

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2003-0083

WAIVING WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF ROSEVILLE
AQUIFER STORAGE AND RECOVERY CYCLE TESTING PROGRAM
PLACER COUNTY

WHEREAS, Water Code Section 13260(a) requires that any person discharging wastes or proposing to discharge wastes with the region that could affect the quality of waters of the State shall file a Report of Waste Discharge; and

WHEREAS, the City of Roseville submitted a complete Report of Waste Discharge for the cycle testing portion of its aquifer storage and recovery project on 7 January 2003; and

WHEREAS, on 1 May 2002, the Roseville City Council approved an Initial Study/Mitigated Negative Declaration for the Diamond Creek Well Project, which contained several mitigation measures, none of which were related to water quality; and

WHEREAS, the aquifer storage and recovery cycle testing program is a pilot study used to evaluate opportunities to store treated water from the City of Roseville's Water Treatment Plant (WTP) in the groundwater basin underlying Placer County by direct injection during the "wet" years for extraction to supplement the City's surface water supply during "dry" years; and

WHEREAS, the aquifer storage and recover cycle testing program will be conducted using the Diamond Creek Well; and

WHEREAS, the City of Roseville proposes to install two groundwater monitoring wells to measure the effect of the injected water; however, the City's proposal may not be adequate to determine the groundwater gradient, area of influence, and impact to groundwater quality; and

WHEREAS, the Diamond Creek Well consists of a 20-inch diameter casing screened from 310 to 450 feet below ground surface, and the proposed monitoring wells are to be screened within the same water bearing zone as the Diamond Creek well; and

WHEREAS, the source of the water injected into the aquifer will be treated surface water from Folsom Lake which is sent to the City of Roseville's WTP for conventional treatment which includes sedimentation, filtration, chlorine disinfection, fluoridation, and pH adjustment for chlorine control; and

WHEREAS, the aquifer storage and recovery cycle test will include approximately 25 days of injection at approximately 1,350 gpm, and approximately 15 days of extraction at approximately 2,700 gpm; and

WHEREAS, the quality of the treated water injected into the aquifer is expected to be of drinking water quality, and with the exception of the total trihalomethanes and haloacetic acids, should be of better quality than the groundwater; and

WHEREAS, water samples shall be collected during the cycle testing to monitor the quality of water injected into the aquifer and evaluate changes in water quality during the storage and extraction periods of the test; and

WHEREAS, the water extracted during the aquifer storage and recovery cycle testing will be discharged to the local storm water system and/or if approved by Department of Health Services, the drinking water distribution system.

WHEREAS, the Regional Water Quality Control Board, Central Valley Region (hereafter Board) has a statutory obligation to prescribe waste discharge requirements except where a waiver is not against the public interest; and

WHEREAS, the Regional Board has determined that due to the limited nature and duration of the discharge, the discharge poses little or no threat to water quality; and

WHEREAS, the Regional Board held a hearing on 25 April 2003 and considered all evidence concerning this matter: Therefore be it

RESOLVED, that the California Regional Water Quality Control Board, Central Valley Region waives waste discharge requirements for the City of Roseville Aquifer Storage and Recovery Cycle Testing Program, subject to the following conditions:

1. The discharge of water during injection and/or extraction does not create a condition of pollution or nuisance as defined in Section 13050, California Water Code; and
2. Only treated water from the City of Roseville WTP may be injected into the Diamond Creek well at a flow rate not to exceed 1,500 gallons per minute (gpm); and
3. The City of Roseville will operate and maintain the injection well system, and will evaluate the potential for groundwater degradation due to this activity; and
4. Water quality samples will be collected and analyzed during the injection and extraction phases of the cycle testing in accordance with the monitoring and reporting program shown in Attachment A; and
5. The City of Roseville must install sufficient wells to determine the groundwater gradient, area of influence, and impact to groundwater quality; and

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6. Prior to discharges to the storm water system, the Discharger must obtain coverage under the NPDES General Order for Dewatering and Other Low Threat Discharges to Surface Waters; and
7. The City of Roseville will submit a well installation workplan to the Regional Board no later than **30 days** prior the test in accordance with items presented in Attachment B; and
8. The City of Roseville will submit a technical report to the Regional Board which discusses the water sampling and analytical results associated with the cycle testing no later than **90 days** from completion of the test; and
9. This waiver expires 60 days from the first day of injection.

RESOLVED, that this action waving waste discharge requirements is conditional and may be terminated at any time.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a true, full, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 25 April 2003.

