

STATE WATER RESOURCES CONTROL BOARD  
RESOLUTION NO. 91-86

APPROVAL OF AN AMENDMENT TO THE TULARE LAKE BASIN  
WATER QUALITY CONTROL PLAN DELETING A BENEFICIAL USE  
DESIGNATION FOR SPECIFIC GROUND WATERS WITHIN THE  
FRUITVALE OIL FIELD

WHEREAS:

1. The California Regional Water Quality Control Board, Central Valley Region (Central Valley Regional Board) and the State Water Resources Control Board (State Board) approved the Tulare Lake Basin Water Quality Control Plan (Basin Plan) in 1975.
2. Division 7 of the California Water Code states that basin plans shall be periodically reviewed and, if appropriate, revised.
3. The State Board adopted Resolution No. 88-63, Sources of Drinking Water Policy, on May 19, 1988, which defines the criteria for removing the beneficial use Municipal Use and Domestic Supply (MUN) from surface and ground water.
4. The Central Valley Regional Board adopted Resolution No. 89-098 on May 26, 1989 amending the Basin Plan to incorporate State Board Resolution No. 88-63, and the State Board approved the amendment under Resolution No. 89-75 on August 17, 1989.
5. The Central Valley Regional Board adopted Resolution No. 91-101 on April 26, 1991 amending the Basin Plan removing the MUN designation from ground waters contained in the basal Etchegoin formation, Chanac formation, and Santa Margarita formation within and extending to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the California Division of Oil and Gas publication "Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act", dated April 1981.
6. The Central Valley Regional Board Resolution No. 91-101 is based on site-specific conditions and found that:
  - a. The California Division of Oil and Gas, pursuant to 40 CFR 146.4, has administratively exempted as underground sources of drinking water aquifers of the basal Etchegoin, Chanac, and Santa Margarita formations within, and extending to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field;
  - b. The concentrations of total dissolved solids (TDS) in the basal Etchegoin, Chanac, and Santa Margarita formations are greater than 3,000 mg/l;
  - c. The specified ground waters are naturally contaminated with volatile organic compounds, oil and grease, and this contamination cannot reasonably be treated for domestic use by either best management practices or best economically achievable treatment practices;

- d. Due to the high TDS concentrations and naturally occurring contamination, these ground waters are not reasonably expected to supply a public water system;
  - e. The basal Etchegoin, Chanac, and Santa Margarita formations range in depth from 3,300 feet to 6,000 feet below ground surface.
7. Central Valley Regional Board Resolution No. 91-101 retained the MUN designation for the upper ground water (ground water to a depth of 3,000 feet) and determined that:
- a. The changes in hydraulic head will be insufficient to cause upward migration of the injected wastewater into the useable ground water, even in the absence of confinement.
  - b. The injection zones are overlain by low permeability clay layers which should confine the wastewaters precluding contamination of the upper useable ground waters.
8. The Basin Plan amendment is consistent with the requirements of Public Resources Code Section 21000 et seq. (California Environmental Quality Act).
9. The Central Valley Regional Board Resolution No. 91-101 was adopted in accordance with State laws and regulations.
10. Basin Plan amendments do not become effective until approved by the State Board.

THEREFORE BE IT RESOLVED:

That the State Board approves the Basin Plan amendment adopted by the Central Valley Regional Board under Resolution No. 91-101 deleting the MUN designation for specific ground waters within the Fruitvale Oil Field in the Tulare Lake Basin.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a policy duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 26, 1991.

  
Maureen Marché  
Administrative Assistant to the Board

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

RESOLUTION NO. 91-101

AMENDMENT TO THE  
WATER QUALITY CONTROL PLAN  
FOR THE  
TULARE LAKE BASIN (5D)

WHEREAS, Section 13240 of the California Water Code provides that regional water quality control boards shall formulate and adopt water quality control plans for all areas within the region; and

WHEREAS, the Regional Water Quality Control Board, Central Valley Region, (Regional Board) adopted the *Water Quality Control Plan for the Tulare Lake Basin (5D)*, (Basin Plan), on 25 July 1975; and

WHEREAS, Texaco Refining and Marketing, Inc., submitted the following information to demonstrate that the injection zone (basal Etchegoin, Chanac, and Santa Margarita formations) of their four existing and three proposed injection wells in Sections 23 and 27, T29S, R27E, MDB&M, is hydrocarbon producing and is not a potential underground source of drinking water:

"Information Needs for Waste Water Injection, Texaco Refining and Marketing, Inc., Existing and Proposed Waste Water Injection Wells, Fruitvale Oil Field, Kern County, California", dated June 1989.

