Las Virgenes – Triunfo Joint Powers Authority
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June 29, 2010

State Water Resources Control Board
1001 I Street
Sacramento, California 95814
Attention: Jeanine Townsend, Clerk of the Board

SUBJECT: "Comment Letter – Malibu Septic Prohibition."

On behalf of the Joint Powers Authority (JPA) comprised of Las Virgenes Municipal Water District and Triunfo Sanitation District, we are pleased to provide comments on the proposed approval of amendment to the Water Quality Control Plan for the Los Angeles Regional Water Quality Control Board to Prohibit On-Site Wastewater Disposal Systems in the Malibu Civic Center.

Given the long-standing water quality problems at local beaches, we appreciate the Regional Board's desire to improve water quality within the Malibu Creek watershed. However, the multi-million dollar costs associated with the proposed ban simply underscores the need to ensure that, if mandated, water quality will actually improve at local beaches. This is especially true under the current economic conditions in California. Therefore it is incumbent upon all public agencies, state and local, to assure the public's money is spent on solutions, not experiments.

An example of an experiment occurred in 1997 when the Regional Board adopted a similar prohibition on summertime releases of highly treated recycled water from the JPA's Tapia Water Reclamation Facility (WRF). This prohibition was put in place with the intention of reducing bacteria levels at local beaches. Unfortunately, thirteen years later, and JPA expenditures of nearly $10 million dollars in public funds to comply with the flow prohibition, no significant change in bacteria levels at local beaches has occurred. These findings and supporting analysis were communicated to the Regional Board in 2005 (attached) to date we have received no response.

Alternatives to On-Site Wastewater Disposal Systems (OWDS)

The Regional Board staff report and the November 5, 2009 public workshop presentation identifies the JPA's Tapia WRF as a potential alternative for Malibu citizens who's OWDSs would be banned under the Regional Board proposal. However, no attempt was made by Regional Board staff to contact the JPA to ascertain the legal, environmental, technical or economic feasibility of using the Tapia WRF to treat sewage generated outside its service area.

Charles Caspary
Chair, Las Virgenes-Triunfo
Joint Powers Authority
President, Las Virgenes Municipal Water District
Board of Directors

Mike Paule
Vice Chair, Las Virgenes-Triunfo
Joint Powers Authority
Chair, Triunfo Sanitation District
Board of Directors

We do not know how Regional Board staff generated its cost estimate for this alternative at $80 million dollars, of which $7.8 million is the staff-estimated cost for local sewers plus $72.5 million dollars for a sewer trunk line that would need to be built along Malibu Canyon Road, a heavily-used and environmentally sensitive transportation corridor within the coastal zone. Based upon our experience, there is no guarantee the Coastal Commission would issue a permit for such a project

Furthermore, the staff cost estimates only dealt with the sewer infrastructure to bring sewage to the Tapia WRF and leaves the reader with an underestimate of the total cost impact. What is not addressed here is the cost to accommodate an increased flow at Tapia WRF via additional treatment and disposal facilities, solids handling at our compost facility and connection and annexation fees to provide service to Malibu. In addition, as referenced above, a flow prohibition established by the RWQCB for discharge to Malibu creek for 7 months of the year has been in place at Tapia since 1997. Taking on the additional sewage flow generated within Malibu could seriously jeopardize the JPA's ability to meet the flow prohibition requirements imposed by the Los Angeles RWQCB.

In closing, we ask the State Board to understand the Regional Water Quality Control Board's approach can be very costly, significantly beyond its projections, and not result in the desired outcome. In addition, the elimination of potentially valid disposal opportunities could significantly narrow the available solutions for this community.

The JPA is willing to consult on how our facilities might be used by others but this approach must be a partnership not a "shotgun wedding" forced through a regulatory approach. As a public agency that treats some 10 MGD of wastewater to very high levels each day, we fully appreciate some of the challenges the State and the community of Malibu face.

As always, we appreciate the opportunity to comment.

