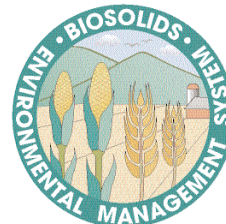


# BIOSOLIDS

## Environmental Management System

May 2011

*The City's biosolids management program is nationally recognized and has received the highest achievement (Platinum level) for biosolids management and environmental stewardship from the National Biosolids Partnership (NBP) that includes the National Association of Clean Water Agencies (NACWA), Water Environment Federation (WEF), and the U.S. Environmental Protection Agency (EPA). For more than fifteen years the City of Los Angeles has maintained an environmentally sound biosolids land application program that meets and exceeds all enforceable local, state, and federal regulations. For more than twenty years, the city has beneficially reused 100% of all biosolids produced.*



City of Los Angeles Biosolids Management Program History

DISPOSAL/REUSE OPTION	1950	1960	1970	1980	1990	2000	2010	2020
On-site Drying and Bagging		1957						
Ocean Disposal					1987			
Landfill					1989			
Land Application							Present	→
Energy Recovery					1997			
San Joaquin Composting (“TOPGRO” product)					1999			
Griffith Park Composting Facility							Present	→
California and Arizona Composting Facilities							Present	→
Terminal Island Renewable Energy Project (Demonstration)							Present	→

# The Terminal Island Renewable Energy (T.I.R.E.) Project Launches Third Year of Successful Biosolids Placement

The innovative TIRE project is in its third year of operation and was the winner of the 2010 National League of Cities Award for Municipal Excellence and also the California Association of Sanitation Agencies (CASA) Technical Innovation and Achievement Award. The project is the first of its kind in the nation placing biosolids into deep subsurface geological formations. At a depth of about 5300 feet the earth's high temperatures will ultimately biodegrade the organic matter and generate methane gas, while sequestering generated carbon dioxide, a greenhouse gas impacting global warming. The methane gas produced can be used to produce an environmentally safe renewable energy.

To date, TIRE has successfully injected



**TIRE PROJECT SITE**



“City Staff and Enrique Zaldivar (Director: Bureau of Sanitation) along with contractor (Terralog Technologies) at National League of Cities Convention in Denver—TIRE won Silver Municipal Excellence Award”

quirements and has caused no negative impact to public health or the environment. A third well was recently drilled and perforated in December 2010. This recent addition was facilitated by a two million dollar grant from the U.S. Department of Energy. Due to the reduction in transportation of biosolids to distant counties, TIRE is reducing transportation costs of biosolids by \$1.6 million annually and reduces 84 tons of NOx and 13 tons of carbon monoxide in emissions per year.

more than 100 million gallons of byproducts from wastewater treatment, including brine, effluent, digested sludge and biosolids. Currently all 35 tons of biosolids generated daily at Terminal Island Water Reclamation Plant (TIWRP) and up to 150 tons from the Hyperion Treatment Plant (HTP) are being diverted to the TIRE facility. The injection well has been accepting the material, and formation response is good. The operations are monitored daily, and data is reported to the U.S. EPA and a Technical Advisory Committee.

The project is in compliance with its permit re-



“Regulatory Affairs Division staff holding NLC National League of Cities award banner.”



# Audit Results .....

## 2009 Audit Findings

The City completed its EMS interim audit from August 9-12, 2010. The City requested through the NBP to hire an external third party audit company, KEMA, to conduct its audit. The audit results were reported to the Bureau of Sanitation management, the NBP, and interested parties.

### EMS Strengths

- The process for setting objectives is well established. Objectives include Bureau goals, Division objectives, Biosolids Action Team (BAT) review and site-wide objectives.
- An effective closed loop corrective action process is used in Industrial Waste Management Division for correcting problems resulting in Notices of Violation (NOV).
- The Bureau public outreach and communication program is effective and has resulted in positive feedback and recognition from several sources.

### EMS Nonconformances and Continual Improvements

The 2010 interim audit found no major nonconformances, and five (5) minor nonconformances.