"Additional Information Needs for Waste Water Injection, Texaco Refining and Marketing, Inc., Existing and Proposed Waste Water Injection Wells, Fruitvale Oil Field, Kern County, California", dated February 1990; and

WHEREAS, San Joaquin Refining Company, Inc., submitted the following information to demonstrate that the injection zone (Santa Margarita formation) of their proposed injection well in Section 23, T29S, R27E, MDB&M, is hydrocarbon producing and is not a potential underground source of drinking water:

"San Joaquin Refining Company, Inc., Proposed Waste Water Injection Well, Fruitvale Oil Field, Kern County, California", submitted 28 March 1989.

"Additional Information Needs For Waste Water Injection, San Joaquin Refining Company, Proposed Waste Water Injection Well, Fruitvale Oil Field, Kern County, California", dated 10 May 1990; and

WHEREAS, to obtain Order No. 83-146, prescribing waste discharge requirements for four injection wells in Section 28, T29S, R27E, MDB&M, Environmental Protection Corporation submitted information demonstrating that the injection zone (basal Etchegoin and Chanac formations) is hydrocarbon producing and is not a potential underground source of drinking water (Order No. 83-146, Finding Nos. 7 and 8); and

WHEREAS the aforementioned existing and proposed injection well projects are within the administrative boundaries of the Fruitvale Oil Field, and additional refineries within the administrative boundaries of the Fruitvale Oil Field may

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WHEREAS, the proposed and existing injection zones utilized by Dischargers within the Fruitvale Oil Field are the basal Etchegoin, Chanac, and Santa Margarita formations, which range in depth from 3,300 feet to 6,000 feet beneath the surface; and

WHEREAS, the current formation pressure in the basal Etchegoin formation is 1,050 psi, the anticipated formation pressure following 20 years of injection will be 1,078 psi at the well bore and 1,060 psi at a radial distance of 2,000 feet from the well bore, and the formation pressure 20 years after cessation of injection will be 1,051 psi both adjacent to the well bore and a radial distance of 2,000 feet from the well bore, representing a head increase of 2.3 feet (1 psi=2.3 feet of head); and

WHEREAS, the current formation pressure in the Chanac formation is 1,054 psi, the anticipated formation pressure following 20 years of injection will be 1,082 psi at the well bore and 1,064 psi at a radial distance of 2,000 feet from the well bore, and the formation pressure 20 years after cessation of injection will be 1,055 psi both adjacent to the well bore and a radial distance of 2,000 feet from the well bore, representing a head increase of 2.3 feet; and

WHEREAS, the current formation pressure in the Santa Margarita formation is 1,685 psi, the anticipated formation pressure following 20 years of injection will be 1,762 psi at the well bore and 1,712 psi at a radial distance of 2,000 feet from the well bore, and the formation pressure 20 years after cessation of injection will be 1,687 psi both adjacent to the well bore and a radial distance of 2,000 feet from the well bore and a radial distance of 2,000 feet from the well bore; representing a head increase of 4.6 feet; and

WHEREAS, the aforementioned changes in hydraulic head will be insufficient to cause migration of injected wastewater into overlying useable ground waters even in the absence of confinement. However, the existing and proposed injection zones are overlain by adequate thicknesses of low permeability clay layers which should confine the wastewaters to the intended injection zone and preclude contamination of the useable ground waters; and

WHEREAS, the Regional Board adopted Resolution No. 89-098 on 26 May 1989 designating all previously nondesignated surface and ground waters within the Tulare Lake Basin as municipal and domestic supply (MUN); and

WHEREAS, Resolution No. 89-098 authorizes an exception to the MUN designation for surface and ground waters where:

- " 1. Surface and ground waters where:
  - a. The total dissolved solids (TDS) exceed 3,000 mg/l (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by the Regional Board to supply a public water system, or
  - b. There is contamination, either by natural processes or by human activities (including but not limited to specific pollution incidents) that

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AMENDMENT TO THE  
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cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or

- c. The water source does not provide sufficient water to supply a single well capable of producing an average sustained yield of 200 gallons per day."; and

\*3. Ground waters:

- a. Where the aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 Code of Federal Regulations (CFR), Section 146.4, for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, Section 261.3"; and

