

# Clean Water Monitor

*Working Together with Our Community to Prevent Water Pollution*



Your Regional Wastewater Collection & Treatment Facility  
VOLUME 5 ISSUE 1

Serving Coastsiders Since 1976  
FALL 2010

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## Got Sewer Problems?

The cause may be a main sewer line stoppage. Contact SAM at (650) 726-0124 on call 24 hours a day. At no charge, SAM staff can determine if the problem is in the mainline or in your private lateral. If the mainline is the culprit, SAM staff will immediately take care of the problem. If the problem is in your private lateral, SAM staff may be able to help contain the spillage while you arrange for a plumber to resolve the problem.

## SMART IDEA: BIOFILTRATION

### A Clean Air Solution at Portola Pump Station

SAM and its member agencies are committed to using proven methods to control odor emissions from our plant and pump stations. Offsetting unpleasant aromas is a primary facility design consideration and part of our normal operation to optimize the performance of odorous air emis-



The Portola pump station in El Granada.

## HOT SPOT: KEEP WIPES OUT OF PIPES

### Toss Them, Don't Flush Them

Wastewater treatment facilities are facing an epidemic growing largely unnoticed by consumers seeking quick and easy methods for household cleaning and personal hygiene.

Over the last decade, increased introduction of single-use cloth-like wipe products in the

See *Keep Wipes out of Pipes* on page 3



### What You Can Do

Help keep wastewater treatment maintenance costs to a minimum, and prevent blockages that may cause overflows into your home, onto streets, or into our environment (creeks, beaches, ocean). Keep cleaning products labeled 'disposable' or 'flushable' out of the wastewater system.

- Follow this general guideline: if it doesn't dissolve as fast as toilet paper, it's NOT flushable.
- Never dispose of non-biodegradable items down the toilet. Items listed below should be properly disposed into appropriate waste containers (trash, recycling or composting):
  - *Cleaning and disinfecting wipes, or towelettes including medicated, moist and baby wipes*

- *Cotton balls and swabs*
- *Toss-in toilet bowl cleaning pads or scrubbers and plastic wands*
- *Floor mop wipe pads*
- *Paper or cloth towels and napkins*
- *Diapers (cloth, disposable, 'flushable')*
- *Feminine and personal hygiene, and contraceptive products*
- *Facial tissue*
- *Dental floss*
- *Cloth items (wash cloths, towels, rags)*
- *Any consumer item that is not toilet paper.*

- Spread the word! Tell others about the impact of 'disposables' and 'flushables' when they are improperly disposed into the wastewater treatment system.

sions and control applications. We've worked with expert engineering consultants to apply the most appropriate technologies based on the unique characteristics of any given application which includes proximity of the plant and pump stations to residential and commercial areas, ability to successfully operate and maintain cost-efficiency, as well as avoiding or minimizing adverse impacts to environmental and public health.

Wastewater aroma is usually caused by small concentrations of odorous

compounds (such as mercaptans, organic sulfides and amines e.g., indole and skatole) when organic matter decomposes. The most common are ammonia and hydrogen sulfide (H<sub>2</sub>S)—typically recognized as the smell of rotten eggs produced when sulfate in wastewater is metabolized by sulfate-reducing bacteria in the slime layer present in wastewater lines.

Odor control experts consider it difficult to identify any one approach as the most applicable for all odorous air emissions. For example, successful

See *Biofiltration* on page 2

## SMART IDEA: BIOFILTRATION (Continued from page 1)

wastewater is initially received may differ from those at the main treatment plant. Fortunately, the range of available technologies in the marketplace can offset unique odor control situations. Traditionally, H<sub>2</sub>S emissions control includes direct air stripping, precipitation and chemical oxidation. Alternatively, biological treatment, biotechnology, or biofiltration is a cost-effective and environmentally-friendly approach to address odorous air emissions.