Sincerely,

John R. Mundy
General Manager

Cc: Governor Arnold Schwarzenegger
Linda Adams, Secretary of California EPA
Jim Thorsen, City Manager, City of Malibu
JPA Board of Directors

(ATTACHMENT)

Bacteria levels at Surfrider Beach following the adoption of the Prohibition on Discharges from the Tapia Water Reclamation Facility

Introduction

The history of the prohibition on summer time releases of surplus recycled water from the Tapia Water Reclamation Facility is reviewed in the findings section of the Tapia NPDES permit CA0056014. Briefly, this regulation was adopted on the premise that Tapia's discharge was a contributing factor in the incidence of elevated health risks to bathers at Surfrider Beach at the mouth of Malibu Lagoon. While Tapia's treatment processes result in water that is essentially bacteria-free (i.e. within the detection limits set by the state), there are other sources of bacteria in the watershed that cause high levels of bacteria in Malibu Lagoon. When the lagoon is open to the sea, these waters mix with nearshore waters used by bathers, exposing them to these other bacteria sources. The Regional Board in 1997 made findings that Tapia's contributions of water to the creek and lagoon, regardless of its quality, increased the number of days where the lagoon is open to the sea, thereby contributing to the exposure of bathers at Surfrider Beach to unhealthy, bacteria-laden water.

This analysis poses the question of whether the years since the adoption of this regulation have yielded the result intended for the regulation: Have bacteria levels in the Surfzone and the creek actually declined? The results suggest they have not and, more significantly, that they have actually increased. While this result may be surprising, it should not in retrospect be unexpected. The prohibition effectively eliminated the cleanest source of water in the creek for the majority of the year, the only source treated by multiple unit processes of settling, filtration and disinfection.

Recognizing that this conclusion has public health ramifications, the following summary records how the analysis was conducted and what data sources were used.

Methods

Data sources

Bacteria data were obtained from the City of Los Angeles Sanitation Department records for Station S-01 at Surfrider Beach (Santa Monica Bay) located at the mouth of Malibu Creek, Los Angeles County. The data consist of daily bacteria measurements in units of colony forming units of bacteria per 100 milliliters of water.

Stream Flow data were obtained from Los Angeles County Department of Public Works records. The station used was F-130-R, located on Malibu Creek below Cold Creek. Data used for this analysis include January 1988 through December 31 2004. The data consist of daily measurements of flow at the station in units of cubic feet per second (CFS).

Analysis

The goal was to compare the levels of bacteria in Malibu Creek before and after the date when the Las Virgenes Municipal Water District was prohibited by the Regional Water Quality Control Board from discharging tertiary-treated, Title 22 compliant wastewater from their Tapia Water Reclamation Facility into Malibu Creek for much of each year. The pre-prohibition period included all data from December 1993 through April 14, 1998 and post-prohibition [insert clarification] included data from April 15, 1998 through January 2005. Initially, a simple comparison was made using the average total coliform count for all data pre-prohibition compared to the average count post-prohibition. A statistical T-test was used to further examine the mean and standard deviation of the sets of data and assess whether the results obtained departed significantly from those possible by chance (using a rejection criterion of 0.05 for the threshold probability of chance events). The summary statistics for this preliminary analysis are shown below in the results section.

The technique of dividing the data set in half and comparing the average bacteria count pre- and post-prohibition needed to consider variations in rainfall and subsequent variation in the flow rate in the creek, as this was the most obvious confounding factor based on simple inspection of the data (Fig. 1) and the mechanics of

bacterial transport in watersheds. That is, high rainfall events and the subsequent runoff result in high bacteria counts in receiving waters (streams, estuaries, lagoons, etc.) due to the rinsing of bacteria from stream banks and adjacent lands. This effect is demonstrated by the high correlation of bacteria data and stream flows. Although both the pre- and post-prohibition timeframes included high rainfall years, this potential confounding factor was of concern because of differences in rainfall amounts between years. To control for the effect of unusually high rainfall years in the analysis, the average bacteria counts for individual months were compared both with the wettest years included and then again without them (with the wettest years in the data set, 1993, 1998 and 2005; Tables 1 and 2).

