

Background - One of the most common municipal problems facing communities across the country is that of sewer spills, known in the utilities industry as a sanitary sewer overflow or “SSO”. Daphne, which is situated on a bluff overlooking Mobile Bay, is obviously located in an environmentally sensitive area and anything “bad” spilling onto the streets or ground in this area quickly finds its way into a wetland or waterway via normal surface runoff.

Costs and Damages – The damage to the environment from a sewer spill is obvious but the damage from these occurrences is far more than simply “environmental”. The monetary cost of the actual clean-up operation alone can run into the thousands of dollars per occurrence. Not all spills occur in “public” areas like streets or fields. Many occur in occupied buildings such as residential homes, retail stores and restaurants. Clean-up costs can run into the thousands as they often involve vacating effected buildings for days which adds dramatically to the financial impact. While municipalities and their utility arms have insurance policies to cover such events, these policies are not cheap and usually involve high deductibles reducing them to little more than “catastrophic loss” protection. Cities which fail to address routine sewer spills also suffer damage to their reputation, anger their citizens and cost themselves lost revenue from sales taxes and other sources.



Causes - One of the main causes of sewer spills in any system is oil and grease plugs in sewer mains. Oil and grease can enter a sewer system in many ways: waste oil poured directly into a drain or toilet, clean-up activities which washdown floors into a floor drain, even the simple act of washing dishes. Many common household foods contain oil and grease such as butter and margarine, food scraps, baking goods, sauces, and dairy products including ice cream! Home garbage disposals only make this problem worse by making it easier for a homeowner to dispose of food down a sanitary drain. Even a little oil or grease entering a system has a big impact. For instance, if each of Daphne Utilities’ 10,000 sewer customers were responsible for a single teaspoon of oil to enter the sewer system (even from washing dishes), the cumulative effect of this is the same as having seven 55-gallon drums of oil poured into the sewer each and every month. While oil and grease may be liquid when it

enters the sewer, it solidifies as it cools and becomes a gummy mess trapping food particles and “other” sewer debris in the wastewater. This thick, sticky mass will grow over time until wastewater flow is totally obstructed and a sewer spill occurs.

Solutions: Oil Recycling - In 2005, after numerous costly clean-ups, Daphne Utilities decided that a proactive response was necessary to combat this issue and began a Used Oil Recycling Program that was inexpensive and began results almost immediately! Recycling stations were eventually established at about 15 sites throughout the service area where customers could obtain clean, sealable containers to use for recycling cooking oil and grease. Once the containers are filled with used oil, the customers can return it and obtain a new



container all at no charge. An aggressive marketing program was begun to inform customers of the benefits to the environment for participating in the program. The “Cease the Grease” program was embraced by the community and has proved a great success in removing oil and grease from the sanitary sewer system. Sewer spill occurrences **dropped by more than 40%** since implementing the program translating into savings of approximately \$10,000 per year in clean-up costs alone.

Solutions: Biodiesel - The system currently collects approximately 400-600 gallons of used cooking oil per month through this program and the amount continues to grow. In the early days, this oil was simply disposed of at a local rendering plant, but the Utility soon found other ways to better utilize the oil. A partnership was formed with a local company, Earth Clean Technologies, to pilot a Biodiesel Plant using the recycled oil as feedstock to make clean-burning biodiesel fuel. It quickly became evident that the Utility could produce high quality fuel from this waste cooking oil for less than \$1 per gallon (at a time when diesel fuel was running in excess of \$3 per gallon). The Biodiesel Plant has been upgraded and increased in size as participation in grease recycling has grown. The plant was inexpensive to construct and built using mainly salvaged materials (discarded 55-gallon drums, decommissioned propane tanks, used water heaters, etc.). The current plant has the capacity to make over 1,000 gallons of biodiesel fuel in about 24 hours.