Biofiltration, used at the Portola pump station, is a widely-accepted proven air emissions control practice which has efficiently controlled odors, treated and removed H<sub>2</sub>S in air streams at pump stations around the world. Based on engineering and scientific excellence, improving operations, reducing costs and protecting the environment, Kennedy/Jenks Consultants—an award-winning environmental science engineering and architectural services firm—formulated our biofiltration approach at the pump station which



Biological treatment of odors at wastewater facilities is an established and effective technology. The consistently reliable biofiltration odor control process at the Portola pump station in El Granada includes an engineered air distribution system under permeable black tarp, granite, and a bed of organic media.

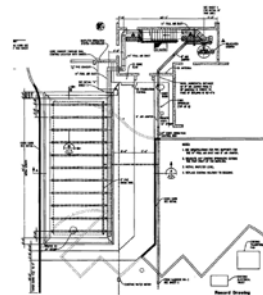


Crews apply a two-foot layer of organic media as the top layer in biofiltration odor control achieving high performance in removing hydrogen sulfide (H<sub>2</sub>S) as well as various other broad spectrum odor-causing compounds.

receives approximately 750,000 gallons of wastewater a day during dry weather, and runs at capacity during wet weather from Montara, Moss Beach, Princeton, El Granada, and Miramar.

Portola's low profile installation involves an air distribution network of perforated piping lying under a two-foot bed of natural or organic filtration media (pine/cypress wood waste chips, or mulch) and a means for maintaining moisture in the media. The process captures odorous gases released from incoming wastewater by filtering odor-causing compounds in the organic biofiltration media bed. Billions of indigenous (naturally-occurring) microorganisms within the media consume and convert odor-causing organic compounds to carbon dioxide and water in a safe, moist, oxygen-rich environment. Organic material is ideal for use as a biofilter because it resists degradation and inhibits compaction which can enhance performance and increase system longevity. All performance-optimized biofiltration systems are equipped with water irrigation to retain moisture in the media—an

Award-winning Kennedy/Jenks Consultants designed and managed the installation of biofiltration technology (aka "air scrubber") at the Portola pump station. Their innovative solutions have been recognized by prestigious organizations, such as the American Academy of Environmental Engineers, American Consulting Engineers Council, and National Ground Water Association.



essential step for managing nutrients (e.g., microbial activity and survival, bacterial contaminant digestion) to neutralize odors. Lack of moisture in the media can cause poor performance. As such, the amount of water applied is one of the most important parameters for physical stability and high-efficient biodegradation activity. Our crew maintains the quality of odor control methods through air sampling, monitoring, and moisture retention practices to optimize the performance of the organic media filtration bed. A carbon scrubber odor control device serves as backup at the pump station.💧

Sources: "Odor and air emissions control using biotechnology for wastewater treatment systems," Easter, Quigley, Burrowes, Witherspoon, and Apgar, May 2005; "Wastewater Odor Control: An Evaluation of Technologies," Water Engineering & Management, May 2000.

### What You Can Do

#### Report Odors

Report an odor issue by calling SAM at (650) 726-0124. We're on call 24 hours, seven days a week. Try to locate the source of the odor and provide the location and time it occurred. We'll respond by investigating the cause, take corrective action to eliminate it whenever possible, and follow up with the caller.

#### Reduce Household Sewer Odors

- Keep water in all traps, or curved pipes (i.e., "P" traps) located under sinks, tubs and floor drains which collect water to provide a barrier that blocks out odor. Normal use of sinks, tubs and drains will keep a "P" trap full of water.
- Correct fixtures without "P" traps.

- Close any waste plumbing openings created from fixture removal.
- Don't hook-up plumbing straight into the house side sewer—always install a "P" trap.
- Periodically run water through seldom-used drains (e.g., floor or garage drains or utility sinks).
- Replace cleanout caps after servicing.
- Keep plumbing vents clear and open—make sure they release sewer gas outside the house usually located on the roof. Following standard plumbing code should ensure proper venting. Hire a qualified plumber to address plugging from leaves or birds' nests, as well as the replacement of rusting or corroding pipes which can allow vapors to leak through.