To carry out the analysis in a manner relevant to public health consequences, a column was created in the spreadsheet for days that exceeded the threshold of 1,000 CFU/100 ML total coliform. There are several potential thresholds for public health effects (e.g. conditioning the total coliform counts on fecal coliform levels), but the use of a simple, single parameter variable (total coliform counts) and a conservative threshold (1000 CFU) ensured that any errors would be conservative with respect to assessing differences in the potential for increased risk of illness.

Once the data matrix was translated into exceedance days per this procedure, a time-series plot of the entire data set was plotted for all days with total coliform exceeding 1,000 CFU/ 100 ML. Next, the average number of days that exceeded the threshold within each month was calculated. This was done by assigning every day with either a one for an exceedance or a zero for no exceedance. The average number of days with an exceedance in the month was then calculated by summing the exceedance days and dividing by the total number of days in the month. Thus each month was characterized by a value, such as 0.33, meaning that 33% of the days in that month exceeded the threshold. The percentage exceedance by month was then plotted both as a bar graph and a line graph, without the years 1998 and 2005 included (Fig. 2 and 3).

Flow Data

In order to understand the influence of rainfall and creek flow on the pre- and post- prohibition bacteria counts, we examined flow data for Malibu Creek. Daily flows were averaged for each month, and then divided into pre- and post-prohibition time periods using the same periods as for the bacteria data. The average flow per month for each year was then plotted, to identify obvious differences in runoff between the pre-

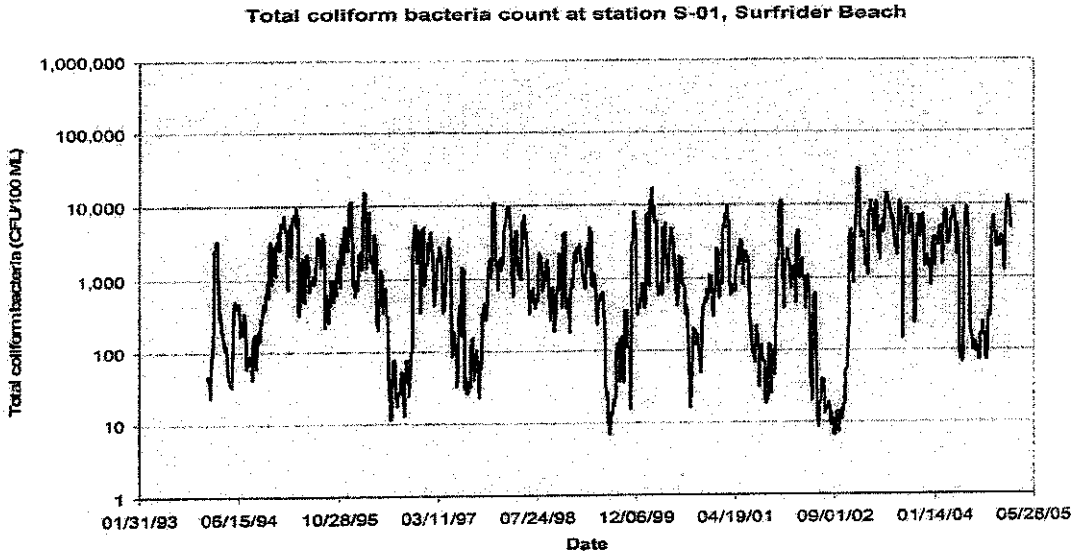
and post-prohibition periods. The decision to omit data from 1998 and 2005 was based on this information. Note that the omission of these data likely *reduced* the number of exceedance days in the post-prohibition period. Yet, as seen in the results below, the post-prohibition period saw a statistically significant higher level of bacteria at Surfrider Beach during the period and years of the flow prohibition (i.e. April through November).

Results

Pre- and post-prohibition bacteria levels

The full time-series data for total coliform bacteria levels from Station S-01 at Surfrider Beach are shown below in Figure 1 below. There are no obvious differences in bacteria levels over the entire time series.

