

### Value to State and Local Utilities -

**Addressing a tremendous need** – Locally, as well as nationally, the cost of collecting, treating, and reclaiming wastewater in order to return it into the environment and meet existing quality standards is expected to approximately double in the next few years. The drastic increase is needed to maintain and repair an infrastructure that has been neglected for many years. According to the Wall Street Journal and the Water Infrastructure Network, \$25 Billion dollars per year is now spent to keep sewers running, and another \$23 Billion per year is needed over the next 20 years to keep them from falling apart.

The U. S. Environmental Protection Agency has sued Los Angeles for allowing 2,000 overflows of raw sewage and wastewater in the past five years; an EPA audit blamed 41% of them on blockages created by waste generated in food preparation. Here locally, according to Jim Fink from the City of Albuquerque, the two biggest problems in maintaining the wastewater collection system are tree roots and grease clogs created by waste from restaurants and commercial kitchens. Mr. Fink estimates that grease clogs account for over 40% of his system maintenance problems. The greasy goop coming from restaurants and sewage don't mix well. Fat builds up, hardens, then breaks loose in chunks, creating blockages and jamming equipment. The problem is becoming larger every year. The National Restaurant Association reports that food industry sales have grown every year for the past 10-year and continues to predict growth each year in the foreseeable future.

Plumbing codes require establishments serving food to have grease traps, which separate and hold back the food waste from entering the sewer system. These traps, often-large underground tanks, require frequent pumping to allow them to function as designed. A recent survey of restaurants in New York City found 73% were not maintaining their traps properly and allowing the damaging food waste to continue flowing into city sewers. In an incident in Boston, a 300 foot long, 36-inch diameter grease plug clogged the sewer line under the famous Faneuil Hall area. Even when food service operators do have their traps pumped properly, the waste material still often finds its way back into the sewer system through illegal dumping. Pumpers become part of the problem when they don't pump traps properly and, at times, reintroduce the waste back into the sewer system. Incidents of illegal dumping into the storm sewer have been widely reported around the country. Many cities have sued pumpers for similar dumping which has resulted in serious main line sewer backups and injury to the public.

The effluent flowing back into city sewer, even from grease traps that are maintained, presents some added challenges for the collection and treatment systems. The high acidity of the effluent tends to create sulfides, which in turn create odor problems throughout the system and at the treatment plant which are expensive difficult to remedy. Restaurants and other commercial kitchens are often relatively high water users, some using 100,000 gallons per month or more. Most of this water re-enters the wastewater system, this effluent usually carries a much heavier load of organic waste than household users.

In summary, the cost of collecting and reclaiming urban wastewater is high and getting much higher. About 40% of collection system maintenance problems directly result from food service waste getting into the system, creating blockages, foul odors, and sometimes-dangerous backflows. Our proposal addresses this problem specifically by eliminating a large portion of this waste material at its source.

**How our system helps** – Aero-life aeration systems are an innovative new application of the proven technology of aeration, adapted here for cleaning and pre-treating restaurant wastewater. The system was designed to be an economical, energy efficient retrofit system into existing restaurant grease traps. By pumping low-pressure, atmospheric air into the water in the trap we dissolve oxygen into the water and, in effect, convert the grease trap into an on-site, mini-wastewater treatment plant. This allows naturally occurring microorganisms to breakdown a high percentage of the waste material, using only about 40 Watts of 110 V. power. Most of the need to pump the traps is eliminated with the waste on site. Pumpers are still needed, but the accumulation of waste material is usually reduced by 75% or more. The acidity to the water flowing out of the trap is brought up to a normal range and obnoxious smells are reduced both on site and throughout the collection and treatment system.

**In Support of the Water Plan Goals** - In order to help ensure that overflows of raw sewage and wastewater flowing directly into the environment are reduced, and that the cause of about 40% of these incidents is effectively addressed, we propose the widespread deployment of our systems. A site-by-site, widespread reduction of this kind of waste material in the system will significantly reduce one of the most difficult problems for wastewater collection and treatment systems. The effect on restaurant and food service operators would also be very positive because they will see reductions in; necessity to pump their traps, in trap related foul odors, drain line blockage problems, and operational costs.

This proposal supports all of the common priorities and objectives of the National, State and Local Water Plans by working to insure the quality of our water resources across the nation. By working on a grassroots level to help solve one of our major wastewater treatment problems, we allow valuable resources to be reapplied to other problems. In addition, by reducing this waste material at its source, using a very low-energy solution, we also reduce the cost of the “no value added” activity of hauling the waste from one point to another, and the cost of dealing with the waste at that other location.