THOMAS R. PINKOS, Executive Officer

ATTACHMENT A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0083 FOR CITY OF ROSEVILLE AQUIFER STORAGE AND RECOVERY CYCLE TESTING PROGRAM PLACER COUNTY

This monitoring and reporting program (MRP) incorporates requirements for monitoring of the effluent and groundwater. This MRP is issued pursuant to Water Code Section 13267. All samples should be representative of the volume and nature of the discharge. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

TREATED EFFLUENT MONITORING

Treated water from the City of Roseville's Water Treatment Plant (WTP) will be tested prior to injection and on a weekly basis during the cycle testing to ensure that the water being injected into the aquifer is of drinking water quality. Samples shall be collected from an established sampling station located in an area that will provide representative samples. Treated effluent monitoring shall include at least the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
pH	std.	Grab	Weekly
Nitrate as Nitrogen	mg/L	Grab	Weekly
Total Kjeldahl Nitrogen	mg/L	Grab	Weekly
Total Dissolved Solids	mg/L	Grab	Weekly
Sulfate	mg/L	Grab	Weekly
Chlorine Residual	mg/L	Grab	Weekly
Ammonia	mg/L	Grab	Weekly
Boron	mg/L	Grab	Weekly
Fluoride	mg/L	Grab	Weekly
Iron	mg/L	Grab	Weekly
Total Trihalomethanes	mg/L	Grab	Weekly
Haloacetic Acids	mg/L	Grab	Weekly
Total Coliform Organisms ¹	MPN/100 mL	Grab	Weekly

¹ Using a minimum of 15 tubes or three dilutions

GROUNDWATER MONITORING

To characterize the groundwater quality prior to the test, two groundwater sampling events shall be conducted in the Diamond Creek Well and each of the monitoring wells. Samples shall be collected at least one week apart at weekly intervals.

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Groundwater samples shall be collected from each of the monitoring wells during injection and extraction and in the Diamond Creek Well during extraction. Groundwater sampling shall include the following constituents:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Depth to Groundwater	0.01 feet	Measurement	Weekly
Groundwater Elevation ¹	0.01 feet	Calculated	Weekly
Gradient	feet/feet	Calculated	Weekly
Total Dissolved Solids	mg/L	Grab	Weekly
Sulfate	mg/L	Grab	Weekly
Ammonia	mg/L	Grab	Weekly
Boron	mg/L	Grab	Weekly
Chloride	mg/L	Grab	Weekly
Fluoride	mg/L	Grab	Weekly
Iron	mg/L	Grab	Weekly
Managanese	mg/L	Grab	Weekly
Molybdenum	mg/L	Grab	Weekly
Total Trihalomethanes	mg/L	Grab	Weekly
Haloacetic Acids	mg/L	Grab	Weekly
Total Coliform Organisms ²	MPN/100 mL	Grab	Weekly

¹ Groundwater elevation shall be determined based on depth-to-water measurements from a surveyed measuring point elevation on the well.

² Using a minimum of 15 tubes or three dilutions

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type, and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with the waiver.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional.

The report shall be submitted to the Regional Board 90 days following the end of the cycle testing, and shall include the following information:

1. Locations of injection well, monitoring wells and any other sampling stations;
2. Results of the treated effluent and groundwater monitoring data;

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3. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the effluent and groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the waiver.
4. Determination of groundwater gradient, area of influence, and impact to groundwater quality for all monitoring events.
5. A comparison of baseline groundwater monitoring data with the injected effluent groundwater data to evaluate water quality during the storage and extraction periods of the test. Data shall be presented in tabular format;
6. Copies of laboratory analytical report(s) for effluent and groundwater monitoring; and
7. A calibration log verifying calibration of all hand held monitoring instruments and devices used to comply with the prescribed monitoring program.



Winston H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board

Central Valley Region

Robert Schneider, Chair



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ATTACHMENT B

ITEMS TO BE INCLUDED IN A MONITORING WELL INSTALLATION WORKPLAN AND A MONITORING WELL INSTALLATION REPORT OF RESULTS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing the minimum listed information. Wells may be installed after staff approve the workplan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. All workplans and reports must be signed by a registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California.