Figure 1. Total coliform bacteria levels station S-01 Surfrider Beach



It is difficult to determine from this Figure whether there is any significant increase or decrease in bacteria levels pre- and post-prohibition. In order to better examine whether there was any significant change pre- and post-prohibition, the data and graphs using the 1000 CFU/100 ML threshold is more helpful.

The number of days that exceed the threshold of 1000 CFU/ 100 ML are presented below in Tables 1 and 2. These tables show the percentage of days per month that exceed the threshold with and without years 1998 and 2005, respectively. Overall, the deletion of these years did not change the overall results.

Table 1: Total coliform bacteria levels from Station S-01 Surfrider Beach, Santa Monica Bay California. Percent of days per month (12/93-1/05) that exceed 1000 CFU/100 ML **Data with years 1998 and 2005 included**

	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Pre-Prohibition	0.26	0.13	0.11	0.10	0.03	0.05	0.12	0.40	0.41	0.33	0.33	0.44
Post-Prohibition	0.52	0.33	0.30	0.15	0.11	0.05	0.13	0.34	0.40	0.44	0.62	0.42

Table 2: Total coliform bacteria levels from Station S-01 Surfrider Beach, Santa Monica Bay California. Percent of days per month (12/93-1/05) that exceed 1000 CFU/100 ML **Data with years 1998 and 2005 NOT included**

	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Pre-Prohibition	0.24	0.13	0.11	0.10	0.03	0.05	0.12	0.40	0.41	0.33	0.33	0.44
Post-Prohibition	0.50	0.30	0.34	0.13	0.09	0.03	0.11	0.37	0.47	0.38	0.59	0.45

Figures 2 and 3 show that there was a rise in the number of days per month post-prohibition that exceed the 1000 CFU threshold compared to pre-prohibition. Note that this result is true for the months of the year when there is substantial flow in the creek, primarily January through June. For example, for the month of February, the post-prohibition period has almost 60% of days exceeding the threshold, while during the pre-prohibition period the value is closer to 30%. It is worth noting that Tapia's contribution to flows in the winter were lower in the post-prohibition period than before. The percentage of days exceeding the threshold was higher in the post-prohibition period for months December, January, February, April, May, June, July and August. The month of March is unique in the pattern observed; for that month the percentage of days exceeding the threshold is approximately equal pre- and post-prohibition. In short, none of these results support the premise that the flow prohibition was effective in reducing

bacteria levels at Surfrider Beach. On the contrary, they suggest that bacteria levels and the number of unhealthy days for bathers rose.

Fig. 2.

