituents identified in Title 22, the MCLs quantified therein.

18. In addition, WDRs Order R5-2014-XXXX, Provision G.2 of states in part that:

The Discharger shall comply with "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991.

1 March 1991, Standard Provisions, General Provisions A.11 states that:

Neither the treatment nor the discharge shall create a condition of nuisance or pollution as defined by the California Water Code, Section 13050.

19. WDRs Order R5-2014-XXXX includes the following additional Provisions:

a. Provision G.7 states:

By 5 December 2014, the Discharger shall provide a Groundwater Monitoring Well Installation Work Plan for describing a plan for installation of additional groundwater monitoring wells. The additional monitoring well locations, construction, and number of wells shall be chosen to provide sufficient information to assess groundwater conditions upgradient and downgradient of the lined wastewater ponds. The work plan shall include a time schedule for implementation of the work and collection of the first round of samples from each well (in accordance with MRP R5-2014-####), which shall be completed by no later than 5 June 2015.

b. Provision G.8 states:

By 5 June 2015, the Discharger shall submit a Salinity Control Plan in the form of a technical report for Executive Officer approval describing measures Baker will implement to reduce wastewater salinity by source reduction and/or treatment, which shall include at a minimum:

- a. a thorough characterization of sources of salinity, including EC and specific ions (e.g., sodium, chloride, bicarbonate, etc.), detailing the effects of each source on the concentration/mass of salt in the wastewater and final blended discharge;
- b. a description (including the effectiveness, feasibility, and relative costs) of any additional source control (i.e., segregation of high-salinity waste) and treatment methods that could be used to further reduce the salinity of the discharge to the

maximum extent feasible;

- c. documentation of the selection process identifying the particular measures Baker will implement to reduce the salinity of the discharge, including the specific criteria used for selection; and
- d. a detailed description of the tasks, cost, and time required to investigate and implement each key element of the Salinity Control Plan.

c. Provision G.9 states:

By 5 December 2014, the Discharger shall submit a Nutrient Management Plan, which shall include at a minimum:

- a. a description of the LAAs and storage facilities;
- b. a description of how wastewater is or will be uniformly blended with supplemental irrigation supply water and evenly distributed to the LAAs;
- c. a description of the types of crops to be grown with their water, nutrient, and salt uptake rates and the required leaching fraction;
- d. supporting data (including analytical data from wastewater and irrigation water monitoring) and calculations for monthly and annual water, nutrient, and salt balances, including the mass of water, nutrients, and salt expected to leach below the root zone;
- e. specific management practices that will ensure wastewater, irrigation water, and commercial fertilizers are applied at agronomic rates optimized to limit groundwater degradation;
- f. a coordinated sampling and analysis plan for monitoring soils, wastewater, and plant tissue to verify the nutrient and salt balance; and
- g. a description of the system of daily record keeping.

Non-Compliance and Groundwater Degradation / Pollution

- 20. Since adoption of WDRs Order 95 245, Baker has been in continuous violation of the effluent flow limit of no more than 0.032 mgd. Central Valley Water Board found in WDRs Order 95-245 that the projected nitrogen loading rate was 150 lbs/acre/year. Baker has since reported nitrogen loading rates to the LAAs in excess of 900 lbs/acre/year. The unlined pond system was also substantially overloaded to the extent that the BOD of pond effluent was occasionally higher than influent BOD concentrations.
- 21. Baker installed an onsite groundwater monitoring well network of three wells in 1995 (MW-1, MW-2, and MW-3). In April 2012, Baker installed six additional groundwater monitoring wells. Table 2 presents average analytical results from eight samples collected from each monitoring well from 2012 through 2013.

Table 2. Groundwater Monitoring Well Quality (2012 through 2013)

	<u>Units</u>	<u>MW-1</u>	<u>MW-2</u>	<u>MW-3</u>	<u>MW-4</u>	<u>MW-5</u>	<u>MW-6</u>	<u>MW-7²</u>	<u>MW-8</u>	<u>MW-9</u>
Nitrate ¹	mg/L	15	34	37	92	61	36	18	31	32
EC	umhos/cm	1,320	2,040	1,550	2,220	2,040	1,620	1,410	1,580	1,540
TDS	mg/L	843	1,350	985	1,470	1,340	1,030	906	1,000	964
Calcium	mg/L	154	242	117	198	229	163	144	138	148
Magnesium	mg/L	44	75	34	72	72	33	34	46	58
Sodium	mg/L	53	57	163	226	104	130	96	140	133
Potassium	mg/L	13	13	13	21	20	17	14	14	21
Chloride	mg/L	127	315	159	188	251	197	190	158	160
Bicarbonate ³	mg/L	435	433	440	694	491	424	370	498	460
Sulfate	mg/L	103	169	81	70	149	93	102	94	86
Iron ⁴	mg/L	< 0.2	3.7	< 0.2	22	11	46	1.4	1.3	41
SAR ⁵		1.0	0.8	3.4	3.5	1.5	2.4	1.9	2.6	2.3

¹ As nitrogen.