SECTION 1 - Monitoring Well Installation Workplan

A. General Information:

- Purpose of well installation project
- Copies of County Well Construction Permits (to be submitted after workplan review)
- Monitoring well locations and rationale
- Survey details
- Equipment decontamination procedures
- Health and safety plan
- Topographic map showing any existing wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details:

- Describe drilling technique
- Sampling intervals, and logging methods
- Cuttings storage and disposal

C. Monitoring Well Design:

- Casing diameter and centralizer spacing (if needed)
- Borehole diameter
- Depth of surface seal
- Well construction materials
- Diagram of proposed well construction details
- Type of well cap, bottom cap either screw on or secured with stainless steel screws
- Size of perforations and rationale
- Grain size of sand pack and rationale
- Thickness and position of bentonite seal and sand pack
- Depth of well, length and position of perforated interval

D. Well Development:

California Environmental Protection Agency



Require a minimum of 48 hours prior to development activities
Method of development to be used
Method of determining when development is complete
Parameters to be monitored during development
Method of development water storage and disposal

E. Well Survey:

Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
Describe what well features will be surveyed (i.e. top of casing, horizontal and vertical coordinates, etc.)
Vertical accuracy shall be to at least 0.01 foot

F. Soil Sampling (if applicable):

Analyses to be run and methods
Sample containers, collection method, and preservation method
Table describing sample volumes, sample containers, preservation agents, and hold times
Intervals at which soil samples are to be collected
Number of soil samples to be analyzed and rationale
Location of soil samples and rationale
QA/QC procedures

G. Well Sampling:

Minimum time after development before sampling (48 hours)
Well purging method and amount of purge water
Sample containers, collection method, and preservation method
Table describing sample volumes, sample containers, preservation agents, and hold times
QA/QC procedures

H. Water Level Measurement:

The elevation reference point at each monitoring well shall be within 0.01 foot. Ground surface elevation at each monitoring well shall be within 0.01 foot. Method and time of water level measurement shall be specified.

I. Proposed time schedule for work.

SECTION 2 – Groundwater Sampling and Analysis Plan

A. General Information:

Purpose of well sampling
Site Location
Monitoring well locations
Monitoring well construction details including elevation, well depth, casing material and size, and screen interval
Equipment decontamination procedures
Health and safety plan

Topographic map showing any existing wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Water Level Measurement:

Ground surface elevation at each monitoring well shall be within 0.01 foot.

Method and time of water level measurement shall be specified

Water level in well shall be allowed to equilibrate prior to measuring the depth to water

C. Well Sampling:

Well purging method and amount of purge water, purge water storage

Sample containers, collection method, and preservation method

Table describing sample volumes, sample containers, preservation agents, and hold times

Identification of analytical laboratory

Chain of custody procedures

QA/QC procedures

D. Proposed time schedule for work.

SECTION 3 - Monitoring Well Installation Report of Results

A. Well Construction:

Number and depth of wells drilled

Date(s) wells drilled and completed

Description of drilling and construction

Locations relative to facility features such as buildings, storage ponds, waste piles, etc.

A well construction diagram for each well must be included in the report, and should contain the following details:

Drilling Contractor and driller name

Depth of open hole (same as total depth drilled if no caving occurs)

Method and materials of grouting excess borehole

Footage of hole collapsed

Length of slotted casing installed

Depth of bottom of casing

Depth to top of sand pack

Thickness of sand pack

Depth to top of bentonite seal

Thickness of bentonite seal

Thickness of concrete grout

Boring diameter

Casing diameter

Casing material

Size of perforations

Number of bags of sand

Well elevation at top of casing

Depth to ground water

Date of water level measurement
Monitoring well number
Date drilled
Location

B. Well Development:

Date(s) of development of each well
Method of development
Volume of water purged from well
How well development completion was determined
Method of effluent disposal
Field notes from well development should be included in report.

C. Well Survey:

Identify the coordinate system or reference points
Survey the well casing with the cap removed (horizontal and vertical coordinates)
Include the Registered Engineer or Licensed Surveyor's report and field notes in appendix
Describe the measuring points (i.e. ground surface, top of casing, etc.)
Present the well survey report data in a table

D. Water Sampling:

Date(s) of sampling
How well was purged
How many well volumes purged
Levels of temperature, EC, and pH at stabilization
Sample collection, handling, and preservation methods
Sample identification
Analytical methods used
Laboratory analytical data sheets
Water level elevation(s)
Groundwater contour map

E. Soil Sampling (if applicable):

Date(s) of sampling
Sample collection, handling, and preservation method
Sample identification
Analytical methods used
Laboratory analytical data sheets