KUB’s biosolids program first received NBP Platinum certification in December 2011 after a rigorous review process and third-party audit. To maintain certification, the program must continue to pass interim audits and meet the high standards required by the NBP. After a third-party audit in late 2014, NBP again gave KUB’s program its highest Platinum level certification.

KUB’s program is one of only 34 nationwide and two in Tennessee to achieve NBP certification. That recognition demonstrates a high level of commitment to industry best practices and rigorous quality control.

Biosolids are nutrient-rich organic matter produced by wastewater treatment. Annually, KUB produces nearly 30,000 tons of biosolids. Rather than send biosolids to landfills, KUB recycles 100 percent of the material through regional farmers as a fertilizer registered with the Tennessee Department of Agriculture.

For more information, go to www.kub.org, Hot Topics Index, and follow the Biosolids link.

KUB’s wastewater treatment plants each qualified for peak performance awards from the National Association of Clean Water Agencies (NACWA) in 2014. The Kentucky-Tennessee Water Environment Association (WEA) also recognized three plants with Operational Excellence Awards for having no violations.

**Eastbridge:** 0 violations; 4,299 compliance checks; treats 0.526 million gallons a day (MGD)
NACWA Platinum 9, WEA Operational Excellence
Eastbridge first qualified for Platinum (no violations for 5 successive years) in 2010 and has remained violation free ever since.

**Fourth Creek:** 0 violations; 4,299 compliance checks; 5.16 MGD
NACWA Gold, WEA Operational Excellence

**Loves Creek:** 0 violations; 4,439 compliance checks; 2.45 MGD
NACWA Gold, WEA Operational Excellence

**Kuwahee:** 2 violations in 4,787 compliance checks; 28.17 MGD—three times total of other plants
NACWA Silver [5 or fewer violations]
Farmer Says: Biosolids Make a Tremendous Difference

As a fifth generation farmer with hundreds of acres across two farms, Joe Jaynes knows a thing or two about managing a farm. So when Daniel Dodson, Technical Services Specialist for Synagro, KUB’s biosolids contractor, walked onto his farm two years ago telling him about an organic fertilizer he could try for free, Jaynes was curious.

In the first year, Jaynes had KUB’s biosolids product, which is registered as a fertilizer with the Tennessee Department of Agriculture, applied to more than 250 acres on his farm in White Pine, Tennessee. In 2014, Jaynes added 100 acres on a second farm to total more than 350 acres. His farm is one of the bigger farms in partnership with KUB and Synagro and has seen firsthand the beneficial use of biosolids.

“The difference in the soil is phenomenal,” Jaynes said. “Organic fertilizer interacts with the soil so much differently than commercial fertilizer. I have seen a tremendous difference in my fields since using it.”

The cost benefit of using biosolids is a major plus, too. Jaynes notes it would easily cost $30–50,000 a year to use commercial fertilizer on his farms. “Fertilizer is a major cost, but you can’t farm without it. My relationship with KUB and Synagro is a true partnership and the quality of this free product is excellent.”

Application of KUB’s Biosolids

KUB contracts with Synagro Technologies for land application of its biosolids. Synagro is the largest recycler of organic residuals for water and wastewater systems.

Synagro’s highly trained staff ensures that the company’s work maintains compliance with applicable federal, state, regional, and local regulatory requirements. In addition to working to meet current standards, Synagro works with the EPA, NBP, biosolids associations, and applicable regulatory agencies to be proactive in meeting changing regulatory requirements.

Fifty-eight farms, comprising 5,135 acres, are approved for free biosolids land application by the Tennessee Department of Environment and Conservation. In 2014, Synagro applied 26,563 tons of KUB biosolids to 1,525 acres on 20 farms in Jefferson, Knox, and Loudon counties.

Regulatory Update:
General State Operation Permit for Land Application of Biosolids

The Tennessee Department of Environment and Conservation (TDEC) Division of Water Resources issued a new general permit for Land Application that became effective on May 1, 2014.

The permit applies statewide and authorizes persons or facilities covered under the permit to land apply biosolids in accordance with specific limitations, monitoring, management practices, and other conditions set forth in the permit. KUB’s Biosolids Program is authorized by the permit to land apply on farm sites.

KUB at present has 422 individual fields that have been approved by TDEC. KUB must submit a Notice of Intent (NOI) for each new field site before the application of biosolids. TDEC reviews the submittal and, if approved, issues a Notice of Coverage (NOC).

