

Sustainably Sinking Sewage in San Pedro

By Erin Strelch, Board Member

Amid all the green technology projects currently underway at the Port, the Terminal Island Renewable Energy (TIRE) project may not be well known, but this Department of Public Works five-year demonstration project is worth noticing, both for its pioneering use of green technology and for its direct connection to the sustainability of our local community.

The project is the first in the nation, employing both carbon sequestration and fuel cell technologies, with the eventual goal of generating as much as 3.5 megawatts of electricity from a renewable bio-resource: biosolids.

Biosolids is the euphemistic industry term for treated sewage, an endlessly renewing byproduct of our community. All sewage from San Pedro ends up at the Terminal Island Wastewater Treatment Plant on Ferry Street, where it undergoes advanced processes that treat and separate the sewage into its two main ingredients: water and solids.

Approximately 4.5 million gallons of water a day is fully reclaimed in this process, while the rest is discharged as effluent into the harbor. From 1957 to 1987, biosolids were also disposed of in the ocean, and then between 1987 and 1989 they were disposed of in landfills. Until last fall, almost all of the 50 wet

tons of biosolids produced at the plant daily were trucked to Kern County for use as fertilizer at a city-owned farm.

While biosolids are a valuable resource as fertilizer, issues both real and perceived still prevent their wide-spread use in land applications.

The TIRE project is testing an entirely new disposal approach by injecting the biosolids into depleted oil and gas reservoirs more than a mile deep under Terminal Island, where natural processes should create methane gas from the organic matter in much the same way as the original oil reserves formed from prehistoric creatures and plants. (See diagram at left.)

Carbon dioxide will also be produced, but this greenhouse gas should stay trapped in the deep subsurface through sequestration. Fuel cells will convert the methane into energy. The facility is predicted to eventually generate 3.5 megawatts of electricity per year, enough to power 3,000 single-family homes.

Up to 400 tons per day of biosolids will be injected for a period of five years, a process that began in September 2008. It's still too soon to generate methane, but the project is already producing benefits.

The two trucks required per day to

transport the treated sewage from Terminal Island across the length of the county have already stopped, with the city eventually saving \$1.6 million annually in transportation costs.

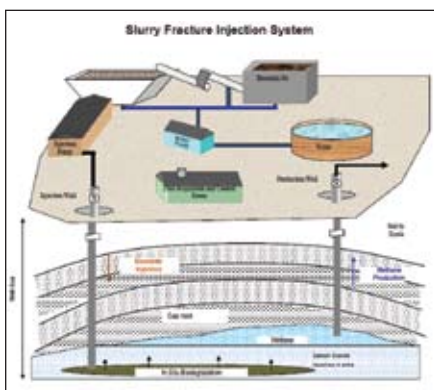
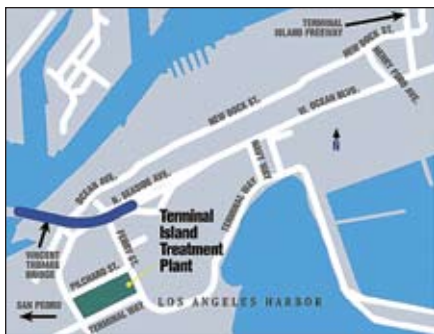
It is estimated that 1,500 miles per day of heavy truck traffic will be eliminated as we begin to manage our waste locally in a sustainable manner rather than dumping it on neighboring counties.

By essentially "restocking" the Wilmington oil field, the TIRE project may also help alleviate the issue of land subsidence caused by previous oil and gas extraction.

The science is proven and the potential benefits many, but this demonstration project is truly a first-of-its-kind, and because the energy generation portion has yet to be implemented, it remains to be seen whether the TIRE project fulfills its estimated potential.

For a complete overview of the wastewater treatment process and the Terminal Island facility, check out the L.A. Sewers webpage, www.lasewers.org.

For more information regarding biosolids management in Los Angeles including the TIRE project, go to www.lacity.org/SAN/biosolidsems.



It's Not Easy Going Green

City's Zero Waste Program Continues with Phase 2

The Vision

For the first time in the history of solid waste planning within the City, Los Angeles is developing the Solid Waste Integrated Resources Plan, also known as "SWIRP". This plan seeks input from stakeholders representing a broad section of the community, from diverse cultural backgrounds and income levels, resulting in the development and implementation of a 20-year master plan for the City's solid waste and recycling programs.

