"Go With The Flow"

Goleta Sanitary District's Wastewater Treatment

Introduction

In April 2002, the Regional Water Quality Control Board denied Goleta Sanitary District a extension of its waiver under The Federal Clean Water Act (CWA) of 1972, for its method of treating wastewater before pumping it into the ocean. Goleta Sanitary District currently uses a method that blends primary and secondary treatment streams. The Regional Water Quality Control Board wants the District to upgrade to full secondary treatment. This will require costly upgrades to Goleta Sanitary District's treatment plant. Goleta Sanitary District (GSD) contends that it meets and exceeds water quality standards.

The question being asked of resident rate payers and activists alike is this: Have we reached a point in the processing life of the Goleta Sanitary District where it is wise to double or possibly triple the monthly service charges to improve the quality of the water discharged into the ocean? Environmentalists contend the costs are justified. This question needs serious consideration. Thus far, Goleta Sanitary District has not surveyed its customers regarding their interest or willingness to make the necessary improvements.

It is the intent of this report to inform the public of the potential benefits of a full secondary treated wastewater discharge, along with the estimated cost of $42,000,000 associated with the modification, construction and operation of these facilities.

Background

The Goleta Valley and its approximately 75,000 people depend on the Goleta Sanitary District for their wastewater treatment and recycling. The District's services are provided directly to eastern Goleta Valley residents through approximately 40,000 connections. A separate contractual agreements exists for wastewater treatment with other agencies.

The Goleta Sanitary District facility is located on 78 acres of land at One William Moffett Place, adjacent to the Santa Barbara Airport. The District was formed in 1942 to serve approximately 1,500 people living in the District's agricultural community. At that time sewage wastes were disposed of through individual cesspools and septic tanks. Plans were drawn to build a sewer system and a treatment plant was opened in 1951. By 1965 rapid growth in the Goleta Valley led to the expansion of the

treatment plant and construction of the outfall pipe which releases wastewater into the ocean approximately one mile off Goleta Beach.

Goleta West Sanitary District, which contracts with Goleta Sanitary District for sewage treatment, was initially formed as the Isla Vista Sanitary District in 1954. Expanding into western Goleta Valley, it became the Goleta West Sanitary District in 1989. Goleta West Sanitary District serves 32,000 customers in the Goleta Valley and in Isla Vista. An agreement was reached with the Goleta Sanitary District to treat Goleta West Sanitary District's wastewater. Approximately 40% of the processing by the Goleta Sanitary District is under the contract with the Goleta West Sanitary District. Although the district is Goleta Sanitary District's biggest customer, it is only a customer and has no vote on GSD's board.

Goleta West Sanitary District constructed and currently maintains sewers, collection systems, and pumping stations to deliver the effluent (discharge of wastewater) to the Goleta Sanitary District's treatment plant. Goleta West funded an engineering study for its own treatment plant, one that would provide a full third level of treatment. (See **Processing** below.) They stated that this high level of treatment was expected for new plants.

A proposed merger of Goleta Sanitary District and the Goleta West Sanitary District was abandoned in 1996. While supported by the Local Agency Formation Commission (LAFCO), their formal termination of unification efforts has stopped all merger discussion. Goleta West had pushed for a merger for years, citing a need to streamline local utilities management. However, the Goleta Sanitary District opposed the merger because they feared it would raise their customer rates.

As of June 30, 2002, agreements were in effect for the following capacity rights at the Goleta Sanitary District plant:

Organization	Capacity Rights in Plant
Goleta Sanitary District	47.87%
Goleta West Sanitary District	40.78%
University of California at Santa Barbara	7.09%
City of Santa Barbara	2.84%
County of Santa Barbara	1.42%
Total	100.00%

Processing

The plant is designed to treat up to 9.7 million gallons per day of wastewater under normal dry weather conditions. Within this amount, secondary treatment capacity is 4.4 million gallons per day. The plant is currently operating at an average daily inflow of 5.08 million gallons, of which 0.68 million gallons, or 13.4%, receive primary treatment only, and 4.4 million gallons, or 86.6%, receive secondary treatment.

Wastewater, or sewage, treatment is a very complex process. Common treatment steps are pre-treatment, primary and secondary processes. The treatment process begins with the enforcement of industrial pre-treatment to remove contaminants before they enter the sewer system. Industrial and hazardous chemicals are monitored closely to prevent their introduction into the treatment stream.

The District blends wastewater from primary and secondary treatment in accordance with a 301(h) Waiver for discharge to the ocean. The District takes the position it is maintaining the environment in a clean and healthful condition, while using a less costly facility that is economical to operate and produces less land and air pollution than a full secondary process.

◊ **Primary treatment** consists of screened sedimentation tanks, where solids that settle to the bottom or float to the top for collection and removal are processed. Here wastewater passes through mechanical screens, which remove large objects, and grit tanks, which remove grit and sand. The wastewater then enters other tanks where gravity settles out heavy solids, while lighter solids such as oil or grease are skimmed from the surface. The primary treatment process removes approximately 65% of the solids from wastewater in this manner.

