



**2007**

# ***Performance Report***

## ***Environmental Management System for Biosolids***

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### **King County**

Department of Natural Resources and Parks  
Wastewater Treatment Division

**Technology Assessment and Resource Recovery  
Biosolids Management Program**

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201 South Jackson Street  
Seattle, WA 98104-3855

*CREATING RESOURCES FROM WASTEWATER*

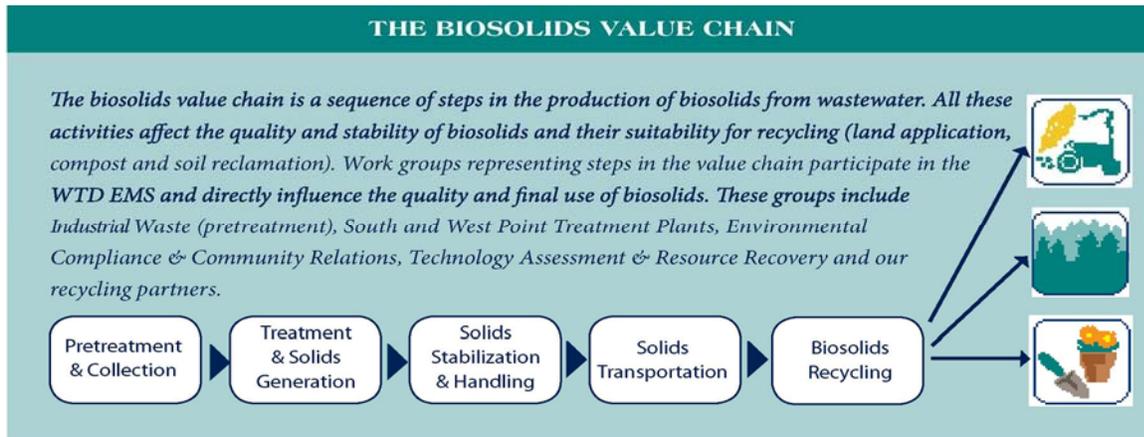
## 2007 PERFORMANCE REPORT

King County's Wastewater Treatment Division (WTD) recently earned the National Biosolids Partnership's (NBP) prestigious Platinum Level status for its biosolids environmental management system (EMS). King County completed the interim audit requirements on June 28, 2007, to successfully maintain its EMS certification. King County is one of only 12 public agencies in the nation to attain the Platinum Level status, which represents the highest achievement of biosolids management and environmental stewardship.

*"Attaining Platinum Level status is a significant accomplishment, but more than that, it's a vote of confidence in our program and the high quality of biosolids we produce."*

King County Executive Ron Sims

This report describes the results of our 3<sup>rd</sup> party interim audit. The audit examined how WTD employees, along with our recycling partners, are meeting requirements of the NBP EMS. This report also explains how we met expectations and policy commitments, achieved our goals and objectives, and complied with legal and other requirements. We continually strive to improve our production and management of biosolids.



## AUDIT RESULTS

In March 2007 we conducted the first interim audit since our verification audit. NSF International Strategic Registrations, the independent, 3rd party audit company, found three major and five minor nonconformances with respect to the NBP audit criteria. Corrective actions were implemented within 90 days to correct the majors. Corrective action plans have been approved for the remaining minor nonconformances, which are to be completed within 12 months. On June 28, 2007 all requirements were met to maintain our EMS certification with the NBP. For the complete audit report, please see our Web site.

### EMS STRENGTHS

The auditor noted the following strengths in the King County biosolids program.

- ◆ *Contracted biosolids use operations and sites observed (Boulder Park Inc. & RAMCO/Snoqualmie forest project) are well planned and function effectively.*
- ◆ *Good housekeeping at both South and West Point treatment plants clearly demonstrates attention to detail by operators and staff.*
- ◆ *Trucks being used to haul biosolids are being maintained in clean condition with attention to noise abatement.*

### EMS OUTCOMES

The auditor examined the outcomes of our biosolids management system in the four major areas of regulatory compliance, environmental performance, biosolids quality and interested party relations. The results are summarized below. Many of these outcomes apply to more than one area.

