TIRE Project Overview

The City of Los Angeles is demonstrating an innovative technology to convert biosolids into clean energy by deep well placement and geothermal biodegradation.

Slurry mixtures of treated, non-hazardous, municipal wastewater residual solids and treated effluent are being placed into depleted geological formations at the Terminal Island Water Reclamation Plant operated by the City of Los Angeles.

At a depth of 5300 ft. material will undergo a natural process of high-temperature anaerobic biodegradation. Retention in the high temperature saline environment of the deep geologic formation will treat and convert the biosolids into methane, carbon dioxide, and non-volatile residual solids. The carbon dioxide will be preferentially dissolved and sequestered in the formation brine, while relatively high purity methane will migrate and become trapped in the reservoir for use as an environmentally safe renewable energy.

Frequently Asked Questions

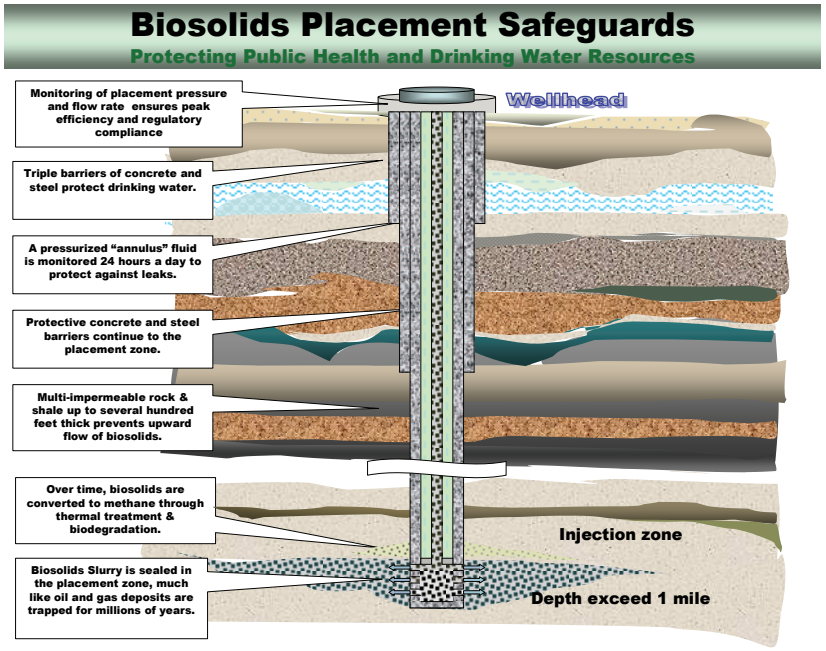
What are biosolids?
Highly treated organic residuals remaining from wastewater treatment
How many wells have been drilled?
3 (one injection and two monitoring)
How deep are biosolids placed?
5300ft
What range of biosolids is placed per day?
Between 50 and 400 tons
How far is this project from the nearest residential area?
1.5 miles
When will the demonstration phase be completed?
2012
What is the capital cost of the project?
$8 million
How are wells monitored?
Real-time monitoring of pressure, temperature, material amount, and microseismic activity

ENVIRONMENTAL BENEFITS

- Produces methane gas—a renewable energy
- Thermal treatment enhances sterilization of biosolids
- Eliminates more than 547,500 miles of heavy truck traffic per year and associated exhaust emissions, pollutants, odors, and dust
- During the demonstration period this project will sequester about 83,000 tons of CO2 (a greenhouse gas)
- Placing biosolids in deep subsurface formations using state of the art technology further protects groundwater (see below)