- 10-01E - Poor housekeeping was evident in Digester D battery, centrifuge area and truck loading. This is not consistent with the commitment to Quality Practices included in commitment to the Code of Good Practice.
- 10-02E - Five of six objectives planned for 2010/11 are not measurable, except as a "yes/no" accomplishment within the prescribed timing.
- 10-03E - At the Griffith Park Composting Facility, it is uncertain what steps will be taken if compost piles are found not to meet fecal and/or metal requirements and records of monitoring for compliance with US Composting Council STA Program (other requirement) are not readily available.
- 10-04E - The Internal Audit conducted in May 2010 had findings, however, it is not clear what the cause of the findings is or whether corrective action has been completed effectively and on time.
- 10-05E - The management review conducted in May 2010 did not assess performance of the biosolids program against performance measures.

## Measure E Lawsuit Update .....



On January 18, 2011, the Kern County Board of Supervisors approved implementation of Measure E, a Kern County voter-passed initiative prohibiting the land application of biosolids in the unincorporated areas of the County. On January 19, 2011, the Kern County Department of Health Services notified existing permit holders, including the City's biosolids contractor, that they have six months to discontinue the land application of biosolids. A federal court had previously enjoined Kern County from enforcing Measure E from November 20, 2006 to November 9, 2010, when the federal case was dismissed solely on procedural grounds. On January 26, 2011, the City of Los Angeles, joined by a coalition of Southland wastewater utilities, businesses, and farmers, filed a new lawsuit in state court seeking to again enjoin and invalidate Measure E. Kern recently filed a motion seeking to make the Measure E controversy part of a long-standing separate state court case concerning the legality of Kern's prior biosolids ordinance, which did not ban all land application. The City has filed an opposition to that motion arguing that it is improper, and urging the court to allow adjudication of all Measure E issues within the City's newly filed case in state court.

# Goals and Objectives .....

*Each fiscal year city staff continues to improve its Biosolids EMS program. The City invited the public to participate in the goals and objectives process by attending public meetings, sending letters, e-mails and postings on the biosolids website to our interested parties and the public. We also provide periodic updates on the status of meeting goals and objectives. The items listed below highlight current objectives.*

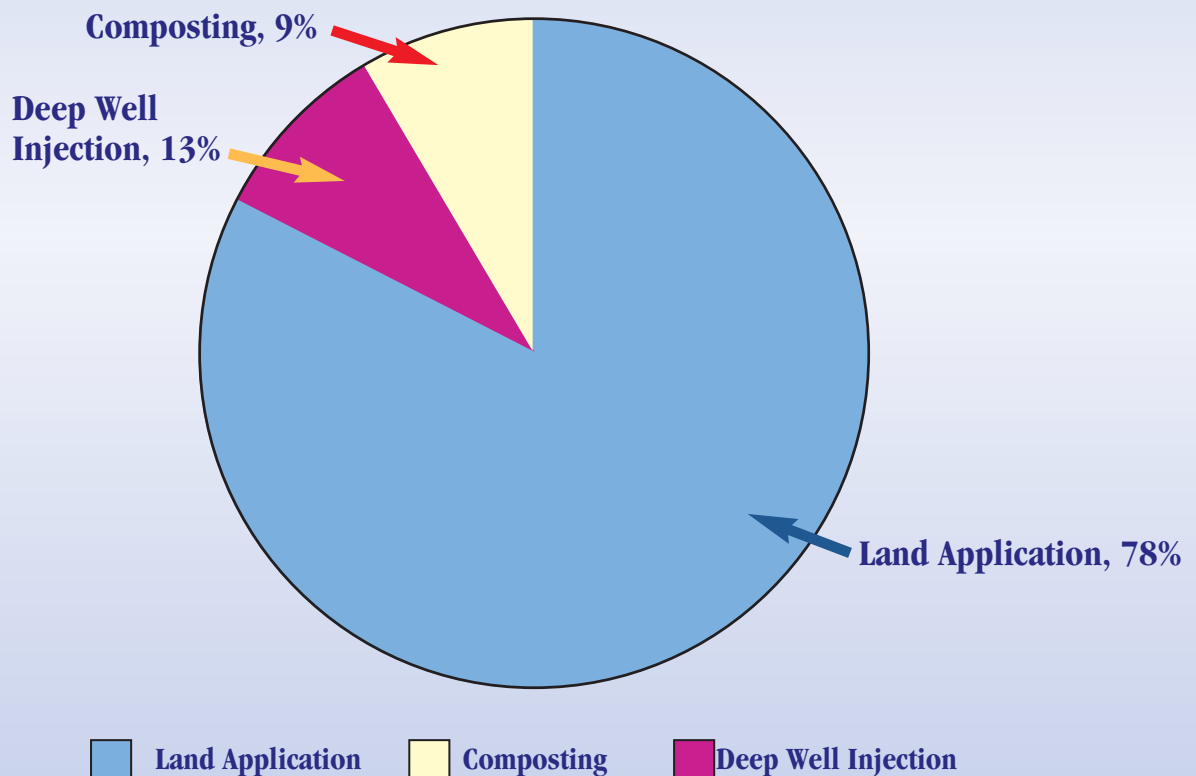
*To find out more about getting involved contact us at the information listed on the back of this report.*