## HOT SPOT: KEEP WIPES OUT OF PIPES (Continued from page 1)

marketplace promising ‘time-saving’ convenience has elevated disposable wipes to the single largest item in the “use-and-toss” trend sweeping the home-cleaning industry. Marketed as ‘disposable,’ or ‘flushable,’ wipes are a multibillion-dollar industry available for a variety of purposes from disinfecting countertops, applying medication and keeping baby tidy with new products (such as disposable toilet brush heads on plastic wands) emerging at a rate of about 3% each year. Many are touted as safe for sewers and septic systems. Yet, their growing popularity is creating a quantifiable mess of their own.

The convenience-cloth craze is becoming a liability for wastewater systems putting a strain on treatment facilities around the world. Our “flush it and forget it” consumer habits compounded by confusion over ‘disposable’ versus ‘flushable’ product claims (leading to improper disposal) has elevated the need to regularly unclog mounds of wipes from pumps and pipelines to allow wastewater to flow properly. Moreover, the situation worsens during holiday cleaning. In response, wastewater utilities are launching public education initiatives in an effort to wipe out the widespread misconception that flushing wipes down the toilet causes little harm. Without the aid of more-informed consumers, increased use coupled with improper disposal creates the potential for escalating rate fees to cover repair costs, as well as other undesirable consequences such as raw sewage overflows into homes and the environment.

Wastewater professionals agree that cloth-like wipes are indestructible. They are synthetic in nature derived from nonwoven polymers, sometimes mixed with wood pulp unlike toilet paper which dissolves quickly when wet. Because they are designed to remain intact with some of the same

manufacturing properties used to produce strength and absorbency in paper towels, they are not readily biodegradable and do not break down in time to pass through the treatment process. Once flushed, wipes enter the waste stream in a compact mass that can snag and build up in pipes and equipment. They have emerged as the cause of malfunctions or failure in equipment, pipeline and pump station operations.

Wipes are elevating costs for repairs, replacement parts, removal, additional maintenance and overtime for crews responding to slow or overflow conditions or emergencies to address clogged or blocked pipelines. While filters can catch wipes, wastewater systems are simply not designed to accept them. Wipes that slip through filters have to be removed and sent off to landfills at a cost to rate payers. To place the situation into context, filtration at the West Point Wastewater Treatment Facility in King County (Washington) catches an average of 600 tons of wipes a year. The costs associated with removing wipes from SAM’s treatment system can average \$200 or more per incident.

Avoid a backup in your home and protect our community’s wastewater system—never flush any consumer item that is not toilet paper into the sewer system, regardless of what the packaging promises. Toss them in proper waste containers (trash, recycling or composting), and not in the toilet or down drains to protect your home, our environment, water quality, and public health, as well as to prevent the waste of water and energy resources associated with improper wipe disposal. 💧

Sources: “Flushing wipes may cost you,” King5.com, September 23, 2009; “Don’t Flush Trouble,” Spokane County Public Works Division Utilities newsletter, October 2009; “Protocols to Assess the Breakdown of Flushable Consumer Products” Study, Water Environment Research Foundation, May 2005.

### If It’s Labeled “Flushable,” Why Doesn’t It Break Down?

While manufacturers are required to provide supportable data for environmental claims related to waste disposal, existing standards for evaluating ‘flushability’ are limited according to a study published by the Water Environment Research Foundation (WERF), a leading independent scientific research organization dedicated to wastewater and stormwater issues.

The peer-review study, *Protocols to Assess the Breakdown of Flushable Consumer Products*, evaluated the overall approach, methodologies, and quality assurance procedures for The Proctor & Gamble Company (P&G) in the first comprehensive industry-initiated guide of product testing associated with assessing the fate and biodegradability of flushable consumer products. While P&G’s testing was found to be fundamentally sound, WERF determined that, currently, there are no broadly acceptable methodologies for assessing the flushability of consumer products across the industry. WERF further suggests that production protocols and standards be refined, improved and developed through a scientifically-sound approach to consider if, and how products are compatible with household plumbing fixtures, wastewater collection and treatment systems to ensure all flushable consumer products break down as they move through treatment process. In addition, the study recommends an assessment approach that assures that flushable consumer products do not become an aesthetic nuisance in surface waters and soil environments.

