



# California Regional Water Quality Control Board Central Valley Region

Karl E. Longley, ScD, P.E., Chair

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



Arnold  
Schwarzenegger  
Governor

Linda S. Adams  
Secretary for  
Environmental  
Protection

TO: Lonnie M Wass  
Supervising Engineer

FROM: W Dale Harvey  
Senior WRC Engineer  
RCE No. 55628

SIGNATURE: \_\_\_\_\_

Debra Bates  
Water Resource Control Engineer

DATE: 19 August 2009

SIGNATURE: \_\_\_\_\_

**SUBJECT: STUDY EVALUATING TREATMENT AND DISPOSAL FACILITIES, MALAGA COUNTY WATER DISTRICT, FRESNO COUNTY**

## BACKGROUND

Malaga County Water District (District) owns and operates a wastewater treatment facility (WWTF) that serves the unincorporated community of Malaga and provides sewerage services to its approximately 1000 residents and various light industries. The WWTF consists of a 1.2 mgd activated sludge secondary treatment system with dissolved air flotation/primary clarification, aeration basins, and three secondary clarifiers, and a tertiary treatment component.

Waste Discharge Requirements Order No. R5-2008-0033 authorizes discharge of up to 0.45 mgd of disinfected tertiary treated wastewater to the Central Canal. The portion of the 1.2 mgd not further treated to tertiary levels is discharged to evaporation/percolation ponds (ponds). Self Monitoring Reports submitted by the District indicate the average monthly influent flow for the first eight months of 2007, was 0.87 mgd, and in September was 1.02 mgd.

Cease and Desist Order (CDO) No. R5-2008-0032, Item 3, requires the District to submit a study evaluating the WWTF treatment and disposal capacity and proposing a work plan and time schedule to implement short-term and long-term measures to meet WWTF treatment and disposal needs through at least 2028. The required technical report is to include actions to generate appropriate population and WWTF flow projections and their rationale.

The CDO cites California Code of Regulations (CCR), Title 23, section 2232 (d), which states that whenever a regional board finds that a publicly owned wastewater treatment plant will reach capacity within four years and that adequate steps are not being taken to address the capacity problem, it shall adopt a time schedule or other enforcement order.

The CDO does not specifically address other sections of CCR, Title 23, section 2232, which state that whenever a regional board finds that a publicly owned wastewater treatment plant will reach capacity within four years, the discharger is required to submit a technical report

showing how flow volumes will be prevented from exceeding existing capacity or how capacity will be increased. The technical report is to include appropriate population and WWTF flow projections and their rationale. Additionally, the technical report is to be reviewed, approved, and jointly submitted by all planning and building departments having jurisdiction in the area served by the waste collection, treatment, and disposal facility; and public participation is required during preparation of the technical report.

On 28 July 2008, Provost and Pritchard Engineering Group (P&P) submitted a technical report entitled "Study Evaluating Treatment and Disposal Facilities" (P&P Report), to fulfill the CDO requirement. Below is a summary of information provided in the P&P Report, followed by our comments.

### Flow Rate and Characteristics

P&P reviewed influent monthly average metered flow rates from 1990 to 2007. The flow rates varied up to 0.2 mgd from month to month and the District was unable to account for the fluctuation in flow. The metered flow rates were discovered to be inaccurate during a facility inspection, as they include grit wash tank recirculation.

The P&P report states the anticipated annual increase in flow for the next 20 years is 0.011 mgd, based on the review of monthly flow rate increases. Table 3, based on this number, projects the 2013 flow rate at 0.926 mgd and the 2028 flow rate to be 1.091 mgd.

Table 2 identifies vacant land use according to zoning type and estimates that the future potential sewage contribution from undeveloped land within the District could be 2.9 mgd. According to minutes from the District board meetings, the District has been annexing property into the District, which would further increase potential sewage contribution.

Information from SMRs for 2008 indicates average monthly influent flows, deducting an estimated 0.1 mgd for the grit wash recirculation, for May through December at 0.909, 0.98, 0.956, 1.12, 0.91, 0.63, 0.90, and 0.87, respectively.

### Treatment Facilities

Based on the projected flow rate discussed above of 1.091 mgd, the P&P Report indicates the barminutor, dissolved air flotation (DAF) clarifier, activated sludge tanks, and sludge digesters have adequate treatment capacity (all units have a design capacity of 1.2 mgd). The DAF clarifier is currently out of service and has been out of service for four years. The submitted timeline indicates the unit will be back in service by January 2009. P&P now indicates the completion date for the DAF repair is 30 September 2009. The total capacity of all three of the secondary clarifiers is given as 1.65 mgd, accounting for redundancy and the ability to meet periodic high influent flow rates. Currently only one secondary clarifier is operational, providing a capacity of 0.823 mgd. The remaining two secondary clarifiers have been out of service for two and twenty years, respectively. The repair completion date for the clarifiers is also 30 September 2009.

The P&P Report indicates the activated sludge tanks have a current capacity of 1.2 mgd. The P&P Report indicates the District was evaluating the existing activated sludge units to improve ammonia treatment and would recommend improvements or modification to the present operation by September 2008. The District is required by WDR Order No. R5-2008-0033 to

conduct a treatment feasibility study for removal of ammonia. A work plan for the treatment feasibility study was due by 14 July 2008 and to date has not been submitted.

According to the P&P Report, the sludge digestion system has a current capacity of 1.2 mgd. The sludge thickener is out of service with repairs scheduled for September 2008, but not yet completed. Sludge bed capacity is not included in the Study. It indicates that soil-cement lining of the third sludge bed is scheduled for 2009. The District indicated on 3 August 2009 that it has obtained funding to line the third bed.