## 2010-2011 Objectives

- Implement the Phase III requirements at the Terminal Island Renewable Energy project for injecting at least 20% of the total biosolids produced by June 2011.
- During the Measure E lawsuit, track related issues and provide at least one update quarterly to ensure regulatory compliance and maintain the City's biosolids management option at Green Acres. (Continued from fiscal year 09-10).
- Develop and conduct a minimum of three tailgate trainings for the Biosolids EMS program by August 2012.
- Develop and validate method for enteric virus monitoring within the Environmental Monitoring Division, and establish by January 1, 2011 a functioning program that is certified by the California Department of Public Health and Arizona Department of Health Services. (continued from fiscal year 09-10)
- Perform 960 Significant Industrial User and 300 Dental Offices and Clinics inspections by June 30, 2011.

## 2010 Biosolids Distribution

The City of Los Angeles processes, recycles and renews 143 billion gallons of wastewater produced annually by more than four million residents. Twenty one billion gallons of this wastewater are used as recycled water for beneficial water-conservation purposes. More than 230,000 tons of biosolids are fully recycled and are treated as a valuable commodity. The City managed 78% of its biosolids as fertilizer, 9% as compost, and the remaining 13% was distributed to the deep well injection project.



# Contractor Compliance



“Fanucchi Farming is harvesting crops at Green Acres Farm.”

In December 2010, inclement weather brought several inches of rain to Green Acres Farm. Consequently storm water runoff flooded the west part of the farm crossing over a road into private property. R&G Fanucchi Farming and RBM immediately took steps to diminish the chance of more rain water leaving Green Acres Farm through implementation of an Emergency Action Plan and a Remediation Plan. These plans will also handle any incidents in the future.

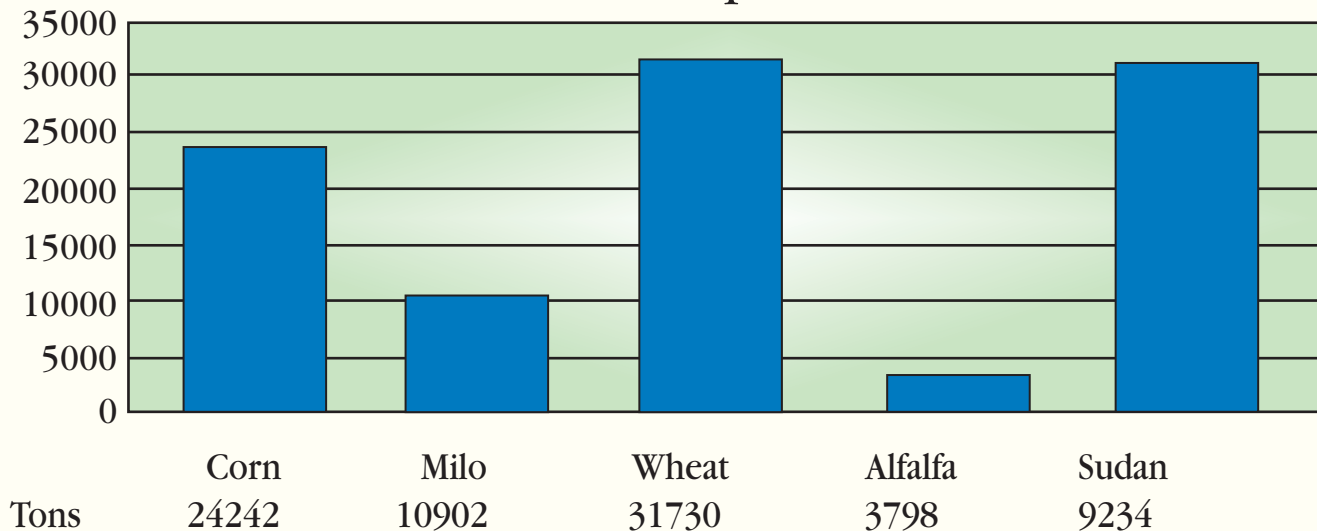
The City’s Green Acres Farm, managed by R&G Fanucchi, nearly offset its operating cost for 09-10 with crop revenue. The graph below shows the crops harvested. These numbers are comparable to crop yields in Kern County.



