



Linda S. Adams
Secretary for
Environmental
Protection

**California Regional Water Quality Control Board
Central Valley Region**

Karl E. Longley, ScD, PE, Chair



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**Arnold
Schwarzenegger**
Governor

Fresno Branch Office
1685 E Street, Fresno, California 93706
(559) 445-5116 • Fax (559) 445-5910
<http://www.waterboards.ca.gov/centralvalley>

7 August 2007

Mr. William Van Scyoc, Board President
Pixley Public Utility District
P.O. Box 535
Pixley, CA 93256

**RESPONSE TO COMMENTS DRAFT CEASE AND DESIST ORDER AND
TENTATIVE WASTE DISCHARGE REQUIREMENTS, PIXLEY PUBLIC UTILITY
DISTRICT WASTEWATER TREATMENT FACILITY, TULARE COUNTY**

The enclosed memorandum addresses Regional Water Board staff's response to comments regarding the draft Cease and Desist Order (CDO) and tentative Waste Discharge Requirements (WDRs) for Pixley Public Utility District's Wastewater Treatment Facility (WWTF). Written comments regarding the proposed Orders were submitted by Mr. Michael Taylor of Provost & Pritchard Engineering Group in a letter dated 24 July 2007.

If you have any questions regarding this matter, please contact Katie Carpenter at (559) 445-5551.

DOUGLAS K. PATTESON
Senior Engineer
RCE No. 55985

Enclosure: 7 August 2007 Regional Water Board staff memorandum

cc with encl: Mr. Michael Taylor, Provost & Pritchard Engineering Group, Inc., Fresno

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TO: Doug Patteson *DKP*
Senior WRCE

FROM: Katie Carpenter
Engineering Geologist

DATE: 7 August 2007

SIGNATURE: *Katie Carpenter*

SUBJECT: **COMMENTS ON DRAFT CEASE AND DESIST ORDER AND TENTATIVE WASTE DISCHARGE REQUIREMENTS, PIXLEY PUBLIC UTILITY DISTRICT WASTEWATER TREATMENT FACILITY, TULARE COUNTY**

Tentative Waste Discharge Requirement (WDRs) and a draft Cease and Desist Order (CDO) for Pixley Public Utility District's, Wastewater Treatment Facility (WWTF) were posted for public review. Written comments regarding the proposed Orders were received from Mr. Michael Taylor of Provost & Pritchard Engineering Group (the Discharger's consultant) in a letter dated 24 July 2007.

Provost & Pritchard's comments are summarized below, followed by my responses.

COMMENTS ON THE DRAFT CEASE AND DESIST ORDER

COMMENT 1: It is understood that the existing flowrate received at the WWTF is 0.29 mgd. The CDO (Order no. 5-00-097) and the existing WDRs (Order No. R5-2000-096) identify the present design capacity as 0.29 mgd. The reference to 0.252 mgd should be revised to 0.29 mgd.

RESPONSE: *The CDO will be revised to reflect this comment.*

COMMENT 2 (Task 2.a): The task requires a detailed quality assurance/quality control plan. As discussed with Kathleen Carpenter, the quality assurance/quality control plan was intended to address the construction of the sludge drying beds. No specific permeability criteria is intended or defined for the sludge drying beds. Construction activities will be reviewed and monitored by the Pixley Public Utility District to maintain conformance with the plans and specifications prepared for the project.

RESPONSE: *As part of Task 2.a of the CDO, the Discharger is required to submit a work plan with final design specifications for the Expansion Project and sludge drying beds. The design needs to include an estimate of infiltration and a demonstration that the storage ponds and drying beds will be protective of groundwater quality. A quality assurance/quality control plan is necessary to document (including testing results) that the ponds and drying beds are constructed to meet all design specifications. Final construction will need to be certified by a California Registered Civil Engineer.*

COMMENT 3 (Task 2.c): There is reference to a certification report for the lined sludge drying beds. However, there is no requirement defined for said lining. Please provide the requirements, and reference thereto, for specific performance requirements. It is understood that the purpose of the comment is that there might be influence of the sludge drying beds on groundwater. Groundwater monitoring results are not consistent or conclusive. It is noted that the amount of water percolated to groundwater from the treatment and disposal ponds is significantly greater than any contribution from the existing sludge drying beds. Previous information supplied in the RWD identifies concerns with the theory that the sludge beds impact local groundwater. Additional information regarding estimated contribution from the existing ponds and sludge drying beds can be forwarded for review if requested.

