28 August 2023

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Comments— Tentative WDR Order for City of Dinuba Wastewater Treatment Facility, Tulare County

This letter presents my comments on the subject tentative Waste Discharge Requirements (WDR) Order issued 27 July 2023. I am a California registered civil engineer and worked in the Central Valley Regional Water Quality Control Board's Fresno office (1998-2010), mostly in the WDR Program.

Waste Discharge Requirements Order No. 95-200 (Current Order) currently regulates the discharge of secondary-treated municipal wastewater from the City of Dinuba (Discharger) Wastewater Treatment Facility (WWTF or Facility) to 48.8 acres of existing unlined ponds, 25 acres of new unlined ponds, and 20 acres of existing effluent reclamation area. The Current Order limits the monthly average dry weather discharge flow to 3.0 million gallons per day (mgd) and establishes effluent limitations, including one for 5-day biochemical oxygen demand (BOD_5) of 40 mg/L monthly average. It also authorizes the discharge of partially-treated wastewater to three "polishing ponds" and the discharge digested sludge to drying beds.

Finding 9 of the tentative WDR order (Tentative Order) describes the Facility's current treatment and disposal operations as including effluent discharge to 12 evaporation/percolation ponds (Ponds 1 through 12) and states that Pond 6 is "used as an emergency storage basin." The Information Sheet indicates that effluent is discharged to 11 ponds and one pond (Pond 6) is used as an emergency storage basin.

Finding 9 appears to indicate that Pond 6 is used for emergency storage of untreated or partially-treated wastewater and for effluent disposal. The Information Sheet states that effluent is discharged to 11 ponds (i.e., it excludes use of Pond 6 as a disposal pond). Please revise this finding to be consistent with the Information Sheet.

Also, the discharge of untreated or partially-treated wastewater to Pond 6 is not depicted on Attachment B – Process Flow Diagram. Please indicate whether wastewater discharged to Pond 6 is returned back to the treatment works and, if so, describe how this is done. Please consider revising Attachment B to include the discharge to Pond 6 for emergency storage and, if applicable, the return of Pond 6 wastewater to the treatment works.

Finding 19 characterizes Facility influent flows for 2019 through 2022. Both the Current Order and Tentative Order establish the same monthly average discharge flow limitation of 3.0 mgd and restricts compliance with the limitation to 'dry weather' months. The qualifier, "dry weather," is relevant if a Facility experiences excessive inflow and/or infiltration during wet weather months. Neither the Current Order nor the Tentative Order presents influent flow data for dry versus wet months that would support the use of this qualifier in the discharge flow limitation.

Please consider presenting influent flow data for wet and dry periods and an accompanying analysis to indicate whether the Facility's collection system experiences significant inflow and infiltration and, as such, would warrant restricting the determination of compliance with the influent flow limitation to dry weather months. If inflow and infiltration is not a problem, please consider omitting the qualifier "dry weather" from the discharge flow limitation.

Finding 12 characterizes the quality of effluent discharged to the evaporation/percolation ponds (hereafter disposal ponds) from January 2019 through December 2022. The average effluent BOD_5 of 5.7 mg/L is far lower than the monthly average effluent BOD_5 limitation of 40 mg/L contained in the Current Order and carried over in the Tentative Order. And, average effluent total nitrogen is 7.8 mg/L (the sum of nitrate as nitrogen and Total Kjeldahl Nitrogen). Finding 52.b describes how the Discharger achieves this low total nitrogen concentration in Facility effluent. [Kudos to the City of Dinuba for this accomplishment]. Because total effluent nitrogen is less than 10 mg/L, the Discharger's current effluent disposal method does not appear to threaten to cause underlying groundwater to contain nitrate in concentrations exceeding the applicable water quality objective of 10 mg/L as nitrogen.

Finding 14 describes the Discharger's upgrading of the Facility to an activated sludge system. It does not mention the fate of the three polishing ponds referenced in the Current Order.

Please describe what happened to the three polishing ponds identified in the Current Order. Where were they located? Were they repurposed (e.g., used for sludge drying beds?).