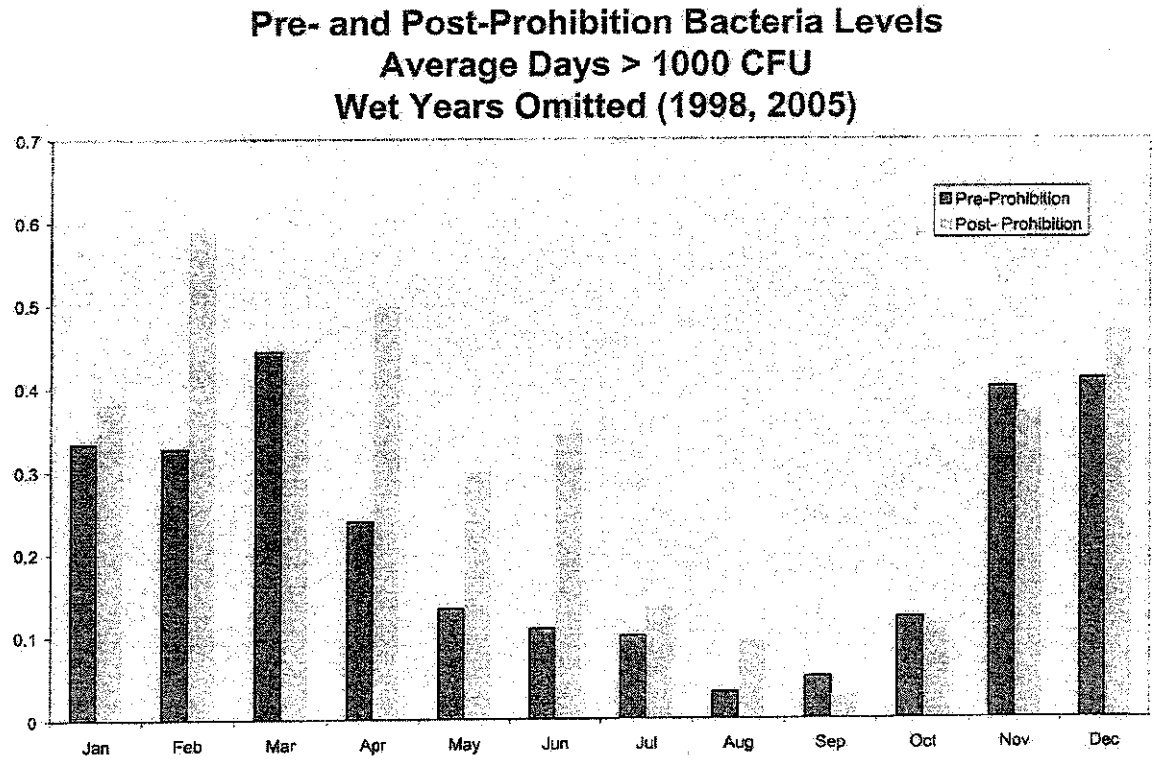
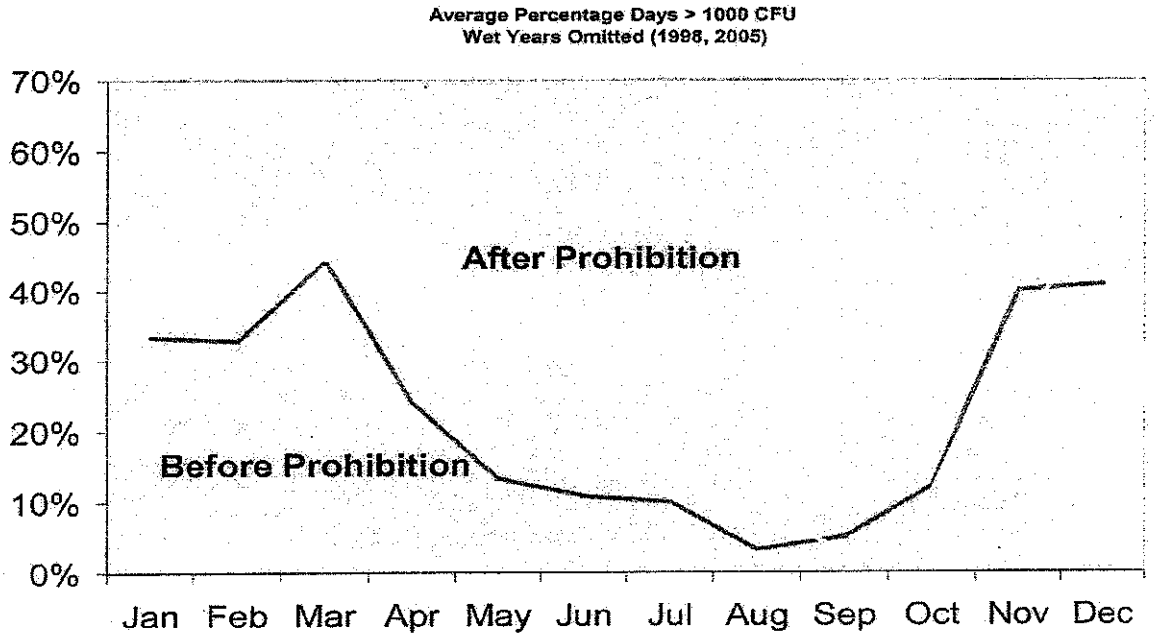


