

STATE OF CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Petition of )  
GREENBELT ALLIANCE, ET AL. )  
For Review of Waste Discharge )  
Requirements Order No. 88-194 for )  
the City of Brentwood, California )  
Regional Water Quality Control Board, )  
Central Valley Region. Our File )  
No. A-589. )

ORDER NO. WQ 89-19

BY THE BOARD:

On October 28, 1988, the California Regional Water Quality Control Board, Central Valley Region (Regional Board) adopted Order No. 88-194, waste discharge requirements for the City of Brentwood, Wastewater Treatment Plant, Contra Costa County. A timely petition for review was filed by Greenbelt Alliance on behalf of Sierra Club Bay Chapter, Mt. Diablo Audubon Society, Brentwood Citizens for Quality Growth, Naomi Geddes, John Geddes, Jerilee Geddes, and Mark Dwelly (petitioners). The petition was deemed complete on March 3, 1989.

I. BACKGROUND

The City of Brentwood operates a secondary wastewater treatment and disposal system consisting of screening, oxidation, clarification, and soil percolation. Included in the system is an oxidation ditch and 2.5 acres of percolation ponds. The system has been regulated by Regional Board Order No. 76-116 and

has a design capacity of .6 mgd. The current disposal rate is .5 to .6 mgd. The existing facility has been operational for 40 years and is constructed on sandy soils adjacent to Marsh Creek on the eastern slope of Mt. Diablo.

The City has proposed to expand the capacity of the treatment facility to 1.8 mgd. to include a second oxidation ditch, a second clarifier, expanded percolation area to 18 acres, an overland flow area, an emergency storage pond, a ground water extraction system set back 200 feet from the ponds and Marsh Creek, and a discharge from the extraction system to Marsh Creek at two locations. The ground water extraction system would have a 1.8 mgd. discharge capacity and would consist of a French drain system with extraction by gravity flow or pumping. The final Environmental Impact Report (EIR) for the proposal was adopted by the City on April 12, 1988.

The Regional Board adopted Order No. 88-194, waste discharge requirements for the proposed expansion, which contains discharge prohibitions, specifications, and provisions which relate primarily to the land disposal area.

## II. CONTENTIONS AND FINDINGS

1. Contention: Petitioners contend that beneficial uses of ground water will be adversely affected by the proposed waste discharge.

Findings: The municipal, domestic, and agricultural uses of the ground water appear to be adequately protected from

wastewater contamination from the proposed expansion. The available data also suggests that the enlarged treatment and disposal facility would actually lower wastewater areal application rates and reduce infiltration to adjacent property, thereby alleviating problems associated with poor quality shallow ground water in the area.

Surficial soils in the area consist of alluvial fan and valley fill deposits. At the treatment plant site, these sediments are overlaid by dunes of very fine sand. Wastewater readily infiltrates these sandy soils. A clay layer is evident below the sandy soils. However, data is inadequate to unequivocally assess the thickness or continuity of this layer. Thus, it cannot be concluded that the clay layer is an effective barrier to vertical percolation of wastewater effluent.

Although the continuity of the clay layer is unclear, there is evidence in the record that municipal wells near the treatment facility pump from a confined aquifer which is isolated from shallow ground water. Petitioners raise specific concerns regarding new municipal supply well No. 7 which is 2,300 feet upgradient from the treatment area and pumps from a depth of 275 feet. This well is protected from surface water contamination in accordance with accepted well construction practices. Pump test data indicate that the water supply comes from a confined aquifer separated from perched ground water by a clay layer and that this well has met drinking water standards since its construction.

There is a water supply well located on-site between the oxidation ditch and the disposal ponds. However, this well pumps from a deep, confined aquifer, is properly sealed, and the well has consistently met nitrate and fecal coliform standards.

A number of private wells are located within a two-mile radius of the treatment facility. These wells draw water from 100 to 300 feet below the surface. Despite the possibility of some of these wells serving as conduits for shallow surface water flow to deeper aquifers, contamination of these wells by municipal wastewater is highly unlikely because these wells are an adequate distance from the wastewater disposal site. The EIR indicates that all private wells are at least 2,000 feet from the treatment facility. Contaminants would be removed or reduced to safe levels by soil filtration, absorption, precipitation, and microbial transformation within this distance. A further protection to these private wells is the addition of the ground water extraction system which will intercept treated effluent flowing away from the ponds.