SWIRP has outlined the City's objectives to provide sustainability, re-

source conservation, source reduction, recycling, renewable energy, maximum material recovery, public health and environmental protection for solid waste management planning through 2030 — leading Los Angeles toward being a "zero waste" city.

The mayor and the Los Angeles City Council have established several key goals in response to the growing challenges posed by global climate change that include, but are not limited to:

- Implementing a stakeholder-driven Solid Waste Integrated Resources Plan (SWIRP);



- 75 percent diversion by 2013;
- Converting sanitation fleet to clean fuel by 2010; and
- Alternative technology facility operational by 2010.

However, achieving zero waste will require radical changes in three areas: product creation (manufacturing and packaging), product use (use of sustainable, recycled and recyclable products), and product disposal (resource recovery or landfilling). Change in these areas impacts how we live, work and interact with the environment. Currently, stakeholders are being instrumental in guiding this visionary 20-year solid waste management plan.

The Plan

The SWIRP process kicked off in early 2007 with over 150 stakeholder interviews to community groups, businesses and business organizations, environmental organizations, unions, private sector haulers, facility operators, recyclers and government partners.

In the first year of a six-year planning effort, stakeholders collaborated closely with the Bureau of Sanitation to develop the guiding principles and vision that will drive the details of a 20-year implementation plan. That plan detailed the infrastructure, programs, policies, regulations, incentives, technological innovation and financial strategies necessary to:

- Eliminate the use of urban landfills;
- Develop alternative technologies to convert waste to renewable energy fuels and products;
- Increase recycling and resource recovery;
- Convert Bureau of Sanitation trucks to clean renewable alternative fuels;
- Lead the way for Los Angeles to become a zero-waste city.

This year in Phase 2, stakeholders are evaluating the technologies that are

currently available to determine their efficacy, feasibility, comparable costs, the cost of using or not using and the health and environmental benefits and risks in order to make recommendations for their implementation.

Consideration for where they will be located is also being discussed. One of the guiding principles in the plan is an equitable distribution of facilities so as not to burden some areas of the city more than others and to put them where they are needed most.

The Action

Even though the plan has started, it is still not too late to get involved in the process. Many of the stakeholder ideas, concerns and recommendations have actually been considered and implemented already.

All stakeholders are qualified to participate. You are a stakeholder if you generate or dispose of waste in the City of Los Angeles or are interested in the reduction or management of waste.

To get involved, you need only send your name and contact information to:

Allen C. Wang, P.E.
Assistant Project Manager
Allen.Wang@lacity.org
213.473.4002

or
Reina P. Pereira, P.E.
Project Manager
Reina.Pereira@lacity.org
City of Los Angeles
Bureau of Sanitation
1149 S. Broadway Street
Los Angeles, CA 90015

Stakeholders will participate in the development of the SWIRP through meetings and be kept informed about the project through direct and electronic mail. For more information on the program and how you can participate go to www.lacity.org/san/srsw/swirp. Remember, it's not a plan without you!

Ways to Save Water Indoors and Outdoors

- Check your toilet for leaks. Put a few drops of food coloring in your toilet tank. If the coloring begins to appear in the toilet bowl without flushing, you have a wasteful leak that should be repaired at once. Even a small leak can waste thousands of gallons of water each month. When replacing the toilet flapper valve, make sure to select a model designed for your toilet.
- Replace all non-water saving toilets with new ultra-low-flush toilets.
- Turn off the water while brushing your teeth and save up to three gallons each time.
- Turn off the water while you're shaving. Just fill the sink with a little water and rinse your razor. You can save up to three gallons.
- Check faucets and pipes for leaks. Even a small drip can waste hundreds of gallons per month.
- Use your dishwasher for full loads only. Every load uses about 15 gallons.
- Use your clothes washer for full loads only. It uses up to 60 gallons per load.
- Don't let the faucet run while you clean vegetables. Instead rinse them in a sinkful of clean water.
- Keep a bottle of drinking water in the refrigerator, so you won't have to run the tap to cool it.
- If you wash dishes by hand, don't leave the water running for rinsing.
- Water your lawn deeply and less frequently. Avoid over watering and runoff. Adjust sprinklers to water the lawn, not the pavement.
- Water early in the morning or late in the evening.
- Change watering schedule seasonally.
- Repair leaks immediately.
- Use a broom instead of the hose.
- Do not allow the hose to run as you wash your car. Use a self-closing hose nozzle, or turn off the water, between rinses.