

Sewage Spills, Beach Closures Trouble in Paradise?

SUMMARY

In the past several years, Orange County public beaches have experienced many closures due to ocean water contamination, significantly impacting Orange County's economy and quality of life. The Orange County Health Care Agency issued 252 orders that closed beaches for more than 2000 days from the beginning of 1987 through 2000 and the situation is getting worse. Almost all closures were the result of bacterial contamination from a sewage spill into drains or other waterways flowing into the ocean.

The 2000–2001 Orange County Grand Jury conducted a survey among 35 wastewater-collection and/or treatment agencies in the County. The survey concluded that the leading cause of sewage spills is clogged sewage pipes from accumulation of grease/oil discharged from restaurants and high-density residential areas. While several wastewater collection and/or treatment agencies have grease discharge ordinances that require restaurants to have grease trap/interceptor devices, only a relative few of these agencies have a regular inspection and enforcement program in place. With over 6,800 restaurants and approximately 12,000 miles of sewer pipes in Orange County, more effective methods of minimizing grease discharge into sewer pipes must be developed and put into practice if grease-related sewage spills are to be prevented.

The Orange County Grand Jury's recommendations to reduce the grease buildup in our sewer system include:

- Cooperation of cities, county wastewater collection and/or treatment agencies in adopting a standardized countywide grease discharge ordinance with enforcement power,
- An aggressive public education program aimed at individual restaurant owners and staff as well as the general public, including owners/managers of large housing complexes, and
- Regular review of restaurant grease traps/interceptors maintenance logs by the Orange County Health Care Agency and routine inspection of these devices by wastewater collection and/or treatment agencies staff within their respective jurisdictions.

PURPOSE/INTRODUCTION

The beaches of Orange County are among the most beautiful and utilized recreational resources in the entire country. When closed to public use, not only do the people using the beaches lose a recreational resource, but there is a substantial economic impact associated with the absence of beachgoers as well. From San Clemente to Seal Beach, many coastal businesses depend upon beach visitors for a significant portion of their income.

When a sewage line or other sewage facility fails, raw sewage may drain to the ocean, carrying with it bacteria and other human pathogens. This will automatically trigger a state-mandated beach water closure, which will remain in effect until further testing deems the water to be safe for recreational use.

According to a survey conducted by the Grand Jury and directed to 35 wastewater collection and/or treatment agencies in Orange County, the reasons cited for most sewage spills are:

- Accumulation of cooking grease in sewer pipes
- Age-related deterioration of sewer pipes
- Tree root intrusion and blockage of sewer pipes
- Sewage system pump failure

The purpose of this study is to explore the effect improperly discarded cooking grease/oil has on sewage spills and highlight possible remedies that may be available in preventing them

HISTORY AND BACKGROUND

California State law requires that when designated "indicator bacteria" reach certain levels in tested ocean water, the adjacent beach will be posted with warning signs. If higher levels are detected, the ocean waters will be closed to recreational use. Waters are tested several times a week at many locations along Orange County's coastline. Data collected by the Orange County Health Care Agency shows that from 1987 through 2000, the agency issued 252 beach water closure orders, which effectively closed the adjacent beaches to visitors for a total of more than 2000 days.

When large volumes of restaurant or high-density housing-generated cooking grease/oil enter sewage collection pipes, the grease solidifies and accumulates resulting in narrowing of the pipe's internal opening. Eventually the inside of the pipe is closed forcing incoming sewage to escape through manhole covers or other exit points. Until this sewage is detected and contained it may enter a surface drainage system, natural or manmade, where it drains into the ocean. Sewage has a high human pathogen content and thus contaminates water

adjacent to where the drains empty into the ocean, creating an immediate public health hazard.

Restaurants generally dispose of cooking grease/oil in the following three ways:

1. **Grease traps:** These are small devices hooked directly to the outgoing drains of sinks and dishwashers and are located inside the restaurant. Because they hold small quantities of captured grease, these traps must be emptied and cleaned on a regular basis and the grease properly discarded to prevent grease overflow into the sewer system.
2. **Grease interceptors:** Interceptors are large underground devices usually located outside the restaurant and connected to the restaurant's outgoing sewer drainage system. These large tanks have heavy manhole-like covers that are difficult to access for inspection. When full they must be emptied and cleaned by private waste pickup and disposal companies.
3. **Large covered barrels:** Barrels, in which higher quality cooking grease is placed, are kept covered and then collected by commercial companies who sell it for industrial reuse. These barrels are placed outside the restaurant. They are easily accessible and are usually not a contributing factor to the problem unless they are accidentally spilled and the contents enter sewer or storm drains.