The tertiary treatment system has a reported capacity of 0.45 mgd. Tertiary treated water is discharged to the Fresno Irrigation District. The Fresno Irrigation District has asked the District to find another disposal option, making additional tertiary capacity unnecessary.

### Disposal Facilities

The P&P Report indicates that the District does not currently have adequate disposal capacity. The P&P Report refers to previously submitted water balances which show that an additional 13.26 acres of ponds are needed to accommodate current flow rates. An additional 27.26 acres of ponds would be necessary to accommodate the design capacity of 1.2 mgd, which would be needed if disposal to Fresno Irrigation District is discontinued. Disposal alternatives discussed in the P&P Report include District purchase of additional land for additional disposal ponds and a statement that the District, within 45 days from the date of the P&P Report submittal, would be evaluating options for reclamation for irrigation or landscaping or for agricultural purposes. No additional disposal studies have been submitted by the District to date.

The P&P Report indicates there was a November 2007 contact with Caltrans and Caltrans indicated a willingness to receive treated effluent. The P&P Report does not provide any evidence of follow-up with Caltrans.

The P&P Report contends that agricultural property owners in the vicinity of the treatment plant are not interested in using recycled water. The P&P Report does not include documentation of any proposals made to the property owners regarding water reclamation for irrigation or other evidence to support this conclusion.

The submitted work plan in the P&P Report indicates that within 30 days from the date of the submittal, the District will be conducting additional property research, contacting property owners and considering a moratorium on new connections until additional capacity is secured. The District indicates that within 60 days of the submittal, it will be entering negotiations for purchase or long-term lease of a property for disposal ponds. The District has not submitted any information regarding these negotiations.

### Planning and Department Review

The P&P Report does not provide any indications of involvement by the District's Board of Directors or the planning and building departments having jurisdiction in the area, in preparation of the P&P Report.

## Public Participation

The P&P Report does not provide any indication of public participation in preparation of the P&P Report.

## COMMENTS

### Flow Rate and Characteristics

The P&P Report estimates future flow rate based on several different methods: past flow data, potential use of vacant lands, previous growth rate, etc. The P&P Report also indicates that the District has not identified the cause for periodic high flows and that the current flow is an estimate because of the recirculated flow. P&P's final effluent flow projected for 2028 is 1.091mgd. This projection is below the flow currently reported for some monthly averages in current SMRs. It is far below that necessary to accommodate a flow of an additional 2.9 mgd that would be needed for the projected build-out of vacant property in the District. For these reasons, the flows and projections need to be revised.

### Treatment Facilities

The information provided in the P&P Report appears adequate to address the current permitted flow provided the repairs to out of service components are completed. As of the date of this memorandum, the repairs have not been completed. Recent history indicates the District does not have the resources to properly maintain its WWTF. Expansion beyond 1.2 mgd will require additional treatment capacity. Revision of the flow projection may require revision of short-term and long-term measures for some treatment components.

Soil cement lined sludge beds tend to crack which would lead to the sludge decant percolating to underlying groundwater. The P&P Report needs to demonstrate that soil cement lined sludge beds will be protective of water quality.

### Disposal Facilities

The P&P Report concludes that action to enhance disposal capacity is critical and proposes purchase of acreage to add additional ponds. Before additional acreage is secured, the District needs to consider other disposal options and provide evidence that adding additional disposal ponds is the best alternative. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (Basin Plan) requires dischargers of municipal wastewater to maximize reclamation. In February 2009, the State Water Resources Control Board adopted a recycled water policy including the goals for increasing the use of recycled water. A proposal for recycling water, including all options for agriculture and landscaping, needs to be presented and the District needs to provide evidence that it is infeasible before it pursues other options. Additionally, the Basin Plan notes that proliferation of small treatment plants in developed areas is undesirable and most small communities do not have adequate resources to properly manage, treat, and dispose of wastewater in an urban environment. The Basin Plan encourages treatment plant consolidation as "the rule, rather than the exception." Board Resolution No. R5-2009-0028 *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants*, reiterates the commitment to regionalization.

The District needs to provide a proposal for consolidation with the Fresno-Clovis Regional Wastewater Treatment Facility. Only if consolidation is shown to be infeasible will other options be acceptable.

The District submitted the P&P Report in July 2008. The short-term measures and time schedule regarding land acquisition, pond maintenance, and securing financing should have already occurred and the current status of those measures needs to be updated.

#### Planning and Department Review

Documentation of review and approval by the appropriate agencies needs to be included in a revised report, to comply with CCR Title 23, section 2232.

#### Public Participation

Documentation of public participation in the preparation of the report needs to be included in a revised report, to comply with CCR Title 23, section 2232.

### SUMMARY

The P&P Report needs to be revised to include the following items:

1. Revision of the short-term and long-term flow projections.
2. Revision of the work plan for short-term and long-term expansion of design capacity, based on the projected flow rate that is justified by additional analysis, as discussed above.
3. Reclamation proposals, including documentation of a proposal to Caltrans, and evidence that reclamation is infeasible before other disposal options are pursued.
4. Review consolidation with the Fresno-Clovis Regional Wastewater Treatment Facility.
5. An updated work plan and time schedule for implementation of short-term and long term measures to insure compliance with waste discharge requirements.
6. A demonstration that soil cement lined sludge beds will be protective of groundwater quality.
7. Documentation of review and approval by the District Board of Directors and the planning and building departments having jurisdiction in the area, in accordance with CCR Title 23.
8. Documentation of public participation in the report preparation, in accordance with CCR Title 23.