#### *Regulatory Compliance*

- ◆ *Controls on upstream business dischargers to reduce silver and mercury emissions at the source have resulted in approximately 40 percent reduction in silver and mercury (concentrations per ton) in the biosolids.*

## *Environmental Performance*

- ◆ *A program to expand biosolids options has resulted in the use of 20 percent biodiesel blend in County vehicles and closed loop recycling through use of biosolids on land growing canola that is used to produce biodiesel. This has enabled market expansion to canola crops, reduced greenhouse gas emissions and demonstrated King County's commitment to environmental sustainability.*

## *Biosolids Quality Practices*

- ◆ *A production scheduling program has been implemented to optimize the operation of centrifuges, resulting in approximately \$50,000/year reduced energy cost.*
- ◆ *The solids content of biosolids can now be customized daily to match the particular end use requirement, resulting in improved product usability and approximately \$100,000/year lower operating and transportation costs.*
- ◆ *Establishing that biosolids production is manufacturing a product for sale has enabled state sales tax relief on capital costs and some operating costs (e.g. polymer purchase). This resulted in a one-time tax refund of \$1million and ongoing reduction of \$50,000/year.*

## *Interested Party Relations*

- ◆ *Demand for King County biosolids in agriculture project areas continues to increase. This has resulted in increased revenue (soil amendment value is \$6/dry ton) and has enabled WTD to meet its goal to have use options for at least 150 percent of their biosolids production.*
- ◆ *King County continues to support university research into the use of biosolids and increased our knowledge of biosolids properties, such as biodegradability of pollutants. This research has led to better operating practices, helped us to identify new uses and improve environmental sustainability. It has also fostered good relationships with educators and recognized experts.*

## MONITORING & MEASUREMENT RESULTS

### PERFORMANCE MEASURES

The parameters below are monitored to ensure that we are meeting targets of the WTD Balanced Scorecard, as well as our regulatory and policy commitments:

Biosolids production	110,478 tons of biosolids (24,589 tons of dry solids)
Average daily truck loads	4 from West Point 6 from South Plant
Biosolids beneficially reclaimed	100%
Lost-time accidents	0
Annual targeted budget	Meeting target
Violations of state biosolids permit	0
Average number of employee training hours	34 versus target of 40 hours
Number of public complaints	15 (Responses were made to all.)
Biosolids quality	Meeting Federal (EPA) and Washington state standards for metals and pathogen reduction

### PERFORMANCE OF RECYCLING PARTNERS

As part of our internal audit, which occurred in February 2007, we evaluated the performance of our biosolids recycling partners. They include: Great Western, Natural Selection Farms, Boulder Park Inc, RAMCO and GroCo. We determined that they are meeting or exceeding targets in all contractual and legal expectations. Only one task, regarding the timeliness of weekly and annual reporting, was identified as needing improvement.

### LEGAL AND POLICY COMMITMENTS

#### *Legal*

Both treatment plants received National Association of Clean Water Agencies Platinum awards for meeting all NPDES permit requirements over the last five years. No Federal or State permit violations occurred in the last year.

### *EMS Policy Statement*

King County will produce, use and market biosolids products in ways that are publicly acceptable, cost effective, environmentally sound and follow the national Code of Good Practice.

### *Policy Commitments*

Each of the four main elements of the biosolids policy statement—public acceptability, cost-effectiveness, environmental soundness, and Code of Good Practice—can be evaluated using a number of measures. These evaluations inform King County about the success of its biosolids program compared to its commitments.