Normally there’s a 30-day waiting period to receive the NOC before the land application process can start. Because of its standing as a National Biosolids Platinum Certified organization, however, KUB has the authority to land apply immediately after application submission.

What Are the Nutrients in KUB’s Free Biosolids Worth?

KUB compared the nutrients in our biosolids to three well-known chemical fertilizers. The list below shows the annual cost for fertilizer to match the nutrients in KUB’s free biosolids.

<table>
<thead>
<tr>
<th>Nutrient (Fertilizer)</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (Urea)</td>
<td>$301,309</td>
</tr>
<tr>
<td>Phosphorous (Phosphate)</td>
<td>$522,539</td>
</tr>
<tr>
<td>Potassium (Potassium Nitrate)</td>
<td>$76,047</td>
</tr>
</tbody>
</table>
In 2014, KUB continued its two-phase approach to quarterly contractor assessments to help ensure the program achieves the desired five key outcomes:

- Regulatory Compliance
- Environmental Performance
- Quality Biosolids Management Practices
- Relations With Interested Parties
- Safety

The first phase is an inspection at an active farm site to check that our biosolids contractor, Synagro, follows appropriate guidelines and best management practices when applying biosolids.

Joe Jaynes applied KUB biosolids to an additional 100 acres in 2014. [See page 2 for more.]
EMS/Biosolids Community Outreach

KUB uses these methods to inform customers, the community, and interest groups about the KUB Biosolids Beneficial Reuse Program and EMS:

Customer Communications
KUB shares biosolids information with the public through its website. The site provides an overview of the program, a whitepaper, goals, and objectives.

Other means of public communication include a biosolids brochure, a newsletter that mails to all customers, KUB’s semi-annual report to the City of Knoxville, an annual Environmental Report, and a general handout that KUB executive staff use at speaking engagements.

KUB’s Customer Information Center also is a resource for answering questions and providing materials to customers who call in.

Fast Facts
100 percent of KUB’s biosolids are beneficially reused.

KUB’s biosolids are certified as a fertilizer by the Tennessee Department of Agriculture.

KUB nutrient-rich biosolids are a free, environmentally friendly alternative to chemical fertilizers.

KUB has operated a Biosolids Beneficial Reuse Program for over 20 years.

KUB provides approximately 30,000 tons of material to local farmers as a fertilizer and soil conditioner annually.

Land application of biosolids takes place in all 50 states.

Fast Facts

<table>
<thead>
<tr>
<th>Monitoring Category</th>
<th>EPA Part 503 Monitoring Frequency</th>
<th>KUB Monitoring Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathogen Requirements</td>
<td>Once every 60 days</td>
<td>Monthly</td>
</tr>
<tr>
<td>Vector Attraction Requirements</td>
<td>Once every 60 days</td>
<td>Monthly</td>
</tr>
<tr>
<td>Regulated pollutant limits (metals)</td>
<td>Once every 60 days</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total solids, pH</td>
<td>N/A</td>
<td>Monthly</td>
</tr>
<tr>
<td>Nutrients</td>
<td>N/A</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

Note: Based on biosolids production of equal to or greater than 1,500 dry metric tons but less than 15,000 dry metric tons.

Biosolids Monitoring Requirements

Biosolids produced in Tennessee are monitored for compliance based on the EPA Part 503 Biosolids Rule (40 CFR Part 503). KUB produces Class B Biosolids. Pathogen requirements are met by anaerobic digestion and monitoring the density of indicator organisms. Vector attraction reduction requirements are met by meeting a reduction of at least 38 percent volatile solids reduction.

KUB Blueprint Emphasizes Stewardship

“KUB’s mission is to be good stewards of our communities’ resources,” said KUB CEO Mintha Roach. “The Biosolids program is a perfect example of how we do this — recycling this material is good for the environment, good for the farmers that use it, and good for our operations.”

KUB will continue to look for opportunities to demonstrate this stewardship mission, starting with plans for a broad environmental sustainability study for Kuwahee Wastewater Treatment Plant in fiscal year 2016. The plant currently uses excess biogas produced by the treatment process to heat digesters, for example. One area of focus for the study will look at possible alternative uses for the biogas so that KUB can continue to find sustainability solutions.

Our Mission:
Our mission is to act as good stewards of our communities’ resources: utility assets, customer dollars, and the environment. We work to safeguard those resources and enhance their value for the people of the communities we serve and generations to come.