ECONOMIC IMPACTS

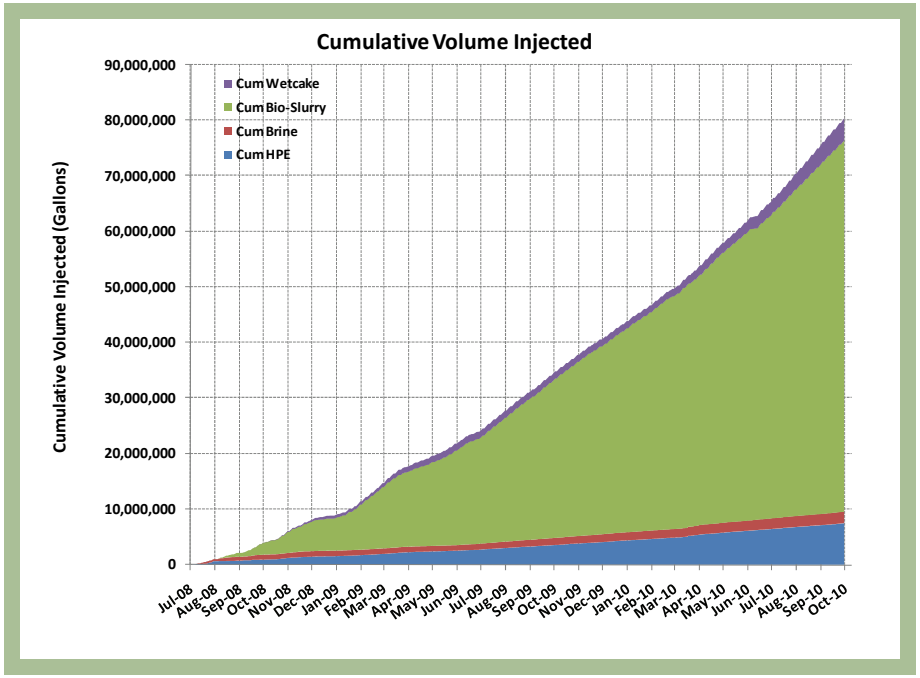
- Reduces transportation costs of biosolids by $1.6 million annually
- Reduces beneficial use cost
- Provides a clean, renewable energy source
- Creates jobs



Project Partners
The City of Los Angeles • Terralog Technologies
US Environmental Protection Agency

Update 10/2010

PROJECT PROGRESS



TIMELINE

- Permit issued in November 2006
- Groundbreaking occurred April 2007 and construction began June 2007
- Completed first two wells - June and July 2007
- Tested placement equipment with effluent and brine - July 2008
- Placed digested organic residuals - August 2008
- Placed dewatered biosolids (Wet Cake) - September 2008
- Completed one year of biosolids placement operations of 50 tons per day -July 2009
- Placed over 80 million gallons of bio-slurry material July 2008 - Oct. 2010
- Completed drilling of third well - June 2010
- 2011—Increase of biosolids placement to 300 tons per day
- 2012—Completion of project demonstration phase

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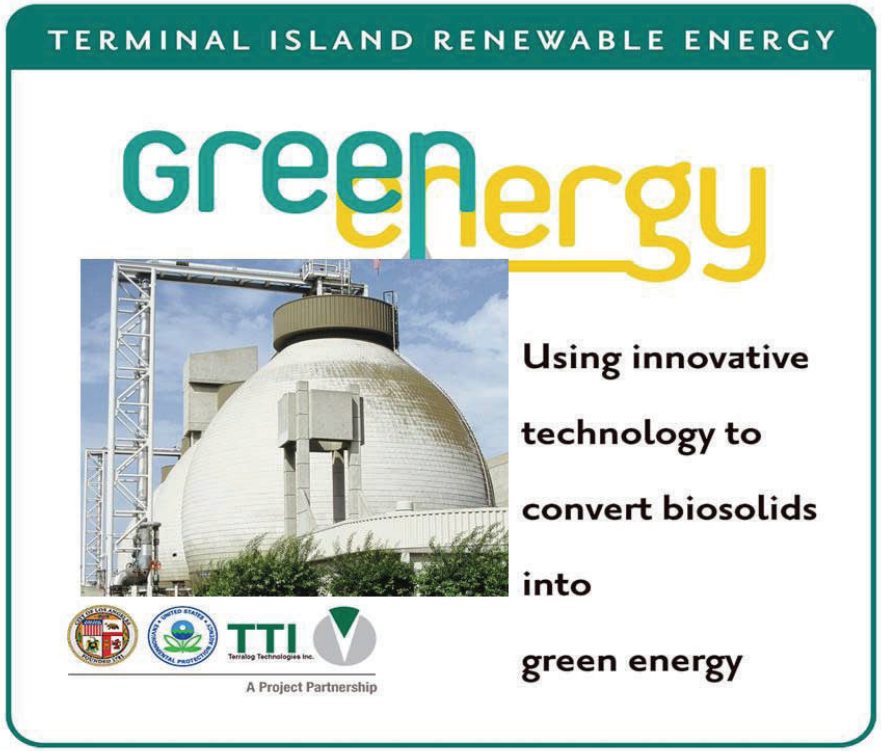
For more information on this project please call 310-648-5248
www.lacitysan.org/biosolidsems/managing_biosolids/deep_well.htm

CITY OF LOS ANGELES
SANITATION
DEPARTMENT OF
PUBLIC WORKS

Protecting Public Health and the Environment

Biosolids Injection Project



The Terminal Island Renewable Energy Project (TIRE), the nation's first full scale demonstration project, has been in operation for over two years. Biosolids are placed into deep depleted subsurface geological formations where the earth's high temperature biodegrades the organic compounds to generate methane gas that can ultimately be used to produce an environmentally safe renewable energy, while the carbon dioxide is sequestered.