



County of Orange  
California

Thomas G. Mauk  
County Executive Officer

August 14, 2007

Honorable Nancy Wieben Stock  
Presiding Judge of the Superior Court of California  
700 Civic Center Drive West  
Santa Ana, CA 92702

Subject: Response to Orange County Grand Jury Report, "Orange  
County's Beaches: An Environmental Scorecard"

Dear Judge Stock:

Per your request, and in accordance with Penal Code 933, enclosed please find the County of Orange response to the subject report as approved by the Board of Supervisors. If you have any questions, please contact Theresa Stanberry at (714) 834-3727 in the County Executive Office who will either assist you or direct you to the appropriate individual.

Very truly yours,

Thomas G. Mauk  
County Executive Officer

Enclosure

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**2006-07 Grand Jury Report**  
**“Orange County’s Beaches: An Environmental Scorecard”**  
**Response to Findings and Recommendations**

**Response to Findings F-1, F-2, and F-4**

F-1 **Indicator Bacteria**: Indicator bacteria are naturally present in beach sand and therefore may be a poor predictor of human health risk.

***Response:*** *Agree with the finding.*

The issues surrounding indicator bacteria, where they are found and their use as a predictor of human health risk are very complex. Research studies have only recently been launched to determine the background levels of indicator bacteria in beach sands and additional research is needed. Current indicator bacteria, which are specified by statute, have been strongly linked to human health risk where there is the presence of a human sewage source.

F-2 **Timeliness of Water Testing**: Current testing of beach water is not timely; there is a typical 24 hour delay between the time samples are collected and the time test results are available.

***Response:*** *Agree with the finding.*

The Orange County Public Health Laboratory is participating in collaborative research to develop and assess rapid indicator methodologies. The current testing methodologies have been approved by the California Department of Health Services (CDHS) and CDHS would have to approve any new methodologies for routine mandated testing.

F-4 **Watershed Outfall**: Most beach water bacteria come from watershed outfalls.

***Response:*** *Agree with the finding.*

Bacteria found in Orange County’s beaches originate from a variety of sources. These sources include bacteria originating from urban areas, agriculture, and wilderness areas that reach the beach through local rivers, creeks, and flood control channels. Bacteria also originate at the beach itself from wildlife or human inputs. Additional bacteria are carried along the coast from other beaches by ocean currents and wave action (S. Grant, et al., 2005, Journal of Geophysical Research 110:C10025).

The County of Orange has conducted focused studies examining the sources of bacteria at several, but by no means not all, beaches. These studies reveal that water flows from the land entering our beaches are a major source of bacteria. In a least one case, however, bacterial indicators still exceed state limits when urban runoff is diverted before reaching the

beach. This demonstrates that addressing land-based sources may improve beach water quality, but does not necessarily solve all bacteria problems.

### **Response to Recommendations F-1, F-2, and F-4**

R-1 **Predictor of Health Risk**: The Health Care Agency should develop a more accurate predictor of health risk and should research county beach sands to determine if bacteria are flushed from the beaches during lunar tides and whether these bacteria are pathogenic.

***Response: The recommendation will not be implemented because it is not reasonable.***

Recommendation R-1 has three distinct sections. Each will be addressed individually in order to insure a complete response.

a. The Health Care Agency should develop a more accurate predictor of health risk...

The development and assessment of testing methodologies that will be a more accurate predictor of human health risk must occur in concert with regulatory agencies such as CHDS and the U.S. Environmental Protection Agency (EPA) as well as other organizations actively involved in water quality research. The Health Care Agency, through the Public Health Laboratory and Environmental Health Ocean Water Protection Program, look forward to being an active and integral part of addressing key questions about ocean water quality, but this is not something that the Health Care Agency can reasonably accomplish on its own.

b. The Health Care Agency should...research county beach sands to determine if bacteria are flushed from the beaches during lunar tides...

A study testing beach, inter-tidal and near offshore sands was performed and published by the Orange County Public Health Laboratory in 2005 (*Journal of Applied Microbiology*, 2005, 99:598-608). It is possible that tidal flushing may be the cause of recreational water pollution in certain sites adjacent to inter-tidal estuaries with storm drain inputs.

c. The Health Care Agency should...research...whether these bacteria are pathogenic.

All studies to date have been with indicator bacteria since these are the techniques approved by EPA and CDHS. The Orange County Public Health Laboratory does not have any pathogen studies planned at this time. These types of studies are difficult due to the hundreds of different pathogens that exist. Studying one or two pathogens does not give an accurate indication of pathogen load. The effect on human health is best determined by a health effects study such as those conducted by the EPA to set the current standards. A study of this type is currently being carried out at Doheny State Beach. The Orange County Public Health Laboratory is collaborating in this study.

R-2 **Timeliness of Water Testing:** The Health Care Agency should develop a more timely method of water quality testing.

***Response: The recommendation will not be implemented because it is not reasonable.***

The Orange County Public Health Laboratory is currently actively involved in the development and assessment of rapid indicator methodologies. However, this effort is part of a much broader search for reliable and effective rapid indicators that involves numerous research organizations. The Health Care Agency looks forward to being an active and integral part addressing key questions about ocean water quality, but this is not something that the Health Care Agency can reasonably accomplish on its own.

R-4 **Treatment Facilities:** RDMD should consider developing treatment facilities at creeks with the highest historical concentration of bacteria within the county.

***Response: The recommendation has been implemented.***

RDMD has for a long time had an ongoing program of constructing treatment control projects for creeks and drainage channels with high concentrations of indicator bacteria that exceed State testing standards. The County has implemented water quality projects to protect water quality at Aliso Beach, Huntington State Beach, and Poche Beach. A new project will be constructed at Poche Beach in Fiscal Year 2007-08 to replace an earlier pilot project.

The County of Orange, together with all 34 cities and the Orange County Flood Control District, has established a countywide water quality program that combines prevention with treatment. The treatment program has been established based on the belief that both methods are essential for long-term and short-term improvements in surface water quality. Some members of the community oppose treatment and believe prevention efforts alone will successfully address the issue. The County will continue to develop and implement treatment facilities as part of its water quality program and continue to work collaboratively with both regulatory agencies and the public to further our common goal of better water quality for Orange County.