The City’s contractors, Responsible Biosolids Management (RBM) and Terra Renewal manage approximately 630 wet tons of biosolids daily. Both contractors met all regulatory requirements and followed best management practices for reusing the City’s biosolids. In addition, the working relationship with contractors continues to improve as evidenced by voluntary cooperation of fees in response to current economic conditions.

Terra Renewal managed the City’s biosolids through composting in California and Arizona. RBM land applied the City’s biosolids at Green Acres Farm where it was beneficially used as a fertilizer to grow various non-food crops.

## 2009-10 Crop Yields





# Monitoring and Measurements .....

*The City makes sure the biosolids we land apply are safe for the public and environment. Biosolids are monitored regularly to ensure they are well within EPA Exceptional Quality Standards and the Kern County Ordinance requirements.*

## Key Finding:

- Maintained a program that meets or exceeds the US Environmental Protection Agency and Kern County Class A pathogen requirements.
- Monitored and ensured that biosolids are well below the EPA's stringent Exceptional Quality metal limits.
- Maintained a record of zero non-compliances or notices of violation in 2010.

The following table features an example of some of the items the City monitors and measures for certain regulatory agencies. For more detailed information, please contact us by email at: [san.biosolidsems@lacity.org](mailto:san.biosolidsems@lacity.org) or by phone at 310-648-5877.

	Salmonella (MPN/4 gram)	Fecal Coliform (MPN/gram)	Nickel* (mg/kg)	Dioxins (-) (mg/kg)	PCBs (ppm)
Regulatory Requirements	Less than 3	Less than 1000	420	10	50
2010 Average Results	<1.6	4.4	37	0.01	None Detected

# Accomplished Goals and Objectives (2009-2010) .....

- Implemented the Phase II requirements of the Terminal Island Renewable Energy project to demonstrate a new technology that can help with diversification of the biosolids management program. (Objective)
- Provided training to the new EMS Auditor Team members. (Objective)
- Investigated and reviewed sustainable technologies/options for biosolids management and updated the strategic plan quarterly with alternatives that are being considered by the City to ensure that regulatory compliance requirements are achievable. (Objective)
- Inspected 255 Significant Industrial Users and 290 Dental Offices and Clinics to ensure compliance with biosolids regulatory requirements. (Objective)
- Complied with all enforceable federal, state, and local laws and regulations. (Goal)
- Produced Exceptional Quality (EQ) biosolids that meet or exceeded the requirements in 40 CFR 503. (Goal)
- Maintained a verified Biosolids Environmental Management System (EMS) that conforms to the National Biosolids Partnership EMS program requirements. (Goal)
- Required our land appliers to comply with the provisions of the CWEA Manual of Good Practice for Agricultural Land Application of Biosolids. (Goal)
- Conducted 215 tours at Hyperion Treatment Plant which included 3215 guests.

*For more detailed information, please contact us by phone at 310-648-5877 or by e-mail at: [san.biosolidsems@lacity.org](mailto:san.biosolidsems@lacity.org) You may view our website at: <http://www.lacitysan.org/biosolidsems/>*