Petitioners are concerned that the high ground water table under the disposal area prohibits contaminant removal and causes flooding of low-lying areas. While perched ground water is as shallow as 5 to 6 feet in the vicinity of the treatment facility area, some data show a greater unsaturated zone. To alleviate ground water mounding and potential flooding problems, the City has designed the ground water extraction system to equal

the design capacity of the enlarged treatment facility. The system is designed to provide an eight-foot unsaturated zone under the ponds.

Flooding and ground water mounding will be further mitigated by the enlarged disposal area and the reduced rate of wastewater application. The application rate will be reduced from 250,000 gpd/ac. to 100,000 gpd/ac. Treatment plant expansion should reduce localized soil saturation, thereby actually improving ground water quality.

Although the proposed expansion should protect ground water beneficial uses, the provisions and limitations of Order No. 88-194 do not reflect water quality objectives designated in the Basin Plan.<sup>1</sup> The requirements should refer to these Water Quality objectives and Resolution No. 68-16. Monitoring

1. The pertinent water quality objectives for all ground waters of the basin are stated in the Basin Plan as:

- a) "In groundwaters used for domestic or municipal supply (MUN), the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml."
- b) "Groundwaters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Administrative Code, Title 17, Chapter 5, Subchapter 1, Group 1, Article 4, Section 7019, Tables 2, 3, and 4."
- c) "Groundwaters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial uses."

The requirements and NPDES permit should also consider the recently approved Basin Plan provisions which incorporate the Sources of Drinking Water Policy.

requirements should relate to appropriate constituents of concern from this wastewater treatment and disposal system.

Although ground water beneficial uses appear to be adequately protected from wastewater contamination from the proposed expansion, discharge to Marsh Creek from the extraction system must also be adequately regulated. While Order No. 88-194 provides some receiving water limitations, this discharge must be regulated by adoption of a National Pollutant Discharge Elimination System (NPDES) permit. The extraction system discharge is an integral part of the proposed expanded wastewater treatment system. The City has concluded that water flowing into the ground water extraction system from the direction of the percolation ponds would be virtually 100-percent effluent. In addition to this wastewater, the drains will draw shallow ground water from adjacent farmland. Thus, the ground water discharged into Marsh Creek will be a combination of pollutants from both treated municipal wastewater and subsurface flow from irrigated orchards. An NPDES permit is required for the discharge of pollutants from any point source to waters of the United States.<sup>2</sup> This discharge from the extraction system to Marsh Creek shall meet secondary treatment standards and adequately protect beneficial uses identified in the Basin Plan for this receiving waterbody.

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<sup>2</sup> Water Code Section 13376, 40 CFR 122.1(b). In Order No. WQ 81-2 (City of Corona) we have previously found that the discharge of treated wastewater and ground water from a ground water extraction system requires an NPDES permit.

b. Contention: Petitioners contend that the water quality monitoring points and frequency are inadequate.

Findings: Order No. 88-194 provides monitoring of the discharge to the disposal ponds, of the disposal ponds themselves, of ground water, of the extracted ground water, of Marsh Creek, and of the municipal water supply. Petitioners contend that monthly monitoring of biochemical oxygen demand (BOD), the extracted ground water, and total coliform are inadequate. They also contest the monitoring point of Marsh Creek being located 2,000 feet downstream of the discharge point.

Water Code Section 13267 provides that a Regional Board, in establishing waste discharge requirements, may require the discharger to furnish those technical or monitoring reports as the Board may specify. The costs of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained (Water Code Section 13267(b)).

Monitoring points, constituents and their frequency shall be adequate to assess the impacts of the discharge on ground and surface water quality and shall be part of the appropriate order. The Regional Board should consider the design capacity of the expanded facility, the threat to water quality, treatment method, and monitoring costs. Recommended monitoring frequencies for surface water discharge, based on design capacity, are outlined in the Environmental Protection Agency's Training Manual for NPDES Permit Writers.

Monthly BOD monitoring for the discharge to the percolation ponds, as specified in Order No. 88-194, is reasonable. However, the frequency of BOD and other secondary limit monitoring of the extracted ground water discharge to Marsh Creek should be reexamined to adequately measure compliance with secondary treatment standards, reflect guidance suggested in the Permit Writers Manual, and consider the uniqueness of this proposed treatment facility and the performance of the existing facility. Total coliform monitoring frequency should be adequate to measure compliance with Basin Plan standards. Water supply monitoring should be adequate to measure compliance with Basin Plan water quality objectives discussed above. Regarding the Marsh Creek downstream monitoring point, given the inaccessibility of certain portions of the creek between the discharge point and the sampling station and the lack of other point source discharges in this area, the location of this sampling station seems reasonable.