WHEREAS, the marine sediments of the basal Etchegoin, Chanac, and Santa Margarita formations, between 3,300 and 6,000 feet below the ground surface, are characterized as containing ground water in excess of 3,000 mg/l TDS; and

WHEREAS, the water bearing zones of the basal Etchegoin formation, Chanac formation, and Santa Margarita formation contain TDS and chloride concentrations which exceeds the Secondary Drinking Water Standards of Title 22, California Code of Regulations, by six to ten times; and

WHEREAS, chemical analyses of waters from the basal Etchegoin formation, Chanac formation, and Santa Margarita formation indicate that naturally occurring benzene, ethylbenzene and xylene concentrations exceed State Action Levels; and

WHEREAS, chemical analyses of water from the basal Etchegoin formation, Chanac formation, and Santa Margarita formation contain high levels of oil and grease; and

WHEREAS, the ground water contained in the basal Etchegoin, Chanac, and Santa Margarita formations within the Fruitvale Oil Field and one-quarter mile outside the boundary of the Fruitvale Oil Field is not used now as a municipal or domestic supply; and

WHEREAS, due to excessive TDS and chloride content, volatile organic compounds which exceed State Action Levels, high oil and grease content, and costs of treatment, the ground water contained in the basal Etchegoin, Chanac, and Santa Margarita formations within the Fruitvale Oil Field and within one-quarter mile outside the boundary of the Fruitvale Oil Field cannot reasonably be expected to supply a public water system; and

WHEREAS, portions of the basal Etchegoin, Chanac, and Santa Margarita formations produce commercial quantities of hydrocarbons in the Fruitvale Oil Field; and

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WHEREAS, this contamination of the basal Etchegoin, Chanac, and Santa Margarita formations by natural processes and past disposal of oil field produced waters and refinery wastewaters cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices; and

WHEREAS, the State of California, Department of Conservation, Division of Oil and Gas, (CDOG) regulates Class II injection wells in the Fruitvale Oil Field which are used to dispose of fluids associated with the production of hydrocarbon energy (oil); the fluids do not constitute a hazardous waste; and

WHEREAS, the CDOG have, pursuant to 40 CFR, Section 146.4, administratively exempted as underground sources of drinking water aquifers of the basal Etchegoin, Chanac, and Santa Margarita formations within, and extending to one-quarter mile outside, the administrative boundary of the Fruitvale Oil Field; and

WHEREAS, portions of the upper ground water zone are used for domestic and agricultural supply and will retain the MUN designation above a depth of 3,000 feet; and

WHEREAS, the construction of the existing and proposed injection wells is such that the existing upper ground water zones will be fully protected; and

WHEREAS, the basal Etchegoin formation, Chanac formation, and Santa Margarita formation waters within the Fruitvale Oil Field and within one-quarter mile outside the boundary of the Fruitvale Oil Field qualify for an exception from designation as MUN based on the criteria in Resolution No. 89-098; and

WHEREAS, in accordance with requirements of the federal Clean Water Act and the California Water Code, the Regional Board, after due notice to all interested persons, held a public hearing on 26 April 1991 to receive public comment on proposed amendments to the Basin Plan; and

WHEREAS, the basin planning process has been determined to be functionally equivalent to an environmental impact report in accordance with the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) and appropriate notices and waiting periods have been met: Therefore, be it

RESOLVED, that ground water contained in the basal Etchegoin formation, Chanac formation, and Santa Margarita formation within, and extending to one-quarter mile outside the administrative boundary of the Fruitvale Oil Field, as defined by the State of California, Department of Conservation, Division of Oil and Gas in *Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act*, dated April 1981, is not suitable, or potentially suitable, for municipal or domestic supply (MUN); and be it further

RESOLVED, that portions of the upper ground water zone are used for domestic and agricultural supply and will retain the MUN designation above a depth of 3,000 feet; and