- ◆ Public acceptability – is measured through comments from users and neighbors, phone calls, and survey results. In 2005 and 2006, WTD conducted ‘Near Neighbor’ surveys of the treatment plant neighborhood, which identified the need to improve odors from the plant and biosolids hauling.
- ◆ Cost-effectiveness – the county met its commitment to recycle 100% of biosolids and to ensure end use capacity of 150% of annual production. Staff was successful in implementing efficiencies in production, scheduling and tax savings.
- ◆ Environmental soundness – the county continued to strengthen its program to reap benefits from biosolids and to ensure that the program is sustainable, without adverse environmental impacts. During the past year, researchers at the University of Washington determined that nonylphenol, a common pollutant in biosolids, degraded rapidly after land application, with no uptake into plants or movement through soil. Other measures of environmental performance over the last year are the lack of biosolids permit violations and lack of adverse changes to soil or groundwater.
- ◆ Code of Good Practice – This national code is a compilation of most of the county’s existing policy commitments. For example, King County supported the Code by
  1. meeting state and federal standards for biosolids production and use
  2. implementing an EMS
  3. monitoring its biosolids and management practices
  4. developing an emergency response plan
  5. communicating with stakeholders
  6. committing to continual improvement through the setting of annual goals and objectives.

## PROGRESS TOWARDS GOALS & OBJECTIVES

We established our goals and objectives to meet stringent NBP requirements and to compliment the work that we are doing for the WTD's Balanced Scorecard. Our goals are

1. Maintaining our 3rd party EMS certification.
2. Evaluating ways to improve our biosolids practices and biosolids quality.
3. Continuing our public participation and communication activities.

We accomplished the goals and objectives identified in Table 5 of the EMS:

1. Maintained EMS 3rd party certification:
  - a. Conducted our internal audit in February 2007.
  - b. Completed our 3rd party audit in June 2007.
  - c. Maintained NBP certification of our program.
  - d. Participated in ongoing discussions with NBP at February 2007 EMS workshop and June 2007 conference call to continually improve program and update Auditor Guidance.
2. Evaluated WTD biosolids practices for opportunities to improve:
  - a. Improved efficiency and timeliness of biosolids haul reconciliation process.
  - b. Participated on other cross-sectional committees to investigate cost-savings and continual improvements to our systems.
  - c. Designed digester enhancement system at West Point Treatment Plant.
3. Evaluated opportunities to improve biosolids quality:
  - a. Developed new source control screening levels for volatile and semi-volatile organic compounds.
  - b. Developed policy for permitting of biotechnology industry discharges in our service area.
  - c. Improved septage receiving procedure at South Treatment Plant.

## INTERESTED PARTY OUTREACH

Over the last year we maintained communications with the public and Interested Parties through the following activities:

- ◆ More than 7,000 King County students were introduced to biosolids curriculum in school or through tours of our wastewater treatment plants.

- ◆ Provided samples of GroCo biosolids compost to students, tour groups and gardening enthusiasts.
- ◆ Biosolids Web site updated to include the 2006 biosolids report, project reports, annual biosolids quality summary, research report and EMS performance report and a variety of educational resources.
- ◆ Held five biosolids educational workshops for King County staff and public.
- ◆ Created biosolids recycling poster to provide students with information about biosolids recycling and water quality.
- ◆ Near neighbor and water quality surveys confirm support of our wastewater programs and that residents experience no negative impacts.

## SUMMARY OF MANAGEMENT REVIEW

Our formal EMS Management Review was conducted on October 31, 2007. Nine members of WTD management team met to review our past year's performance, to evaluate the adequacy, suitability and effectiveness of our EMS and to plan our future direction. Most of the 2006 targeted objectives were accomplished and new objectives were identified.

## RECOMMENDATIONS

- ◆ Revise and streamline EMS Biosolids Policy to reduce redundancy.
- ◆ Form division-wide team to investigate options to reduce biosolids odors and increase usability at end use sites.
- ◆ Develop strategies for treatment plants to meet new state regulatory requirements for screening out manufactured inerts in biosolids.
- ◆ Evaluate cost and benefits in moving from EMS for biosolids to EMS for entire wastewater treatment process.

For more information:

Please visit our Web site at <http://dnr.metrokc.gov/WTD/biosolids/EMS.htm> or call Lisa Vogel at 206-263-3428.

Alternate Formats Available 206-684-1280 TTY Relay: 711