### III. SUMMARY AND CONCLUSION

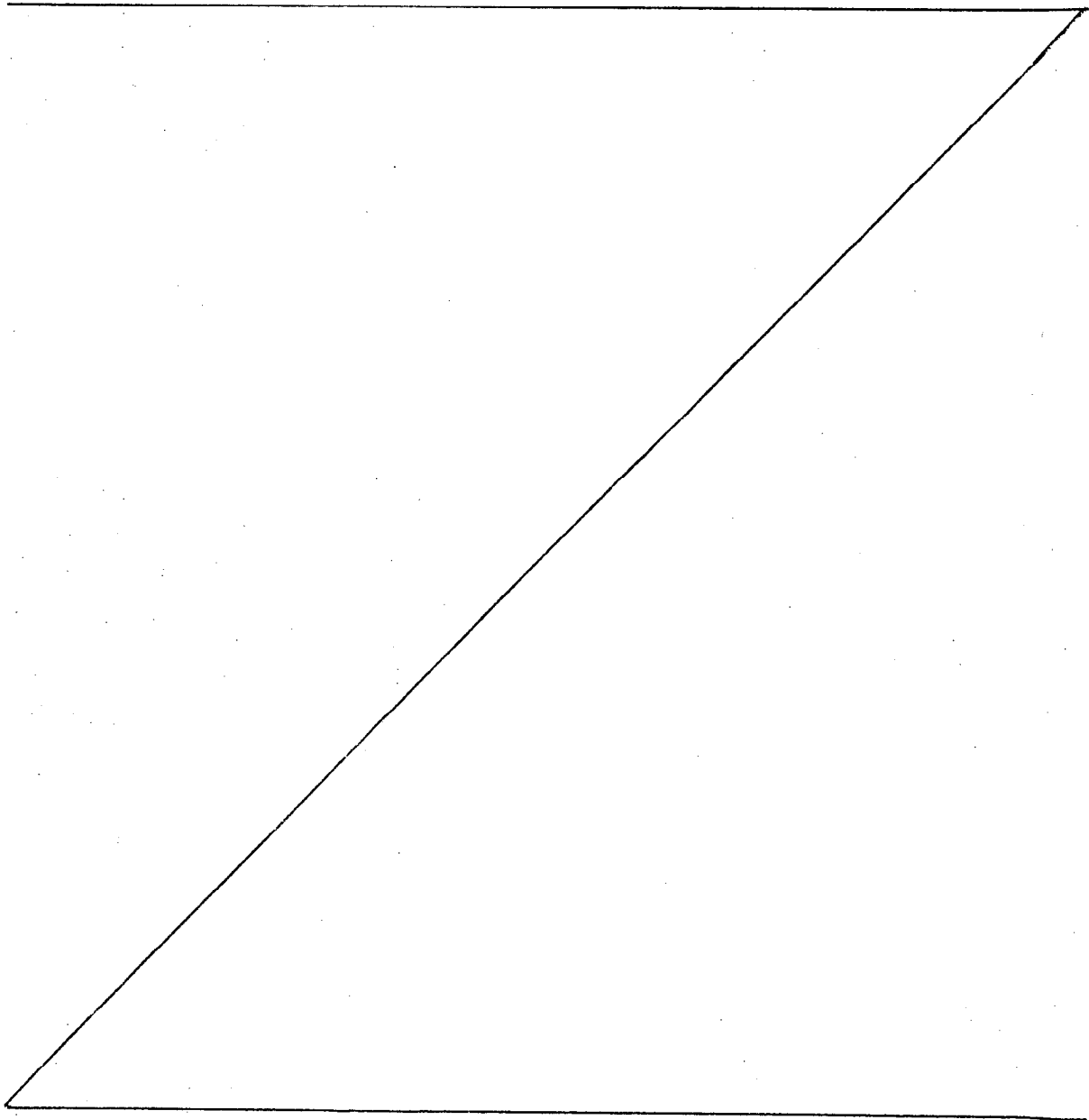
The beneficial uses of ground water are adequately protected in Order No. 88-194 from wastewater contamination from the proposed treatment system expansion. However, discharge of the combined treated effluent and ground water from the ground water extraction system to Marsh Creek shall be regulated by an NPDES permit. This permit shall contain appropriate monitoring provisions. Basin Plan water quality objectives for ground water



shall be referenced and appropriate monitoring shall be included in Order No. 88-194. Resolution 68-16 should also be referenced.

IV. ORDER

1. The Regional Board is ordered to adopt an NPDES permit for the discharge of extracted ground water to Marsh Creek, with appropriate monitoring provisions discussed above.



2. The Regional Board is ordered to include water quality objectives for protection of ground water and necessary monitoring in the appropriate order.