RESPONSE: There is no specific performance requirement for the sludge drying beds. The design of the sludge drying beds needs to include an evaluation of infiltration from the beds and a demonstration that such infiltration and percolation of waste constituents will not unreasonably degrade underlying groundwater.

COMMENTS ON THE TENTATIVE WASTE DISCHARGE REQUIREMENTS

COMMENTS 1 & 2 (Findings 16 and 17): The proposed expansion will not include a grinder or a Parshall flume. The lift station will discharge to a forced main that will include a magnetic flowmeter, and the headworks will include a self cleaning screen instead of a grinder. The proposed treatment system will not be extended aeration with three aerated settling ponds, instead the treatment process will include two aerated basins, with nitrification and denitrification. The process will include two clarifiers and an aerated sludge digester.

RESPONSE: This is different from the treatment process described in the RWD. Findings 16 and 17 will be revised as follows to reflect these comments.

(Finding 16) ~~The RWD describes the District's plans to upgrade the existing headworks and lift station provide a hydraulic capacity of 0.5 mgd and provide redundancy in case of emergencies. The headworks would include a grinder, a by-pass channel with a bar screen, and a Parshall flume with recording flow meter. The new headworks will include a self-cleaning spiral fine mesh screen to remove solids, and a triplex pumping lift station that will discharge to a force main with a magnetic flow meter. include a wet well with a triplex pumping station, which would discharge to an extended aeration biological treatment system.~~

(Finding 17) ~~The RWD describes the District's Plans for the expansion project include to construction of a new extended aeration biological treatment system to replace the existing clarigester and mechanical aerated pond system. The treatment process includes new treatment system will include two aerated basins with an anoxic tank for nitrification and denitrification an anoxic step to reduce nitrogen in the effluent, two clarifiers, and an aerated sludge digester. The expansion project will also include construction of a new WWTF will consist of a complete mix aeration basin, three aerated settling ponds, effluent storage ponds, modification of the existing pond system, and new lined sludge handling and storage facilities.~~

COMMENT 3 (Finding 18): The revised water balance indicates a need for approximately 3.8 acres of surface area. The new pond will include approximately 45.1 acre-feet of storage. The revised water balance incorporates a percolation rate of 1 inch/day for the new pond,

which is approximately 75 times slower than the percolation test results obtained from the geotechnical report.

RESPONSE: The revised water balance includes percolation as a disposal method based on a percolation rate of 1 inch/day for the new pond. The original water balance in the RWD included a percolation rate of 0.1 inch/day based on plans to limit the amount of percolation from the ponds prior to the finalization of plans to include nitrogen removal as part of the treatment system. Finding 18 will be revised as follows to reflect these changes:

A revised water balance presented in the RWD submitted by the Discharger indicates that the District will need approximately 127 470 acre-feet of effluent storage. The District plans to retain the existing stabilization/storage ponds with a combined capacity of about 82 acre-feet, and construct a new 3.8 acre effluent storage pond at the WWTF with a capacity of about 45 88 acre-feet and a percolation rate of about 1 inch/day, based on percolation tests conducted on the property, to achieve the necessary storage capacity.

COMMENT 4 (Finding 19): The RWD does not address ammonia. It is recommended that ammonia not be included as a performance parameter. It is also requested that pursuant to the letter from the RWQCB 29 December 2004, that total nitrogen limit of 10 mg/L be the only nitrogen performance parameter. In addition, the RWD does not state the process will achieve effluent quality as stated in the draft requirements for BOD and TSS. The process will achieve the present limits of 40 mg/l for BOD and TSS.

RESPONSE: The projected effluent quality was taken from the specification sheet for the proposed treatment system included as an appendix in the RWD. Finding 19 will be changed as follows:

The Discharger projects RWD indicates that the proposed discharge will achieve the following effluent quality.