Several beach cities in other Southern California counties have recently tackled their grease buildup and disposal problem with very encouraging results. During the 1990's the City of San Diego reported a 48% reduction in the number of sewage spills as a result of aggressive inspection and enforcement of their grease discharge ordinance for restaurants. In particular, the City of Oxnard (Ventura County) has not only adopted a grease discharge ordinance but its sewage treatment plant also operates its own grease pump-out service. The grease is pumped from restaurant interceptor tanks and brought back to the plant for proper processing and disposal. This program has shown to be not only cost effective, but the number of grease-related sewer spills has been reduced from a five year average of 25 to an average of eight spills a year for 1999–2000.

Orange County's situation is complicated by the fact that we have 38 separate agencies that provide wastewater collection and/or treatment services. Thirty-five of these agencies are cities or special districts that provide the sewer pipes and pumping facilities for collecting and transporting the raw sewage to one of the treatment plants located along the coast responsible for final treatment, reclamation and/or disposal of wastewater. These treatment plants accomplish final disposal by one of the following methods:

- Treated effluent water is sent out several miles via underwater pipe into the ocean.

- Wastewater is treated to levels suitable for recharging the natural underground aquifer.
- Treated wastewater is used as reclaimed water for landscaping or other non-human consumption-related activity.

In general, these agencies are responsible for the construction, inspection and maintenance of wastewater collection and transportation and in some cases treatment facilities within their jurisdictions. They also have the authority to issue wastewater discharge permits and to adopt various ordinances. These ordinances dictate quality, volume and prohibited types of wastewater accepted from residential, commercial and industrial wastewater generators.

The Grand Jury conducted a survey among 35 wastewater collection and/or treatment agencies in Orange County. Pertinent questions and responses from each agency to the survey were as follows:

1. Please list the most important reasons for accidental sewage spills occurring in your jurisdiction. A total of 29 (83%) agencies included grease as a major cause of sewage spills.
2. Do you have a grease discharge ordinance in your City/Agency?
Yes: 23 (66%) No: 12 (34%)
3. Do you require grease traps/interceptors for restaurants?
Yes: 26 (74%) No: 9 (26%)
4. If you do require grease traps/interceptors, do you have an inspection/maintenance program for these? (Of the 26 "Yes" responses to question number 3.)
Yes: 7 (27%) No: 19 (73%)
5. Have you adopted the 1997 *Uniform Plumbing Code* for use in your City/Agency? (This question relates to standardized design of grease traps/interceptors.)
Yes: 31 (89%) No: 4 (11%)

The Grand Jury's analysis shows that approximately two-thirds of the wastewater collection and/or treatment agencies surveyed have adopted a grease discharge ordinance within their area of jurisdiction and most (74%) require some type of grease intercepting device in restaurants. However, only 27% conduct routine inspection and maintenance programs to assure that these devices are effective in reducing the discharge of cooking grease in sewer lines.

The Orange County Sanitation District, in cooperation with their member agencies and Orange County Health Care Agency have conducted public information efforts to educate not only restaurants but also occupants of high-density residential housing areas such as large apartment complexes. This is

accomplished by distribution of brochures and presentations to residents and restaurants. Large residential housing complexes are also a source of cooking grease, although not nearly in the same volume as that discharged by restaurants. However, these efforts may need to be resumed and expanded given the fact that grease-related sewer pipe blockages continue to increase in number.

METHOD OF STUDY

The Grand Jury visited wastewater collection and/or treatment sites and facilities as well as conducted interviews with administrative, technical and operational staff of several wastewater collection and/or treatment agencies, both within and outside of Orange County. Seminars and workshops on the subject of wastewater collection, treatment and water quality were attended. Grand Jurors interviewed restaurant owners and managers. In addition, the Grand Jury met with several staff members of the Environmental Health Division of the Orange County Health Care Agency and then accompanied them on their regular restaurant inspections. Literature and ordinances from other coastal counties relating to grease discharge in sewage systems were also reviewed.

FINDINGS

Under California Penal Code Sections 933 and 933.05, responses are required to all findings. The Orange County Grand Jury has arrived at five findings:

1. Seventy-four percent of Orange County wastewater collection and/or treatment agencies require restaurants in their jurisdictions to have grease traps/interceptors installed and 66% have discharge ordinances.
2. Few wastewater collection and/or treatment agencies (27%) are using these discharge ordinances as a basis for grease trap/interceptor inspections and maintenance activities and resultant enforcement actions when restaurants are not in compliance with the ordinance.