**Note:** SAM has not conducted independent testing, and does not encourage or discourage the use of any particular brand or type of disposable or flushable product. Like most wastewater utilities, SAM urges consumers to dispose of them properly instead of flushing them down the toilet.

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The City of Half Moon Bay, Granada Sanitary District, and Montara Water and Sanitary District are member agencies of Sewer Authority Mid-Coastside through a Joint Exercise of Powers Agreement (JPA) formed in 1976.

**SAM BOARD OF DIRECTORS MEETINGS**  
Fourth Monday of Each Month 7:00 p.m. at the SAM Plant

Sewer Authority Mid-Coastside  
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Half Moon Bay, CA 94019

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Business hours: 8 am–5 pm Monday– Friday (excluding holidays)

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## MEET THE CREW: OUR OPERATIONS & MAINTENANCE TEAM



Tim Costello, Gabriel Aguilar, George Long and John Wade (not pictured) are SAM's O&M team who manage the daily operation of your treatment facility and three pump stations on the Coastside. As state-certified licensed operators, they bring 69 years of combined experience to the complex process of converting wastewater into safely cleaned water released back into the environment. It's a big job, and they do it well.

The O&M team's depth of knowledge, mechanical aptitude, intuitive problem-solving skills, and understanding of SAM's technical operations, management and governance ensures the treatment process is in continuous operation efficiently removing pollutants, materials, and microorganisms to meet or exceed water protection regulatory standards set by the U.S. Environmental Protection Agency (EPA) and Regional Water Quality Control Board (RWQCB).

They work daily shifts, are scheduled 'on-call' nights, weekends, holidays, or during emergencies to monitor and maintain the plant's operating condition, computer control system and vast network of piping, valves, gates, pumps,

lifts, motors, blowers, vactor equipment, engines and machinery that move wastewater through all treatment stages.

They follow standard procedures to operate the headworks station (where influent enters), bar screens, wet well and pumps; grit removal tanks; primary sedimentation, aeration and chlorine contact basins; centrifugal aeration blowers and pumps; secondary clarifiers; anaerobic sludge digesters; sludge dewatering belt press; odor control facilities; and the effluent (treated water outflow) pump station. They interpret instruments, indicators, meters, gauges and test results to maintain balances or determine necessary adjustments within established treatment process operating parameters (e.g., concentration levels, chemical dosages, discharge and flow velocity, and 'food to microorganisms [F/M]' ratios) to produce high-quality cleaned water. They also maintain storm drains, catch basins, lift stations and facility landscaping. They may perform cross functional duties (e.g., inspecting/cleaning mainlines and laterals) alongside our field collections team, or assist our mechanics team with preventative, routine, heavy maintenance and equipment installation projects.

Their other roles include: a) skillfully using of our state-of-the-art technology system to measure and monitor flows, well levels, pressures and pump station condition as a process-control decision-making and response tool to service 'hot spots'; b) maintaining accurate operating, water quality, and compliance records for

RWQCB, EPA and other regulatory agency reports; c) performing routine lab testing of on-site and offshore (the ocean outfall pipe and its reference site) water samples to monitor dissolved oxygen, Ph, salinity, temperature, ammonia nitrogen, ionized ammonia, coliform, enterococcus, and clarity levels; and d) keeping up-to-date on water quality protection and pollution prevention regulations.

Trained in emergency and safety procedures, the O&M team excels at exemplary injury prevention and workplace safety, and have been recognized by the California Sanitation Risk Management Authority, a leading wastewater industry risk management association for over a decade. Their dedication has resulted in SAM's distinction as a top-ranking wastewater agency with an outstanding record in safety performance measured by the lowest accident, injury or illness incident rates and associated costs that fall well below the California industry average.

Since 2006, the O&M team has shared their knowledge as tour guides to more than 1,500 students visiting the facility during the annual Sewer Science program sponsored by SAM in partnership with the biology department at Half Moon Bay High School. 💧

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