Constituent/Parameter	Units ¹	Monthly Average
Monthly Average Discharge Flow	mgd	0.5
pH	s.u.	6.0-9.0 ²
BOD ₅ ³	mg/L	40 40
TSS ⁴	mg/L	45 40
Ammonia as Nitrogen	mg/L	4
Nitrate as NO ₃	mg/L	8
Total Nitrogen	mg/L	10

1 mgd = million gallons per day. mg/L = milligrams per liter

2 Shown as a daily minimum and maximum range

3 5-day biochemical oxygen demand (BOD)

4 Total suspended solids (TSS)

COMMENT 5 (Finding 25): Note the revised size of the proposed effluent storage pond. Note that effluent nitrogen limits will decrease the amount of nitrogen available to the reclamation area.

RESPONSE: *Finding 25 will be revised as follows:*

(Finding 25) The revised water balance RWD demonstrates that with the existing 82 acre feet of storage capacity and the addition of the proposed 3.874-acre effluent storage pond, with approximately 45 acre-feet of additional storage capacity, the Reclamation Area will be sufficient to maintain the water balance at the proposed flow capacity of 0.5 mgd. Based upon a maximum permitted daily flow limit of 0.5 mgd, the hydraulic load to the Reclamation Area would be about 441 acre-feet/year. With a nitrogen concentration of 25 mg/L in the effluent (based on current wastewater characteristics), the nitrogen provided to the Reclamation Area would only satisfy between 30 and 50 percent of the crop demand, based on a nitrogen uptake of 480 lbs/acre/year for alfalfa as shown in the Western Fertilizer Handbook. This would decrease with the introduction of a nitrogen reduction process in the treatment system as part of the Expansion Project.

COMMENT 6 (Findings 32 and 34): These two items appear to contradict each other. It is recommended that the statement in Finding 32 be deleted since Finding 34 is more specific to the site.

RESPONSE: *Finding 32 will be revised as follows:*

(Finding 32) Regional groundwater in the area vicinity of the WWTF is generally encountered at about 200 feet below ground surface (bgs) and flows northwesterly, according to information in *Lines of Equal Elevation of Water in Wells in Unconfined Aquifer*, published by Department of Water Resources in Spring 2004.

COMMENT 7 (Finding 35): It is noted that the monitoring well near the sludge drying beds (MW-1) is neither up-gradient or down-gradient. The well is directly adjacent to the treatment ponds. It does not represent groundwater up-gradient or down-gradient of the facilities.

RESPONSE: *MW-1 is south of the WWTF and the effluent storage ponds, which is generally up gradient or cross gradient of the WWTF. Due to the close proximity of MW-1 to the effluent storage ponds (about 120 feet) and the existing sludge drying beds (about 10 feet) it should not be considered to represent background conditions. The gradient information will be removed from the table in Finding 35 and incorporated into a narrative description in Finding 34.*

(Finding 34) The Discharger installed three groundwater-monitoring wells around the WWTF and the existing Reclamation Area in 2001. MW-1, directly south of the WWTF, is within 10 feet of the existing unlined sludge drying beds and 120 feet of the effluent storage ponds. MW-2, at the southwestern boundary of the property, is generally up-gradient of the WWTF and within 300 feet of the effluent storage ponds. MW-3, at the southeastern corner of the Reclamation Area, is generally down-gradient of the WWTF and effluent storage ponds. Since 2001, depth-to-groundwater has ranged between 130 to 160 feet bsg. The three monitoring wells were reported as dry in 2005 but recovered in 2006. Groundwater data shows that the flow direction in the area has varied somewhat, but that it is generally to the north-northeast or northwest.

COMMENT 8 (Finding 36): Note that the results of groundwater monitoring do not lead to a clear conclusion. Concentration of electroconductivity in MW-1 is greater than the effluent of the existing plant. It is unclear how the potential percolation from the existing plant could

cause electroconductivity of groundwater to increase to a concentration greater than the effluent. If MW-2 is actually up-gradient and MW-3 is down-gradient (some of the time), the electroconductivity results indicate there is no impact. Concentrations increase in a certain direction for a specific constituent yet another potential constituent will decrease in concentration for the same direction. Please note that Finding 34 states that groundwater is found between 130 and 160 feet below surface. Is this considered shallow groundwater?