Finding 16 indicates the Discharger added two more unlined disposal ponds, Ponds 11 and 12. Their combined area appears to be about 23 acres. The Current Order indicates the Discharger proposed to add three more disposal ponds on a 25-acre parcel owned by the Discharger.

Are Ponds 11 and 12 situated in the same area identified in the Current Order as that proposed for three new disposal ponds?

Finding 17 describes improvements in the Facility's sludge treatment and management operations, featuring the addition of an aerobic digester equipped with a single HDPE liner (40-mil thick, according to the Information Sheet), a screw press, and an asphalt-paved area for further drying. Google Earth depicts the sludge digester and sludge deposits on the

asphalt-paved area as encompassing about 0.8 acre and 1.2 acres, respectively. The finding states that dried sludge is "disposed by a septic hauler." And, it states that the unlined sludge drying beds "are mostly not used" and that four beds (3 through 6) "have been used in emergencies." The Information Sheet identifies "Brisco" as the entity that hauls away and disposes of Facility sludge.

Regarding the construction of the aerobic sludge digester and asphalt-paved sludge drying area, was the underlying soil compacted prior to liner installation and asphalt paving? What is the digester's design hydraulic head? What is liner's design leakage rate (e.g., in terms of gallons/acre/day)? How does the Discharger inspect the digester's liner and asphalt paving for integrity and at what frequency? The screw press filtrate is not depicted on Attachment B – Process Flow Diagram. Please confirm that the filtrate is routed back to the treatment works and consider revising Attachment B to include this waste stream. Also, please confirm that storm water runoff from the asphalt-paved sludge drying area is routed to the treatment works.

Also, according to Google Earth, there is a 2.7-acre area immediately south of the asphalt-paved sludge drying area that, judging from historic imagery (e.g., 9/22/2009, 6/14/2011, 2/20/2014, 2/8/2018, 4/21/2023), appears to be used to stockpile waste (e.g., pond sediment, dried sludge?) What type(s) of waste is stockpiled in this area and does the Discharger intend to continue using this area to stockpile waste? How is storm water runoff from this area managed?

What is the final disposal location(s) of the dried sludge removed by the septic hauler (e.g., a permitted composting facility or biosolids disposal operation?). Regarding the entity that hauls away and disposes of the Facility's sludge, the Information Sheet identifies it simply as "Brisco." Is the entity Jim Brisco Enterprises, Inc.? If so, please consider specifying this entity in Finding 17 and the Information Sheet.

Regarding sludge quality, is there evidence indicating that industrial wastes discharged to the Facility's collection system has degraded sludge quality for metals and other toxic constituents?

Finding 21 of the Tentative Order identifies the Facility's sole Significant Industrial User as Ruiz Foods. According to the California Secretary of State's website, this industrial user's official business name appears to be Ruiz Food Products, Inc.

Please confirm that the business name of the significant industrial user is Ruiz Food Products, Inc. and revise this finding accordingly.

Finding 23 of the Tentative Order indicates that the Discharger's 2022 Report of Waste Discharge (RWD) estimated an area-weighted average percolation rate of approximately 2.65 inches per day. This rate equates to an annual hydraulic loading of as much as 80 feet per year if one or more ponds are maintained full the entire year.

Does the RWD estimate the area-weighted averaged percolation rate in terms of feet per year? If not, is there sufficient monitoring data available for staff to estimate the annual hydraulic loading to the ponds at the current flow and to project what it will be at the maximum permitted flow of 3.0 mgd? This value informs the Regional Board and the public as to how the Facility's hydraulic loading from effluent disposal compares to nearby agricultural land uses.