3. In all other respects, the petition is denied.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on October 19, 1989.

AYE:                   W. Don Maughan  
                          Darlene E. Ruiz  
                          Edwin H. Finster  
                          Eliseo M. Samaniego  
                          Danny Walsh

NO:                    None

ABSENT:              None

ABSTAIN:             None

  
Maureen Marché  
Administrative Assistant to the Board

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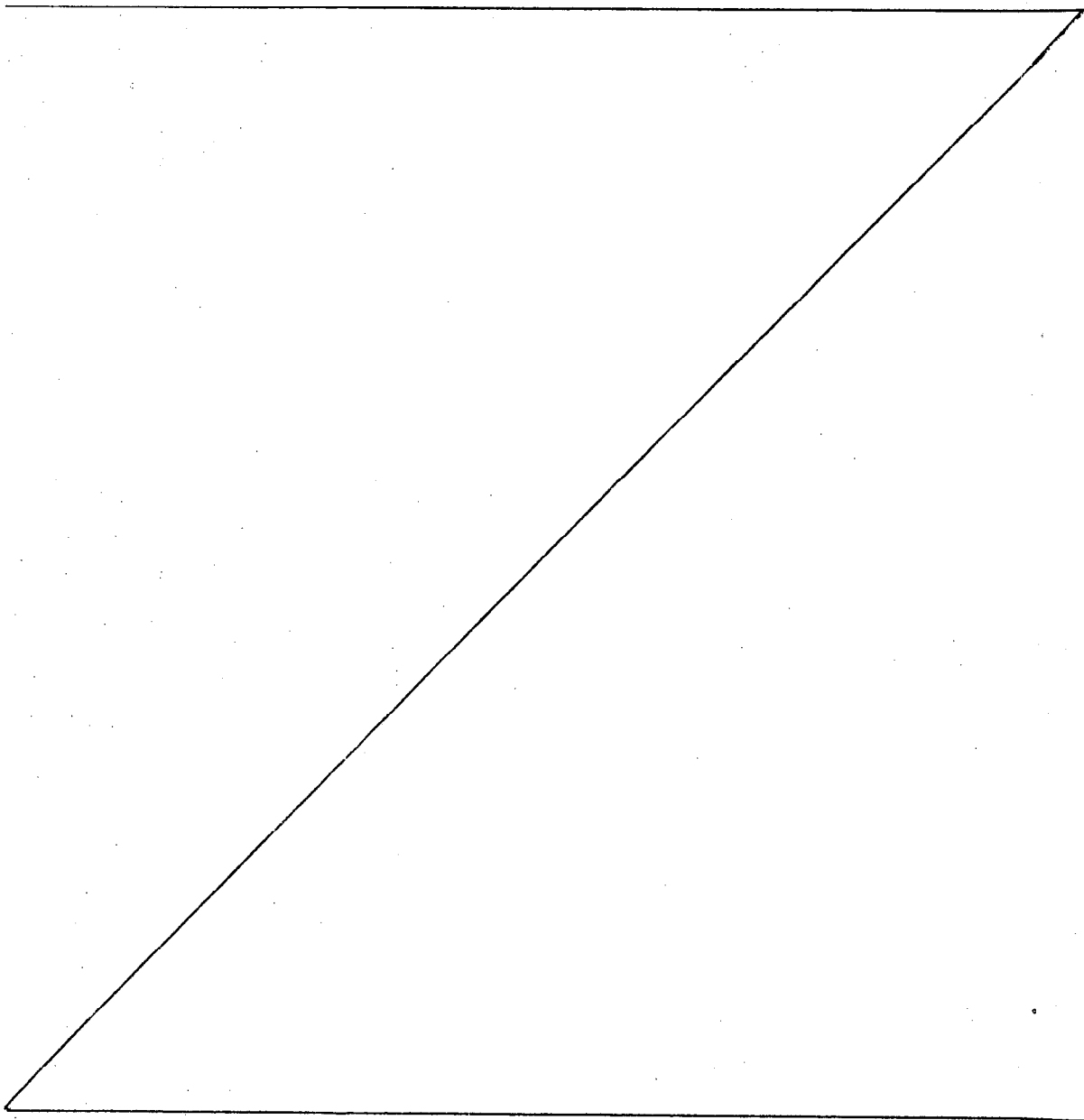
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AYE: W. Don Maughan  
Darlene E. Ruiz  
Edwin H. Finster  
Eliseo M. Samaniego  
Danny Walsh

NO: None

ABSENT: None

ABSTAIN: None

  
Maureen Marché  
Administrative Assistant to the Board