RESPONSE: *It is possible that salt accumulation and concentration through evaporation in the unlined sludge drying beds increased the concentrations of salts infiltrating from the WWTF to concentrations that are higher than in the current effluent.*

Results from MW-2 (up-gradient) and MW-3 (down-gradient) do not indicate an increase in EC. However, the EC of the effluent is in the same approximate range as in both wells (570 to 690 umho/cm). Additionally, both wells are more than 700 feet from the unlined sludge drying beds. Results do show an increase in nitrate concentrations between MW-2 (3.4 to 5 mg/L as N) and MW-3 (11.6 to 14.8 mg/L as N). The most logical source of the increase is from percolated effluent, which has a total nitrogen concentration of approximately 25 mg/L.

The term "shallow groundwater" will be replaced by "first-encountered groundwater."

COMMENT 9 (Finding 43): The word "then" in the last line should be changed to "than".

RESPONSE: *Finding 43 will be revised to reflect this comment.*

COMMENT 10 (Finding 46): Please note that the treatment process will reduce nitrogen, not remove it entirely.

RESPONSE: *Finding 46 will be revised as follows:*

The Expansion Project described in Findings 15 through 19, once completed, provides treatment and control of the discharge that incorporates:

- a. secondary treatment;
- b. a nitrogen reduction process ~~removal treatment process~~;
- c. appropriate biosolids storage and disposal practices;
- d. an operation and maintenance (O&M) manual; and
- e. certified operators to ensure proper operation and maintenance.

COMMENT 11 (Groundwater Limitations F.1.a(ii)): Please note that the treatment facilities are not required to disinfect the effluent. It is requested that this item be removed.

RESPONSE: *The references to specific constituents (e.g., coliform) will be removed and Groundwater Limitation F.1 will be revised as follows:*

Release of waste constituents from any treatment, storage, or recycling component associated with the WWTF shall not cause or contribute to groundwater containing:

- a. Constituents identified in Title 22 at concentrations in excess of the MCLs quantified therein, or natural background quality (as determined in Finding 36 and updated as appropriate as a result of ongoing monitoring), whichever is greater.
- b. Taste or odor-producing constituents, or toxic substances, or any other constituents in concentrations that cause nuisance or adversely affect beneficial uses.

COMMENT 12 (Attachment B): Please note that there is no distribution weir (replaced with a distribution box). Grit removal is an optional item (depending on available funds). The anoxic tank has been incorporated into the aeration tanks.

RESPONSE: *Attachment B will be revised to reflect this comment.*

COMMENT 13 (Info Sheet): Please refer to comments in the CDO regarding permeability of the proposed liner of the sludge drying beds. What is required at other existing sludge drying beds?

RESPONSE: *Consistent with what has been required at other facilities, the specifications for the proposed sludge drying beds will need to include an estimate of infiltration and a demonstration that the storage ponds and drying beds will be protective of groundwater quality.*

COMMENT 14 (Groundwater Monitoring): It is requested that sampling of iron and manganese be revised to annual, and that coliform sampling be deleted since the treatment facilities are not required to disinfect.

RESPONSE: *The monitoring requirements will be revised to reflect this comment.*

COMMENT 15 (Groundwater Monitoring): It is requested that the sampling frequency of the water supply wells be as required by the DHS (once every 3 years) for general minerals, iron, and manganese. The source water is groundwater and not expected to vary from year to year.

RESPONSE: *The sampling frequency for general minerals, iron, and manganese will be reduced from annually to once every three years. Source water monitoring for EC will remain quarterly.*

OTHER ITEMS REVISIONS

To be consistent with recently adopted WDRs (i.e., City of San Joaquin), the following revisions should be made:

Revise Finding 21 as follows:

~~“On 2 May 2006, the State Water Board adopted Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality General Order No. 2006-003-DWQ (General Order). The General Order requires all public agencies that own or operate sanitary sewer systems greater than one mile in length to comply with the Order. The Discharger’s collection system is greater than one mile in length; therefore, the General Order is applicable. The application or Notice of Intent (NOI) for coverage under the general permit must be submitted to the State Water Resources Control Board by 1 November 2007.”~~

And add the following provision prior to Provision G.12:

“The Discharger shall obtain coverage under, and comply with, Statewide General Waste Discharge Requirements For Sanitary Sewer Systems, Water Quality Order No. 2006-003-DWQ.”