Finding 28 indicates regional groundwater flows north to south. Finding 29 characterizes the Facility's groundwater monitoring well network as being comprised of ten wells. Three wells, MW-1, MW-2, and MW-3, were installed in the 1990s to monitor groundwater around a former landfill. Two wells, MW-4 and MW-5, were installed to monitor groundwater under the Facility's unlined sludge drying beds. MW-7R is about 830 feet east of the northeast corner of the Facility's northernmost Pond 6, and was installed to monitor upgradient groundwater unaffected by the discharge (and seepage from the former landfill). MW-6A, MW-8, and MW-9 are located immediately downgradient of effluent percolation ponds. MW-9 is also downgradient of the Kennedy Wasteway, an open canal within the Alta Irrigation District. Only four of the ten wells comprising the network can be regularly sampled (MW3, MW-6A, MW-8, and MW-9); the remaining six wells went dry between 2009 and 2015. This finding further states monitoring data "indicate a groundwater mound/ridge is present below the WWTF's percolation ponds… intermittently since at least 2002." The Information Sheet provides more information on the groundwater mounding and states, "Water level elevation maps prepared by the Discharger generally indicate groundwater flow to the northeast in the northeast part of the WWTF and to the southwest at the southwest portion of the Facility."

When was the landfill operated? Was it equipped with a liner to retard landfill leachate from impacting groundwater? What was its depth? What type of waste was accepted? Following its abandonment, was it equipped with a cap of compacted soil to retard infiltration of storm water?

Additionally, because of the landfill's likely impact on groundwater quality, please consider including a finding summarizing the last two years of available data characterizing the quality of groundwater passing through MW-1 and MW-2, as well as through MW-3 during the same period.

Because groundwater elevations are currently lower than the perforated intervals of the network's sole upgradient well and the two wells monitoring groundwater under sludge drying beds, the network is not adequate to assess compliance with groundwater limitations in the Current Order and the Tentative Order. Finding 31 states, in part, "Presently there is no upgradient monitoring well. This Order requires the Discharger to reevaluate the existing monitoring well network to determine if it is adequate for monitoring the Facility's impact on underlying groundwater." Since at least one upgradient monitoring well is necessary for a network to be deemed minimally adequate, it is unclear why this finding implies that the existing network may be adequate for the purposes of evaluating compliance with the Tentative Order's groundwater limitations.

There is sufficient evidence for the Regional Board to find that the Facility's existing groundwater monitoring well network is inadequate to assess groundwater impacts from the Facility's operation (i.e., its discharges of waste activated sludge to the Facility's single-lined aerobic sludge digester, aerobically digested sludge to unlined sludge drying beds, dewatered sludge to asphalt-paved drying area, and effluent to disposal ponds).

It is not unusual for tentative WDR orders proposing to update existing WDR orders that already require groundwater monitoring to identify deficiencies in existing groundwater monitoring well networks (e.g., because one or more existing wells have gone dry or are located in areas that are not representative of the waste discharge under regulation). When I worked for the Regional Board, staff was instructed in these situations to write tentative WDR orders that allowed the Regional Board to find an existing network inadequate, and to require the Discharger to correct this deficiency by installing additional wells, often in specified locations (e.g., upgradient from the discharge, downgradient from sludge drying beds, etc.). Based on my recent conversations with Regional Board staff regarding other tentative WDR orders, it appears that staff has been directed to write findings that sidestep declaring a groundwater monitoring well network inadequate and provisions that, in effect, allows the Discharger to decide whether its network is adequate even though, in staff's professional judgment, it is not. I have been told that the inevitable determination of a network's inadequacy only occurs after the Regional Board adopts the tentative order, as part of staff's review of the technical report submitted pursuant to a provision requiring an assessment of the network's adequacy.

Since the Discharger bears the cost of installing additional groundwater monitoring wells to ensure its monitoring network is adequate for assessing compliance with WDR orders, the Tentative Order should find or otherwise declare the existing network inadequate and identify the areas where additional wells should be installed to regain its adequacy. It should not leave this determination up to staff, via the Executive Officer, following its adoption by the Regional Board.

Please revise Finding 31 to include technical evidence supporting a determination that the Discharger's groundwater monitoring well network – now comprised of only four wells – is adequate for assessing the Discharger's compliance with the tentative Order. If evidence does support such a determination, please revise Finding 31 to proclaim the existing network inadequate and, to be adequate, requires the installation of at least one upgradient monitoring well and at least one monitoring well each downgradient of the single-lined aerobic sludge digester and the asphalt-paved sludge drying area.