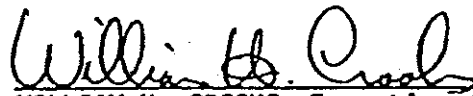
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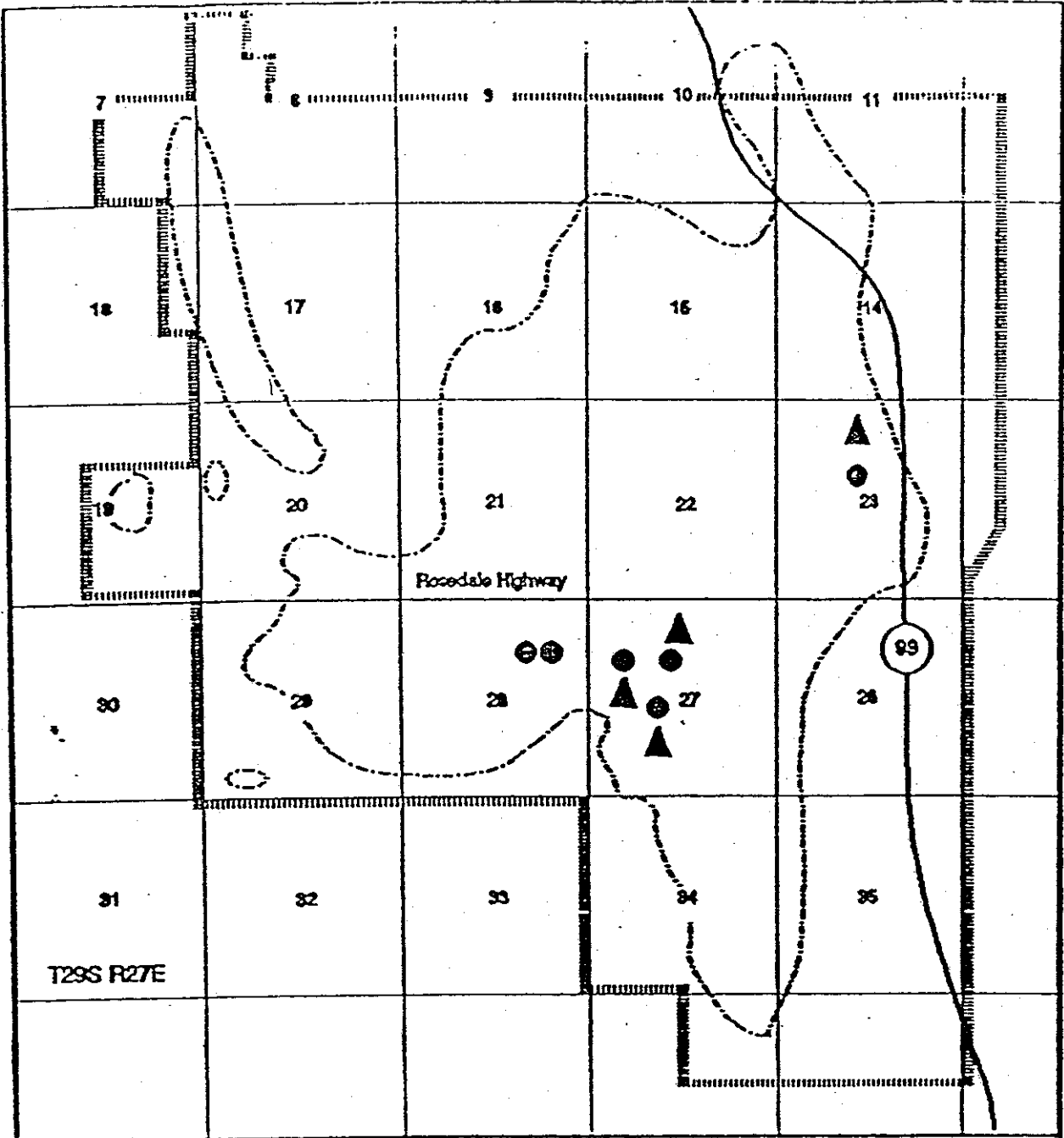
RESOLVED, that the Executive Officer is directed to forward copies of this amendment to the Basin Plan and the record supporting its adoption to the State Water Resources Control Board for approval pursuant to Section 13245 of the California Water Code; and be it further

RESOLVED, that the Executive Officer is directed to file a Notice of Decision with the Secretary for Resources within 30 days after approval by the State Water Resources Control Board.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 26 April 1991.

  
WILLIAM H. CROOKS, Executive Officer

DSJ:cjs



T29S R27E

1 mile  
Scale



- ⋯⋯⋯ Administrative Field Boundary
- - - - - Field Production Boundary
- ⊕ Existing Injection Well
- ▲ Proposed Injection Well

Figure 1

**FRUITVALE OIL FIELD**  
 Administrative Field Boundary  
 Kern County, Calif.