

# Biosolids Program Annual Report 2010

## Renewable News

Volume 7, March 2011

The Encina Wastewater Authority's (EWA's) mission statement commits the organization to "maximizing the use of alternative and renewable resources." To help achieve this goal, EWA is working to update its Energy and Emissions Strategic Plan and implement the 2008 Biosolids Management Plan.

Kennedy/Jenks Consultants was hired to assist EWA with the Energy and Emissions Strategic Plan update. The scope of work included: identifying opportunities to enhance energy efficiency; evaluating existing energy generation technologies; comparing air emissions and regulatory impacts of the various technologies; and developing a plan to help EWA move in the direction of energy independence.

EWA's Energy and Emissions Strategic Plan should be finalized in March 2011. To-date process improvement opportunities identified by the study have been incorporated in EWA's Comprehensive Asset Management Plan for implementation over the next six years. Other potential projects planned to increase efficiency and energy production capabilities include: construction of

facilities for introducing hauled grease and food waste into the digesters; installation of an absorption chiller; addition of cogeneration engine exhaust catalyst and biogas treatment; and installation of additional engine generators.

EWA's Biosolids Management Plan, which was completed in 2008, provides a roadmap for helping the agency develop a diversified portfolio of reuse options for its biosolids. The initial goals of the Plan were to develop reuse outlets for 100% of Class A biosolids in the first five years and secure back-up disposal outlets for 200% of biosolids produced within two years. In Year 3 of

the Plan, research and development of higher value "Tier II" markets (e.g. fertilizer distributors, soil blenders, specialty agriculture and golf courses/turf management) was to commence, with the ultimate goal being to develop multiple reuse options for EWA's biosolids while reducing associated costs.

EWA achieved the initial goals of its Biosolids Management Plan ahead of schedule. Since August 2009 CEMEX has been utilizing EWA's biosolids as a biofuel in its cement kiln located in Victorville. When the kiln is offline for maintenance, EWA's biosolids are transported to Yuma, Arizona for application on farm fields used

to grow crops for non-human consumption.

Development of Tier II biosolids markets is underway. In October 2010, an agreement was signed with a soil blender to test use of EWA's biosolids in various fertilizer products. Another pilot study is being conducted in early 2011 to determine the cost effectiveness of phosphorous recovery, another valuable fertilizer product.

EWA continues to work towards developing other options for its biosolids. For future updates, send an email to biosolidsems@encinajpa.com and ask to be added to the mailing list to receive our e-bulletin entitled RenEWAbLe News. ■



## EWA Recognized as a Leader

EWA recently joined the EPA's Green Power Partnership, which is a voluntary program that encourages organizations to buy green power as a way to reduce the environmental impacts associated with purchased electricity use. The Partnership currently has more than 1,300 partner organizations voluntarily purchasing billions of kilowatt-hours of green power

annually. Green power is electricity generated from renewable resources (e.g. wind, solar, geothermal, biogas) that generates less pollution than conventional power and produces no net increase in greenhouse gas emissions.

EWA generates almost 12 million kilowatt hours of green electricity per year from biogas (enough to power 2,000 aver-

age homes), which provides more than 60% of the electricity required to operate the Encina Water Pollution Control Facility (EWPCF). EWA currently ranks No. 13 on the EPA's Top 20 Onsite Generation list and was recognized as a member of the Green Power Leadership Club for generating over 50% of its total electricity demand. ■

## Public Participation

A goal of the Biosolids EMS Program is to implement a proactive public participation approach that provides interested parties with meaningful opportunities to express their views and perspectives relative to biosolids management activities including concerns about environmental impacts, program performance, and potential areas for improvement. EWA considers input from interested parties in updating its goals and objectives and as part of the periodic review of biosolids management program performance.