Solutions: Creative Marketing - The Utility has also found a highly creative use for the glycerin byproduct of the biodiesel process. Colorful hand soaps are made from this glycerin



which serve as a cornerstone of customer education efforts in the community. Handed out by the hundreds in schools and at public events, these soaps effectively remind people to make use of the Oil Recycling Program. The impact of this soap-making process is hard to overestimate! It has proven to be a key “door opener” to a wide variety of groups that would not normally be inclined to stop and talk to a utility

worker about oil recycling. While some see the glycerin as a by-product to be disposed of, Daphne Utilities recycles it heavily into its advertising and marketing of these programs and initiatives. We are truly working towards a system with zero waste!

Benefits - The benefits from this overall program were numerous and immediate. Fuel savings amounted to around \$10,000 per year as the Utility has expanded its use of the fuel to all service trucks and heavy equipment (this will increase as more of the Utility’s fleet is converted to diesel fuel). Diesel fumes are a thing of the past as biodiesel exhaust emissions smell distinctly like “french fries”. Another innovative approach uses the biodiesel fuel in large generators which provide electrical power to the Daphne Wastewater Treatment Plant saving the Utility about \$500 per day in electrical costs. In the end, though, the greatest impact for the Utility was the benefit the overall programs have on the environment and this continues to be the driving force for all of our efforts.



Making a Difference – To date, Daphne has seen numerous “trickle down” benefits not only to Utility operations, but to the City as a whole and even the State! As word spreads of the program, participation increases resulting in donations of even more oil for recycling which in turn leads to further reductions in sewer spills. As biodiesel production increases, demand for used oil rises prompting the Utility to broaden recycling education further. In a spirit of cooperation Daphne Utilities hopes will flourish, we actively share our “recipe for success” with other communities wishing to start their own “green” initiatives so as to answer questions and reduce risk to those new in the field. Utility operations are not usually known as a haven of creativity or originality yet, with this innovative new program, Daphne Utilities has found a way to connect with its residents, lead the way in an important environmental cause and not “break the bank” doing so.



Recognition - Utility companies from several cities around the state have inquired, studied and adopted the Daphne Utilities model including those from Mobile (MAWSS), Bay Minette, Hoover, Brookside and others as far away as Arlington, Texas! The programs have been featured prominently by ADECA who openly states that they hope the programs spread throughout the state. The Alabama League of Municipalities recently awarded their 2007 “Municipal Achievement Award” to the program and invited representatives of the Utility to speak to representatives from around the state on our success in this area. Locally, the Olde Towne Daphne Association awarded their “Spirit Award” to the Utility for our work with this program and, looking ahead, the Water Environmental Federation (WEF), an international group focusing on water and environmental quality, invited Daphne Utilities to present the program to its international convention this year in San Diego, California.

Conclusion – Daphne Utilities has embarked on a dramatically proactive plan to address the typical problems facing wastewater utilities from cities across the country. The programs we have developed are being copied across the region and serve as a source of pride for our city and for every utility provider that chooses to follow our example. Utility providers large and small are seeking our advice on ways they can address similar concerns in their area and we are actively helping them in any way we can. That is the key difference for us: We are not simply finding answers for ourselves. We are helping others learn from our efforts so that they can maximize the impact of their own programs.

Everything we do as a wastewater utility is focused on protecting the delicate and beautiful environment we enjoy here on Mobile Bay. To do any less is simply unthinkable. Protecting our environment doesn’t necessarily take lots of money but it does take drive, determination and a sincere desire to do the right thing whether people are looking or not. Above all, it takes the participation of all of our community to be effective and every day we are looking for new ways to get just one more person to help!

Working together, the cities of Alabama can realize significant advances in environmental conservation which not only save money but also serve as examples to the entire region. We’re making a difference each and every day: for our Utility, for our City, for our Customers, for our State, and we appreciate your consideration of our programs here at Daphne Utilities for the 2007 Eastern Shore Chamber of Commerce Environmental Award.