Additionally, MW-4 and MW-5 were installed to monitor the effect of sludge discharges to unlined drying beds. These wells apparently went dry almost 15 years ago. The Tentative Order's omission of groundwater data from these two wells may imply that sludge discharges to the Facility's unlined drying beds did not impact groundwater. Ample evidence exists in Regional Board public files demonstrating that discharges of digested municipal wastewater treatment sludge to unlined drying beds often causes underlying

groundwater to contain waste constituents in concentrations exceeding water quality objectives and, therefore, are inconsistent with the State's Antidegradation Policy. Inclusion of groundwater data for this Facility informs the Regional Board and the public of the adverse impacts to groundwater from the use of unlined sludge drying beds at municipal wastewater treatment facilities.

To document the extent to which the use of unlined sludge drying beds have impacted underlying groundwater, please include a finding that characterizes the quality of groundwater passing through MW-4 and MW-5 for at least the last two years in which data are available. The groundwater quality characterization should include EC, total dissolved solids, calcium, magnesium, alkalinity (identified as "carbonate" in Monitoring and Reporting Program No. 95-200), nitrate, and iron.

Lastly, groundwater passing through MW-3, close to the former landfill and former dried sludge area, is of lower quality than groundwater passing through MW-6A and MW-8, which monitor groundwater directly downgradient of disposal ponds and is not influenced by the seepage of higher quality surface water conveyed in the Kennedy Wasteway. It appears that this lower quality may be attributable to the influence of waste constituents originating from the former landfill and likely the former dried sludge area. Please consider revising Finding 31 to indicate this apparent influence.

Flow Limitation C.1, which limits monthly average dry weather flow to 3.0 mgd, is carried over from the Current Order. As discussed above, the Tentative Order does not present influent flow data for dry versus wet weather months to support restricting the 3.0-mgd flow limitation to dry weather months. If influent flow data does not indicate the Facility experiences significant inflow and infiltration during wet weather months, this restriction appears unnecessary and unwarranted.

Please consider removing the qualifier "dry weather" from Flow Limitation C.1. Alternatively, please provide data and analysis in the findings that support restricting compliance with this limitation to dry weather months.

Discharge Specification F.3 refers to "permitted wastewater ponds and conveyance structure."

Are the "wastewater ponds" referenced in this specification the same as the evaporation/percolation ponds referenced elsewhere in the Tentative Order? If so, please consider revising this specification to use the term, "evaporation/percolation ponds." And, what is the "conveyance structure" referenced in this specification?

Groundwater Limitation G.2 is carried over from the Current Order's Groundwater Limitation E.3, except that it excludes salinity and nitrate. Groundwater monitoring data presented elsewhere in the Tentative Order indicates that the discharge has not caused groundwater to exceed the drinking water maximum contaminant level (MCL) of 10 mg/L for nitrate as nitrogen, nor has it caused it to exceed the drinking water MCL for EC of 900

to 1,600 µmhos/cm. The Tentative Order does not provide sufficient technical justification for this apparent backsliding in groundwater limitations. Failure to include numerical groundwater limitations for salinity and nitrate that are protective of groundwater's designated use for municipal and domestic supply means the Tentative Order is not adequately protective of groundwater. As such, it appears the Tentative Order is not consistent with the Antidegradation Policy.

Also, Groundwater Limitation G.3 is a narrative limitation that, when translated into numerical terms, would establish a limitation for nitrate-nitrogen of 10 mg/L to protect groundwater's beneficial use for municipal and domestic supply. Further, Discharge Prohibition B.2 prohibits the discharge from causing a condition of pollution which, in the case of nitrate-nitrogen, means causing groundwater to contain nitrate-nitrogen in concentrations exceeding 10 mg/L. Consequently, the exclusion of nitrate in Groundwater Limitation G.2 is inconsistent with Groundwater Limitation G.3 and Discharge Prohibition B.2.

Please revise Groundwater Limitation G.2 to eliminate its exclusion of salinity and nitrate. Alternatively, provide technical justification for this exclusion and explain why this exclusion qualifies the Tentative Order as being consistent with the Antidegradation Policy.