² The average values presented for MW-7 include analytical results for first sample from MW-7, collected 4/18/2012, which report waste constituent concentrations of about half the concentrations reported for the rest of the samples in the dataset for MW-7.

³ Bicarbonate as CaCO₃.

⁴ Samples were not filtered prior to preservation or analysis.

⁵ Sodium Adsorption Ratio (not adjusted for elevated bicarbonate concentrations).

22. Samples from MW-1 represent groundwater quality upgradient of Baker's discharges of waste. The EC in MW-1 has been relatively stable at around 1,300 umhos/cm. The concentration of chloride has been decreasing in samples from MW-1, from about 200 mg/L in 1996 to about 100 mg/L in 2013. The concentration of nitrate in the well has been increasing recently, from about 10 mg/L as nitrogen in 2002 to about 15 mg/L as nitrogen in 2013. Based on the groundwater gradient, the increase in nitrate concentrations in MW-1 does not appear to be caused by Baker's discharge.
23. Samples from groundwater monitoring well MW-4 represent groundwater influenced by seepage of high-strength waste from Baker's unlined ponds. Historic discharges to the unlined ponds, reportedly used from 1965 through 2010, were poorer quality than wastewater discharged to the new pond system. On average from 1995 through 2010, samples from the discharge to the unlined ponds had BOD over 9,000 mg/L, total nitrogen over 1,000 mg/L, and EC over 4,700 umhos/cm. As a result, Baker's discharge to the unlined ponds has caused significant localized groundwater degradation with sodium, chloride, and bicarbonate, and pollution of groundwater with EC, TDS, and nitrate.
24. In a Notice of Violation issued in 2006, staff notified Baker that it had exceeded its effluent flow limit and effluent limits for inorganic TDS (exceeded 330 mg/L over source water) and caused groundwater EC and TDS to exceed upper secondary MCLs, and caused groundwater pollution

with nitrate. Staff issued another NOV in 2007 for the same and additional violations of the WDRs, including a spill of grease when the old ponds overflowed onto adjacent LAAs.

25. The unlined ponds have caused and may continue to cause groundwater to be polluted as precipitation enters the ponds and transmits accumulated waste to groundwater. Baker has discontinued its discharge of wastewater to the ponds, but has not closed them.
26. Prior to completion of the lined ponds, Baker noted in annual self-monitoring reports that it overloaded LAAs with nitrogen (e.g., applied an average of 763 lbs/acre/year in 2009 and 923 lbs/acre/year in 2010) and caused groundwater degradation with salt and nitrate. Analytical results from samples collected from MW-2, MW-3, MW-5, MW-6, MW-7, MW-8, and MW-9 above show groundwater quality downgradient of the LAAs has been degraded with sodium, and to the point of pollution with EC, TDS, nitrate, and chloride.
27. The lateral extent of degradation due to Baker's historic discharges has not been fully defined, but it appears to extend offsite to the west and south. Samples from groundwater monitoring wells at the downgradient boundary of the site (e.g., MW-6) contain nitrate concentrations above the MCL.
28. Water Code section 13300, states:

Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board, or that the waste collection, treatment, or disposal facilities of a discharger are approaching capacity, the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements.
29. Water Code section 13267(b), states, in part, that:

In conducting an investigation specified in subdivision (a), the 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, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report 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.
30. In accordance with Water Code section 13300, the Central Valley Water Board finds that there is a discharge of waste threatening to take place that will violate requirements prescribed by the

Central Valley Water Board, and that the Discharger may not be able to immediately comply with Effluent Limitation B.1 for electrical conductivity, Effluent Limitation B.2 for chloride, Solids Disposal Specification E.1, Groundwater Limitation F.1, or LAA Specification D.2. Therefore, the Central Valley Water Board finds that a Time Schedule Order is appropriate.

31. The technical reports required by this Order are necessary to assure compliance with both this Order and Waste Discharge Requirements Order R5-2014-XXXX, and to protect groundwater quality. The Discharger owns and operates the facility that discharges the waste subject to these Orders.
32. On XX June 2014, in Rancho Cordova, California, after notice to the Discharger and all other affected persons, the Central Valley Water Board conducted a public hearing at which evidence was received to consider a Time Schedule Order.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13300 and 13267, Baker Commodities, Inc., its agents, successors, and assigns, shall:

1. The Discharger shall comply with WDRs R5-2014-XXXX, Effluent Limitations B.1 and B.2 for EC and chloride, in accordance with the following time schedule:

<u>Task</u>	<u>Task Description</u>	<u>Due Date</u>
a.	Consistent with an approved Salinity Control Plan required by WDRs R5-2014-XXXX, Provision G.8, submit, for Executive Officer approval, a detailed implementation schedule for the particular measures Baker will implement to reduce the salinity of the discharge that will result in compliance with WDRs R5-2014-XXXX Effluent Limitations B.1 and B.2. The implementation schedule shall include the beginning dates of implementation of the selected source control and/or treatment measures, the projected date for full compliance with WDRs R5-2014-XXXX Effluent Limitations B.1 and B.2, and all interim milestone dates.	3 September 2015 or 60 days following Executive Officer approval of the Salinity Control Plan required by WDRs R5-2014-XXXX, Provision G.8, whichever is sooner.
b.	Submit annual progress reports documenting implementation of the selected salinity reduction method (Task 1.a).	Beginning 1 February 2016, by the first day of February each year until the Discharger has completed Task 1.c.
c.	Submit documentation that Baker consistently complies with WDRs R5-2014-XXXX, Effluent Limitation B.1 for EC and Effluent Limitation B.2 for chloride. Specifically, the 12-month rolling average EC of the discharge shall not exceed the 12-month flow weighted average EC of the source water plus 500 umhos/cm and the concentration of chloride in the discharge shall not exceed 175 mg/L after implementation of the proposed salinity reduction method.	In accordance with the approved schedule (Task 1.a) but by no later than 3 February 2025.

2. The Discharger shall comply with WDRs R5-2014-XXXX, Solids Disposal Specification E.1, in accordance with the following time schedule:

<u>Task</u>	<u>Task Description</u>	<u>Due Date</u>
a.	Submit a pond closure work plan for staff review detailing a proposal to remove and properly dispose of accumulated waste associated with the unused, unlined pond system west of the Plant. The report must include a characterization of the waste and affected soils, address the issue of potential seepage of waste constituents to groundwater at the site, and demonstrate that the proposed removal project will be consistent with the plans and policies of the Central Valley Water Board and applicable statute and regulations.	4 August 2014
b.	The Discharger shall provide a letter report documenting the work has been completed to properly close the unlined ponds consistent with the work plan in Task 2.a.	3 October 2014

3. The Discharger shall comply with WDRs R5-2014-XXXX, Groundwater Limitation F.1, in accordance with the following time schedule:

<u>Task</u>	<u>Task Description</u>	<u>Due Date</u>
a.	Submit a work plan and implementation schedule that identifies the methods proposed for assessing the horizontal and vertical extent of elevated EC and TDS, sodium, chloride, and nitrate concentrations in groundwater beneath and down-gradient of the unlined ponds and/or LAAs. This work plan shall also identify all water and irrigation supply wells within one mile of the Plant and LAAs and shall provide a sampling plan to assess water quality in these wells.	5 June 2015
b.	Submit a technical report that describes the horizontal and vertical extent of groundwater EC and concentrations of TDS, sodium, chloride, and nitrate exceeding Groundwater Limitations in F.1, in groundwater beneath and downgradient of the unlined ponds and/or LAAs as a result of historic discharges from the Plant. The Discharger must substantiate any claims that elevated concentrations are not due to past discharges from the Plant. The technical report shall also provide an estimate of how long it will take for groundwater to meet applicable water quality objectives after the Discharger implements control measures required under this Order and	In accordance with the approved schedule, but by no later than 5 June 2017

	WDRs Order R5-2014-XXXX.	
c.	Annually submit, a technical report analyzing groundwater quality and progress towards meeting applicable water quality objectives.	Annual progress report (by 1 February of each year)
d.	If the periodic monitoring required in Task 3.c indicates unsatisfactory progress towards meeting water quality objectives, the Discharger shall submit a work plan with a compliance schedule for implementing additional measures to meet applicable water quality objectives. The proposed work plan and compliance schedule shall be subject to Executive Officer approval and may be incorporated into future Board Orders.	As required by the Executive Officer

4. The Discharger shall comply with WDRs R5-2014-XXXX, LAA Specification D.2, in accordance with the following time schedule:

<u>Task</u>	<u>Task Description</u>	<u>Due Date</u>
a.	Submit a technical report presenting the results of the implementation of the Nutrient Management Plan prepared in accordance with WDRs R5-2014-XXXX, Provision G.9. The report shall describe the specific treatment or control measures implemented to achieve proper nutrient management. The report shall provide a description of how the results of representative Plant tissue sample analyses compare to published values for crop uptake. The report shall demonstrate, using realistic nitrogen balance calculations, the capability of the Discharger to comply with WDRs R5-2014-XXXX, LAA Specification D.2 at the wastewater flow rate of 0.192 authorized by WDRs R5-2014-XXXX.	1 February 2016

All technical reports and work plans required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with sections 415 and 3065 of Title 16 of the California Code of Regulations, all technical reports must contain a statement of the qualifications and responsible registered professional(s). As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly

attributed to the professional responsible for the work. The technical reports are subject to the Executive Officer approval.

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 or may issue a complaint for Administrative Civil Liability.

Failure to comply with this Order or with the WDRs may result in the assessment of Administrative Civil Liability of up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filling petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality/

or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on XX June 2014.

PAMELA C. CREEDON, Executive Officer