Figure 3. Pre- and post-prohibition bacteria levels, Surfrider Beach



Conclusions

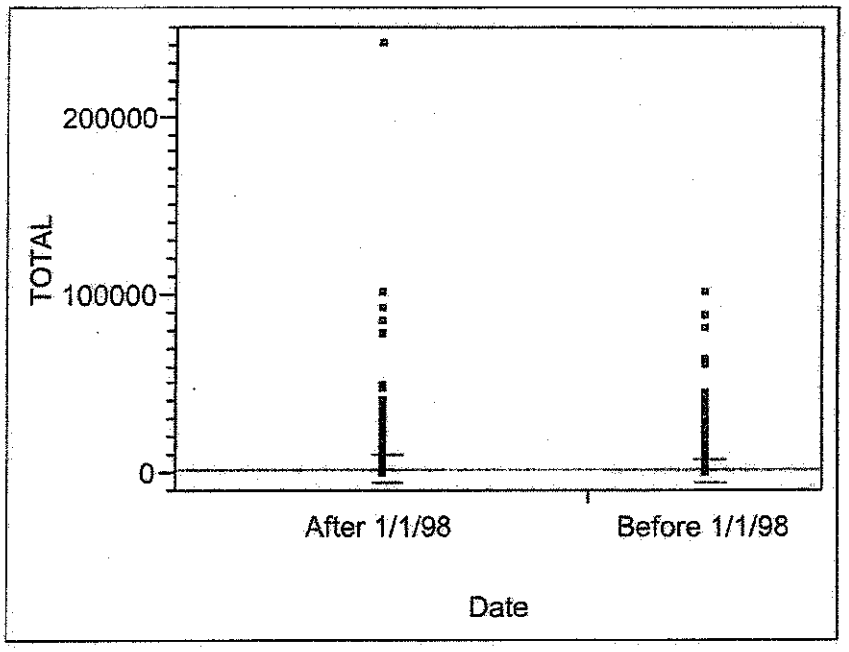
The prohibition on the discharge of surplus recycled water from the Tapia Water Reclamation Facility in 1997 has not resulted in reduced bacteria levels at Surfrider Beach in the years since the adoption of this regulation. On the contrary, the number of days exceeding 1000 CFU of total coliform bacteria have increased since then. The cause of this increase is not known, although one possibility is that bacteria levels have risen due to the reduced dilution by Tapia's effluent, which is essentially bacteria-free. Support for this interpretation is available in the form of generally higher bacteria levels in Malibu Creek upon the termination of Tapia's discharge each spring, although this effect was previously thought to be relative local in nature, and indeterminate by the time

Tapia's flows reached Malibu Lagoon. These creek monitoring station data should probably be re-examined to assess this interpretation.

Another interpretation is that no beneficial effect was observed because the underlying assumptions of the flow prohibition were incorrect. There is substantial support for this view insofar as the regulation presumed that Tapia's flows played a significant role in delaying the closure of the lagoon in spring and the breaching of the lagoon in fall. Data collected since the adoption of the flow prohibition suggest that Tapia's role was overstated. Specifically, stream flow data and lagoon depth data show that the berm seldom closes until stream flows reach about 10 cfs (LVMWD report No. 2334.00), which does not occur until well after the start date of the prohibition (April 15th) due to creek background flows independent of Tapia's discharge.

Summary Statistics for pre- and post-prohibition bacteria levels (total coliform, station S-01)

One way Analysis of TOTAL By Date



Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
After 1/1/98	2545	2539.26	7838.35	155.37	2234.6	2843.9
Before 1/1/98	1428	1787.70	6529.15	172.78	1448.8	2126.6

T- Test results

After 1/1/98-Before 1/1/98

Assuming unequal variances

Difference	751.57	t Ratio	3.234402
Std Err Dif	232.37	DF	3415.344
Upper CL Dif	1207.16	Prob > |t|	0.0012
Lower CL Dif	295.98	Prob > t	0.0006
Confidence	0.95	Prob < t	0.9994