EWA communicates information about its biosolids program through various avenues. The website ([www.encinajpa.com](http://www.encinajpa.com)) contains the EMS manual, program goals, internal/external audit reports, Biosolids Program Annual Reports, and a link to sign up to be included on the “Interested Parties” list. Those on the “Interested Parties” list receive notification of upcoming third-party audits and the opportunity to participate, as well as copies of audit reports and annual reports. A semiannual e-bulletin entitled “RenEWable News” is also published that provides information about EWA’s ongoing efforts to implement green technologies.

EWA’s outreach efforts include the local community. In 2010 approximately 340 people from various professional organizations and schools were provided tours of the treatment plant. In addition, Source Control Program staff participated in nine public outreach events, such as street fairs, where an interactive treatment plant model was used and samples of biosolids pellets were distributed. ■



*Tour group visits the EWPCF*

## Accomplishments of 2010

### Regulatory Compliance

- Testing results demonstrated that EWA’s biosolids meet Class A exceptional quality requirements.
- EWA registered its biosolids pellets with the State of California Department of Food and Agriculture and developed a label to enable use of the product as a fertilizer.

### Environmental Performance

- Greater than 90% of EWA’s biosolids were used as biofuel. This provides a use that is publically acceptable, while reducing greenhouse gas emissions from the CEMEX facility.
- Research and development has begun on the use of EWA’s biosolids as a soil amendment.
- EWA generated 62% of the energy needed to operate the plant through use of digester gas in its cogeneration facility.

### Relations with Interested Parties

- Completion of the Phase V expansion, which will enable the EWPCF to treat projected wastewater flows through 2025, has increased public credibility in EWA’s planning processes.
- EWA’s Internal EMS Audit Program (recognized as a best practice by the National Biosolids Partnership’s auditor) utilizes in-house staff, which provides employees with a greater appreciation for all aspects of EWA’s biosolids program.
- Information about the biosolids program was provided to local residents who visited the treatment plant (23 tour groups) or attended one of the community outreach events (9) in which EWA staff participated.
- Senior staff made 19 presentations about EWA to various professional groups.
- Development and certification of EWA’s EMS is helping the marketability of its biosolids, particularly with private companies.

### Quality Biosolids Practices

- EWA maintained certification of its Biosolids EMS after undergoing a third-party reverification audit.
- The SOP for contractor inspections was revised and an inspection form was developed for CEMEX.
- EWA’s EMS manual was streamlined, thus producing a document that is easier to understand and implement.
- The disciplined, structured approach in the EMS, particularly corrective action methods, helped develop lessons learned from the heat dryer project.

## Audit Results



*EWA staff visits CEMEX*

### Internal Audit

EWA conducted an internal audit of its Biosolids EMS between April and June of 2010. The audit was conducted by six EWA staff members and covered the entire biosolids value chain from generation to land application, as well as EWA's laboratory, information technology and management. The individual audits consisted of interviews with EWA personnel working in each area and a review of applicable records. In addition, site inspections were conducted at CEMEX and at Solid Solutions' land application site in Yuma, Arizona.

The audit identified five findings needing correction and ten opportunities for improvement. The findings needing correction included: two items related to out-of-date SOPs; two to equipment maintenance; and the fifth to contractor training. These items were addressed via EWA's corrective action process. Opportunities for improvement that have been implemented include:

- Providing network access in the heat dryer control room to enable access to SOPs, MSDS and other

information;

- Modifying the contractor inspection SOP and developing an inspection form for CEMEX;

- Updating computer passwords on a periodic basis; and

- Increasing the frequency of EMS Awareness training by incorporating information into the agenda for All-Hands meetings.

Based on the findings of the audit, EWA is complying with its Biosolids Management Policy and the National Biosolids Partnership Code of Good Practice, and is making good progress in accomplishing its biosolids program goals and objectives.

### Third-Party Audit

EWA obtained certification of its Biosolids Environmental Management System (EMS) from the National Biosolids Partnership (NBP) in 2005. To maintain certification, third-party interim audits are required in years one and three following certification, and a reverification audit in year five.