◊ The **secondary treatment** process begins in the bio-filter. This trickling filter is filled with honeycomb shaped plastic media, supporting microorganisms that remove dissolved organic material suspended in the wastewater. After bio-filtration, the water flows by gravity to another sedimentation tank where further biological action causes solids to clump together and settle to the bottom of the tank. From there the clumps are removed. Approximately 85% of the solids have been removed. The clean and clear surface water is the secondary effluent.

◊ Wastewater from both primary and secondary treatments are first blended and then chloride is added to disinfect and kill any remaining bacteria. Next the wastewater is de-chlorinated and transferred via pipeline approximately one mile out to sea and discharged into the ocean environment.

◊ The solids removed from wastewater are treated so they can safely be used as a soil amendment. The solids are stabilized by treating them in a heated anaerobic

digester for approximately six weeks. The stabilized solids are sent to settling basins for approximately a two-year period. The solids are dried in stages to kill-off any remaining bacteria. The resulting product is a dry, dark colored mixture, nearly odorless, and is available free to the public for use as a soil amendment.

◊ At the **tertiary level**, secondary treated water is mixed with special chemicals to cause the remaining suspended particles to clump together, then filtered with carbon filters and disinfected with chlorine. The recycled water then may safely be used for irrigation.

Anaerobic digestion is the bacterial decomposition of organic matter that occurs in the absence of oxygen. Anaerobic bacteria exist naturally at the bottom of ponds, swamps and other moist and airless places, and even in the digestive tracts of termites and large animals. These bacteria are among the oldest life-forms on Earth. Millions of years ago, anaerobic decomposition of organic matter formed the Earth's coal and oil deposits and created the natural gas we currently use for cooking and heating. The same process can be duplicated today with a mechanical digester that re-creates the ideal natural conditions for decomposition. Three primary reasons for use of mechanical digesters in managing organic waste are nutrient recycling, waste treatment and odor control. The methane (also called biogas) produced in the process is a useful and valuable byproduct that can be used for heating and to generate electricity. Goleta Sanitary District is currently studying a plan to use the methane to produce its own energy at the plant.

301 (h) Waiver

The District is currently operating under a five-year waiver of the Federal Clean Water Act of 1972. This is the fourth waiver it has applied for. Historical records indicate discharges are much cleaner than state and federal standards require, but environmentalists insist the waiver must be rescinded.

The Federal Clean Water Act (CWA) of 1972 requires wastewater treatment facilities, also known as publicly owned treatment works (POTWs), to treat their sewage using full secondary treatment. When the CWA was enacted, some treatment agencies made the case that full secondary treatment might be unnecessary for POTWs which discharged wastewater into deep ocean waters with large tides and substantial current which, it was pointed out, would mitigate the impact to the ocean. In response, Congress added Section 301(h) to the Act. This section allows for the United States Environmental Protection Agency (US EPA) to, upon request from a POTW, grant a 301(h) Waiver and, potentially waive the Act’s secondary treatment requirement. The waiver is renewable every five years.

In 1990 approximately 60 out of 16,000 sanitation agencies across the nation held permits with waivers. POTWs still operating under 301(h) Waivers in EPA Region 9 (California) are located in San Diego, Morro Bay, and Goleta. Several other coastal states and territories as well still utilize the waiver, in locations such as Alaska, Maine, Massachusetts, Hawaii, and New Hampshire.

Issues Against the Waiver

A non-profit environmental organization, Heal the Ocean, has actively sought to influence the Regional Water Quality Board to deny Goleta Sanitary District the 301(h) Waiver. Representatives from Heal the Ocean claim that Goleta Sanitary District, while doing a fine job for the present standards, has an opportunity to do more for ocean quality and community leadership. The group has retained legal counsel to intervene in a lawsuit that GSD has brought against the regional and state water boards. Heal the Ocean has funded scientific and engineering studies to use in their arguments against GSD's application for the waiver.

In 2002, the Regional Water Quality Control Board gave credence to Heal the Ocean's arguments and denied the waiver. In a complicated set of maneuvers, the district appealed to the State Water Quality Control Board, which then remanded the case back to the Regional Board. GSD has filed a suit against the Board because board action did not allow enough time to prepare its revised application. The Regional Board will take up the case when it meets in Santa Barbara in October, 2004.

Heal the Ocean is one organization working toward the elimination of all 301(h) Waivers in California. Its view is that the waiver system was never meant to be permanent; it was devised only to allow sanitary districts enough time to upgrade. It sees full secondary as an inevitable development. It points out that money spent on litigation against the Regional Board could instead go toward a new plant and as such is a waste of taxpayer money.

Both Goleta Sanitary District and Heal the Ocean are concerned about the degradation of effluent into the ocean. Goleta Sanitary District stands by its record of meeting or exceeding state and federal regulations. Using the same Metcalf and Eddy study (see below) commissioned by Heal the Ocean, it sees no cost-benefit advantage to spending money to upgrade a plant to make a modicum of improvement in its effluent.

