

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION**

**RESOLUTION NO. R6V-2005-0010  
WDID NO. 6B190107069**

**RESPONSE TO THE CLEANUP STRATEGIES SUBMITTED BY THE LOS ANGELES  
COUNTY SANITATION DISTRICT NO. 20 AND THE CITY OF LOS ANGELES  
WORLD AIRPORTS TO ADDRESS NITRATES IN GROUNDWATER IN PALMDALE**

Los Angeles County

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The California Regional Water Quality Control Board, Lahontan Region, (Regional Board) finds:

1. The Los Angeles County Sanitation District No. 20 (District) owns and operates the Palmdale Water Reclamation Plant. The District disposes of effluent on land owned by the City of Los Angeles World Airports. Both entities are hereinafter referred to as “Dischargers” and are responsible for compliance with waste discharge requirements contained in Board Order No. 6-00-57.
2. Effluent discharged from the Water Reclamation Plant has caused a condition of pollution of the groundwater in violation of Board Order No. 6-00-57. The Regional Board adopted Cleanup and Abatement Order No. R6V-2003-056 (CAO) requiring the Dischargers to delineate the nitrate plume to background nitrate levels and to propose and implement a containment and remediation project.
3. On September 15, 2004 the Dischargers submitted a *Containment and Remediation Plan* in response to requirements of the CAO. The Plan evaluated four alternative methods to clean up the groundwater. Additionally, in response to a request by Regional Board staff, on March 1, 2005 the dischargers submitted a *Supplement to the Containment and Remediation Plan* that included an evaluation of a fifth alternative.
4. The United States Geological Survey (USGS) Water Resources Investigations Report 03-4016 entitled “*Simulation of Groundwater Flow and Land Subsidence, Antelope Valley Groundwater Basin, California*” concludes that groundwater pumping in the Antelope Valley exceeds natural recharge causing the aquifer to be in an overdraft condition.
5. Pursuant to California Water Code 13304 and State Water Resources Control Board Resolution No. 92-49, the Regional Board can establish standards for the cleanup of the groundwater. The goal of any cleanup effort must be to restore the quality of the groundwater to background conditions. However, the Regional Board may establish a cleanup standard that is above background levels provided that the standard is fully protective of beneficial uses and provided that the Regional Board finds that allowing some level of degradation is consistent with the maximum benefit to the people of the State.
6. The first of the five alternatives evaluated considered by the dischargers is a “no action” alternative. The other four alternatives developed by the dischargers involve pumping out the polluted groundwater using anywhere from 5 to 25 extraction wells, depending on the particular alternative. The Dischargers developed alternatives 2 through 5 that are all similar, but differ in the particular way each would accelerate the clean up and dispose of the pumped, degraded (or polluted) groundwater. These four alternative approaches, or “strategies”, to clean up the groundwater are referred to here as: (2) hot-spot cleanup; (3) limited containment – limited hot-spot; (4) aggressive remediation; and (5) focused hot-spot removal.

7. The Regional Board staff evaluation of these alternatives is contained in a report dated March 30, 2005, entitled "*Evaluation of Alternatives to Cleanup Nitrates in Groundwater in Palmdale Resulting from Discharges of Recycled Water by Los Angeles County Sanitation District No. 20 and the City of Los Angeles World Airports*" and an addendum to the report.
8. All five of the alternatives would result in reduction in groundwater concentrations of nitrogen to below the drinking water standard of 10 mg/l between 2009 and 2012. This would restore the municipal beneficial use of the groundwater. However, this level of cleanup would not restore the groundwater quality to background conditions, which is a goal of any cleanup as described in Finding No. 4.
9. Alternatives 2, 3, and 5 each would involve disposal of the pumped groundwater at the agricultural irrigation area (effluent disposal area), in the same area that was created for disposal of new wastewater from the District's treatment facility. In the short term, adding the pumped groundwater for irrigation at the agricultural area allows the District to maintain more acreage in production. Having more acreage in production gives the District the ability to apply more wastewater at agronomic rates during the spring, fall and winter seasons when water needs are less than peak summer needs. Maintaining more acreage in production results in less wastewater being spread to land or applied to crops at a rate greater than agronomic rates, actions that may increase the groundwater pollution problem.
8. The District's current wastewater facilities plan is likely to include storage facilities. These storage facilities will allow the District to maintain a minimum amount of acreage in agricultural production to meet its effluent disposal needs. The District will have the ability to store effluent when agronomic water demands are low and use the stored effluent when agronomic needs are high, without relying on another source of water during these peak demand times.
10. Alternative 4 would return approximately 80% of the pumped groundwater to the aquifer after treatment. However, this alternative would still result in the consumptive use of approximately 20,000 acre-feet of groundwater (that lost in the treatment process), an amount equivalent to the amount of groundwater extracted in other more efficient alternatives. While this alternative removes the largest mass of nitrogen from the groundwater, it accomplishes this at a very high cost per pound of mass removed. Additionally, the total cost to implement this alternative is six times the cost of the next most expensive alternative.
11. The application of pumped groundwater to the effluent disposal area (as contemplated in alternatives 2, 3 or 5) in the short term will provide combined benefits. It will remediate the polluted groundwater while also providing additional water to allow the District to maintain more cropland need to provide nitrogen uptake of the District's wastewater effluent until the District implements its facilities plan. However, once this facilities plan is implemented, the Regional Board is concerned that, given the overdraft situation in the area, additional disposal of pumped groundwater in this manner (consumptive use established specifically for disposal of this water) may not be the highest and best use of this pumped groundwater considering the current overdraft condition. In the long run, there may be other disposal options for this pumped groundwater (e.g. substituting existing consumptive uses with this pumped groundwater) that would not result in exacerbating the overdraft condition, while still achieving groundwater cleanup consistent with State policies. At this time, the Regional Board has no information on the feasibility or cost associated with these options since the Dischargers did not evaluate them.

12. It is premature to establish a cleanup standard consistent with State policies given the rather limited range of alternatives proposed, the costs, and the possible consumptive use of pumped groundwater associated with the alternatives considered by the Dischargers. The Regional Board expects the dischargers to evaluate additional options for more suitable disposal of the pumped groundwater that will not contribute to the overdraft situation before it establishes a final cleanup standard.
13. The available information justifies the need to immediately implement efforts to reduce the levels of nitrogen in groundwater to meet the drinking water standard.

**THEREFORE BE IT RESOLVED:**

- A. As soon as possible, the Dischargers should initiate a cleanup project to reduce nitrate concentrations in groundwater to less than 10 mg/L (as N) in the shortest possible time. The Regional Board does not, at this time, accept a level that is just below the drinking water standard to be an acceptable final cleanup standard.
- B. The Dischargers must evaluate additional options for the remediation of the degraded groundwater that will remain after the actions described in A. above are complete. The options should focus on reducing nitrate concentrations in affected groundwater to background levels (approximately 2 mg/L nitrate – as N) or to levels consistent with State cleanup policies (State Water Resources Control Board Resolution 92-49). Furthermore, these options should consider uses of the pumped groundwater that do not exacerbate the overdraft condition. The Dischargers should submit this evaluation within 12 months of the date of adoption of this resolution; thereby allowing sufficient time to establish a final cleanup standard, and implementation of any additional actions by 2009, the time when the facilities plan referred to in Finding No. 8 should be implemented.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Lahontan Region, on April 13, 2005.

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HAROLD J. SINGER  
EXECUTIVE OFFICER