Provision J.4 requires the Discharger to submit a Sludge Management Plan. It identifies the plan's components, many of which appear to not be applicable to the Facility. Rather, it appears to be a copy-and-paste version that may appear in other WDR orders, something akin to a generic sludge management plan that has not been customized to reflect the Facility's current and planned operations. Failure to customize this plan for the Facility would appear to constitute an unreasonable burden on the Discharger's staff and consultants, who must decide how to comply with its many requirements.

For example, its subsections b and c refer to "supernatant," which is a waste stream associated with anaerobic sludge digestion. The Facility features aerobic sludge digestion in a single-lined surface impoundment. Aerobic sludge digestion is typically a mixed operation, so there would appear to be no supernatant waste stream. These subsections should include screw press filtrate.

The Information Sheet states (IS-4) that: "The Discharger also stated some supernatant from the aerobic sludge digester had been sent to one of the drying beds around January 2023 due to the screw press being out of service."

Please confirm in the Information Sheet that the Discharger's reference to supernatant is accurate. Was it simply waste activated sludge? Or, were the digester's mixers turned off to allow supernatant to separate from sludge and it was this liquid waste stream discharged to the drying beds?

Also, subsection b refers to "proposed storage, processing, and disposal systems." The Tentative Order indicates the Discharger intends to install a second screw press. But, beyond that, does not specify other proposed systems.

Please consider revising this provision to be specific to the Facility's current and proposed operation.

Provision J.5 states the Unlined Sludge Surfaces Closure Work Plan is subject to Regional Board approval. As such, it implies that the Regional Board would have to adopt a resolution approving the plan. It is unlikely that this is what staff meant when writing this provision.

Please consider revising this provision to make the plan subject to Executive Officer approval.

Provision J.6, regarding the submittal of a Groundwater Monitoring Work Plan, states, in part, that: "Specifically, the work plan shall propose the necessary groundwater monitoring wells to ensure the network can adequately characterize upgradient and downgradient conditions around the percolation/evaporation ponds." The aerobic digester is equipped with a single liner. Because all liners leak, the network must include a monitoring well immediately downgradient of the digester in order to monitor excessive leakage from the liner due to puncture or seam damage or deterioration. Also, asphalt paving is not impervious. Liquid draining from dewatered sludge or stormwater contaminated from contact with dewatered sludge infiltrates into soil from cracks in the asphalt paving. To ensure the paving is maintained in optimal condition, the network also requires one well immediately downgradient of this area.

Please revise this provision to specify the network must also include a well immediately downgradient of the aerobic sludge digester and another well immediately downgradient of the asphalt-paved dewatered sludge drying area. Alternatively, provide technical justification in the response to comments that these wells are not necessary for evaluating compliance with the Tentative Order's groundwater limitations.

Monitoring and Reporting Program (MRP). The Pond Monitoring section does not include monitoring of wastewater discharged to Pond 6 under emergency situations. It also does not include monitoring of wastewater from Pond 6 back to the treatment works. If the Discharger does have the wherewithal to return wastewater in Pond 6 to the treatment works, the MRP should require reporting of when this water is returned for proper treatment and disposal.

Please revise the Pond Monitoring to include monitoring and reporting of (1) untreated or partially-treated wastewater flows discharged to Pond 6 and (2) wastewater stored in Pond 6 discharged back to the treatment works.

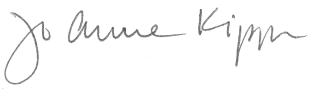
The MRP's Table 6 for Groundwater Monitoring does not include metals. Because of the potential for municipal wastewater and sludge to contain metals, it would appear appropriate and prudent for this table to include at least annual groundwater monitoring of metals.

Please revise Table 6 to include annual monitoring of groundwater for metals.

The MRP does not include monitoring of sludge removed from ponds. The Tentative Order also does not discuss this (e.g., known frequencies of pond sludge removal, method(s) of dewatering, storing, and disposing of pond sludge, etc.).

Please revise the Tentative Order and MPR to address the removal, management, and disposal of pond sludge.

Thank you for your time and consideration.



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