Responses to Findings 1 and 2 are required from:

The City Councils of:

**Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach**

**Laguna Beach
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
San Clemente**

**San Juan Capistrano
Santa Ana
Seal Beach
Stanton
Villa Park
Westminster
Yorba Linda**

**And
The Boards of Directors of:**

**Aliso Water Management Agency
Costa Mesa Sanitary District
El Toro Water District
Irvine Ranch Water District
Moulton Niguel Water District
Midway City Sanitary District
Orange County Sanitation District
Rossmoor/Los Alamitos Area
Sewer District**

**Santa Margarita Water District
South Coast Water District
South East Regional Reclamation
Authority
Sunset Beach Sanitary District
Trabuco Canyon Water District
Yorba Linda Water District**

3. The Orange County Sanitation District, through its member agencies and the Orange County Health Care Agency have carried out public education efforts aimed at reducing cooking grease discharge from restaurants and residential sources.

A Response to Finding 3 is from requested from **the Orange County Health Care Agency**

A Response to Finding 3 is required from **the Board of Directors, Orange County Sanitation District and Orange County Board of Supervisors.**

4. All Orange County restaurants are inspected on a regular basis by qualified Orange County Health Care Agency, Environmental Health Division Specialists.
5. Orange County Health Care Agency specialists do not routinely inspect restaurant grease traps/interceptors unless there is an obvious indication of malfunction, even though these inspections are thorough in all other aspects of sanitation and food safety.

Responses to Findings 4 and 5 are required from **Orange County Board of Supervisors and requested from the Orange County Health Care Agency**

RECOMMENDATIONS

Under California Penal Code Sections 933 and 933.05, each recommendation requires a response from the government entity to which it is addressed. These responses are submitted to the Presiding Judge of the Superior Court. Based upon the findings, the Orange County Grand Jury recommends that:

1. All Orange County wastewater collection and/or treatment agencies form a coalition for the purpose of formulating a standardized grease discharge ordinance for use by all affected wastewater collection and/or treatment agencies. (Finding 2)
2. This ordinance should carry enough enforcement power to effectively prevent cooking grease from being discharged by restaurants and should include a vigorous inspection schedule, maintenance criteria and clearly defined enforcement procedures and sanctions where violations are noted. (Finding 2)
3. All Orange County wastewater collection and/or treatment agencies should carry out aggressive grease discharge prevention education and training programs aimed at individual restaurant owners and staff in their respective jurisdictions. Due to the high turnover in both restaurant businesses and workers, this effort should be carried out continually, countywide, throughout the year. (Finding 3)
4. Completion of training programs should be made a condition for wastewater discharge permit issuance to all new applicants, where discharge permits are required. This educational program should also contain a component directed toward owners and/or managers of large housing complexes. (Finding 3)

Responses to Recommendations 1 - 4 are required from:

The City Councils of:

Anaheim	Laguna Beach	San Juan Capistrano
Brea	La Habra	Santa Ana
Buena Park	La Palma	Seal Beach
Cypress	Los Alamitos	Stanton
Fountain Valley	Newport Beach	Villa Park
Fullerton	Orange	Westminster
Garden Grove	Placentia	Yorba Linda
Huntington Beach	San Clemente	

And

The Boards of Directors of:

Aliso Water Management Agency	Orange County Sanitation District
Costa Mesa Sanitary District	Rossmoor/Los Alamitos Area
El Toro Water District	Sewer District
Irvine Ranch Water District	Santa Margarita Water District
Moulton Niguel Water District	South Coast Water District
Midway City Sanitary District	South East Regional Reclamation Authority

**Sunset Beach Sanitary District
Trabuco Canyon Water District**

Yorba Linda Water District

5. The Orange County Health Care Agency should require, and then routinely inspect and review grease trap/interceptor maintenance logs to be accurately kept by restaurant operators to assure proper emptying and cleaning frequency of these devices. This log review should be made part of the Health Care Agency's regularly scheduled restaurant food safety inspection visit procedures. (Findings 4 and 5)

A Response to Recommendation 5 is requested from the **Orange County Health Care Agency.**

A Response to Recommendation 5 is required from the **Orange County Board of Supervisors**