An unknown variable in both estimations is the population growth in the Goleta Valley and in UCSB's housing. GSD revised its application based on a less optimistic projection of new construction in the Valley. Heal the Ocean, however, feels that growth is definitely in the pipeline, and that any increase in inflow adversely alters the ratio of wastewater from primary and secondary treatments.

The two groups also differ in their analysis of the benefits of the costs, more than the costs themselves. Admittedly an expensive proposition, Goleta Sanitary District would rather act fiscally responsible, but Heal the Ocean finds no objection to the indebtedness that such an upgrade would require. Doing a small part to preserve the quality of the ocean environment is justification enough for spending such money, according to Heal the Ocean. The question is whether the benefits are more political than environmental.

The Table below is from a study by Metcalf and Eddy , Inc.

Estimated Cost of Full Secondary Treatment - Goleta Sanitary District

Item	%	**Item Subtotal**
Construction Subtotal		**$22,472,400**
Engineering and Const'n Services	**20%**	$4,495 000
Permitting and Environmental	**5%**	$1,124,000
Legal and Administrative	**25%**	$5,619,000
Financing	**30%**	$6,742,000
Miscellaneous services	**10%**	$2,248,000
Total Cost for Secondary Treatment		**$42,700,400**

Both Sides of the Argument

Both Heal the Ocean and Goleta Sanitary admit that there are many possible sources of pollution. It is hard to fault Goleta Sanitary District's methods and operations.

The following is a summary of both sides - Heal the Ocean and Goleta Sanitary District - of the argument:

Issue	**Heal the Ocean**	**Goleta Sanitary District**
Viral pathogens	Samples showing entero-viruses (Hepatitus A, polio-virus) indicate human waste is coming back to shore. Full secondary is the best way to deter pathogen survival.	Few viruses can survive their current chlorine treatment. Tests for bacteria are more than adequate.

Issue	**Heal the Ocean**	**Goleta Sanitary District**
Viral pathogens (continued)	Costs of tests for viral pathogens were just reduced dramatically and can be added to GSD's monitoring.	Tests are not applicable or suitable. Because they do not have full secondary treatment now, GSD spends extra money on careful monitoring to ensure safety,
Ocean drift, or drogue	Ocean currents can occasionally carry effluent back to the public beach. Normal currents take it to a popular surfing spot.	Currents are checked continuously, and it is rare when they head toward shore. When it has, samples have shown no bacteria.
Population growth	Many new housing projects in the Goleta Valley and at UCSB will tax the system and allow more primary solids in the ocean. Quality is critical with more quantity.	The system is well below capacity. The average yearly flow remains above standards in quality. Growth projections are less than previously suggested.
Costs	Rates to customers may double. Rates would still be less than cable TV. Many customers would not contest a higher rate to help the ocean.	Rates to customers could triple. The cost-benefit ratio is so low that money would be better spent on maintenance and modernization.
Costs	Construction costs will rise so it is prudent to begin now.	It is more prudent to spend capital reserve funds maintaining their current system.
Costs	Litigation costs are a waste of taxpayer money.	The costs of the procedural case are small compared to debts incurred for a secondary upgrade.
Pollution	The ocean should not be used as a diluter.	The 301(h) Waiver allows blending primary and secondary treatment where ocean conditions show no harm from such outfall.
Pollution	Increased effluent may adversely affect water sports at the beach and the aquatic environment near the outfall.	Regular monitoring has assured that no bacteria has come close to shore and that aquatic life is thriving near the outfall.
Pollution	GSD can take this opportunity to lead the community in environmental cleanliness.	Non-point sources, such as the creeks, pollute much more than sanitary districts. GSD is engaged in many clean environment projects.

Conclusion

The Goleta Sanitary District consistently operates its facilities in the most efficient and safe manner possible, winning awards for personnel achievement, plant operation and maintenance. Grand Jury observations reveal a well-informed Board of Directors guiding a well-run organization. GSD is at a crossroads. This may be the most significant decision point in the history of the Goleta Sanitary District. Their 301(h) Waiver has been denied and they are faced with a major financial impact. Heal the Ocean does not deny the costs involved in an upgrade, but hopes GSD will consider full secondary in their modernization process. This is an opportune time to involve the resident customers of the Goleta Sanitary District. A survey would allow them to be heard and factor their opinions into the final decision to upgrade the GSD facilities or use the Courts in their pursuit of an extension to the current 301h Waiver.

Finding 1
Goleta Sanitary District has not surveyed its customers as to their opinion regarding an upgrade to full secondary and the rate increase an upgrade would incur.

Recommendation 1
Goleta Sanitary District should take a survey of its customers to answer questions regarding what they would support with respect to an upgrade to full secondary treatment of wastewater.

Finding 2
Goleta Sanitary District faces a critical hearing with the Regional Water Quality Control Board in October, 2004. The issue is whether to continue court action to retain the 301 (h) Waiver or upgrade to full secondary.

Recommendation 2
The Grand Jury urges Goleta Sanitary District to include long-range conversion plans to full secondary in its Master Plan.

Affected Agencies

Goleta Sanitary District
Findings 1, 2
Recommendations 1, 2