On September 13-17, 2010 KEMA-Registered Quality Inc. conducted a reverification audit of EWA's Biosolids EMS. The audit covered the entire EMS program and included a review of EWA's EMS documentation, and an onsite audit at EWA facilities and biosolids use sites.

The audit identified four minor nonconformances that

have been addressed through EWA's corrective action process. Upon completion, the auditor determined that: EWA's Biosolids EMS meets NBP expectations and the requirements of the NBP EMS Elements; and use of a management system approach is generating positive outcomes for EWA's biosolids program in the areas of regulatory compliance, environmental performance, quality biosolids practices and relations with interested parties. As a result, KEMA recommended recertification of EWA's Biosolids EMS within the NBP's Biosolids Management Program.

KEMA noted the following

strengths in EWA's biosolids management system:

- An effective "lessons learned" process is in place for evaluating significant changes that is used to plan for future changes.
- An effective practice is in place for responding to complaints and inquiries from the public near the wastewater treatment plant.
- Completion of 95% of preventive maintenance (PM) tasks within 40 days of required timing demonstrates an effective PM system. ■

## FY 2011 Goals

Each year EWA establishes goals to continually improve our biosolids program. Listed below are the current goals for fiscal year 2011.

- Maintain certification of Biosolids EMS.
- Complete appropriate labeling, licensing, registration and certification for Tier II biosolids use.
- Initiate Tier II biosolids research and development projects.
- Update Pretreatment Ordinance to incorporate revised technically based local limits that protect biosolids quality.
- Amend industrial user permits to incorporate revised local limits.
- Partner with local school districts to develop age appropriate curriculum.
- Provide six press releases about EWA programs to local print media.

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## Monitoring and Measurement Results

EWA conducts routine testing of its biosolids to ensure that reuse of this product will not endanger public health or the environment. All testing conducted in 2010 demonstrated that EWA’s biosolids met or exceeded federal standards set forth at 40 CFR Part 503, including the EPA’s stringent exceptional quality (EQ) metal limits for

arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium and zinc.

In support of the plan to diversify use of its biosolids, EWA conducts additional testing for nutrient content. As shown below, EWA’s biosolids contain levels of nitrogen and phosphorous that make it valuable as a fertilizer. ■

Average Concentration in EWA’s Biosolids

Nutrient	Percent
Nitrogen	5.7
Phosphorous (as P <sub>2</sub> O <sub>5</sub> )	7.0
Potassium	0.0
Calcium	3.5
Magnesium	0.5
Sodium	0.1
Iron	3.3
Sulfur	2.3

## Contact Information

If you have comments on this report or any other biosolids related items, please call our EMS Coordinator at:

(760) 438-3941 or e-mail us at: [biosolidsEMS@encinajpa.com](mailto:biosolidsEMS@encinajpa.com).

If you would like to be involved in the Biosolids EMS process, you may request to be placed on the interested party list by calling us or submitting your request via email.

For more information about EWA’s biosolids program, you can access the website at: [www.encinajpa.com](http://www.encinajpa.com)

## Contractor Compliance

EWA contracts with Solid Solutions for hauling its biosolids. During normal operations, Solid Solutions hauls Class A biosolids to the CEMEX cement kiln in Victorville for use as a biofuel. When the CEMEX facility or EWA’s biosolids heat dryer are offline for maintenance, the biosolids (Class A or B) are hauled to Yuma, Arizona for land application. During 2010 5,176 dry metric tons (dmt) of biosolids were used as a biofuel and 516 dmt were land applied.

EWA staff conducted site visits at CEMEX on March 3<sup>rd</sup> and September 14<sup>th</sup>, and at Solid Solutions’ land application site on June 4<sup>th</sup> and September 15, 2010. In addition to touring the site, staff reviewed document-

tation including permits, standard operating procedures, monitoring data, agronomic rate calculations and employee training records. Based on the site inspections and document review, Solid Solutions and CEMEX are meeting all regulatory requirements and complying with their contractual obligations to support EWA’s EMS Program. ■



EWA’s biosolids offloaded in Yuma.