Update on the District’s Biosolids Management Program

Albert Cox: Soil Scientist

Dan Collins: Biosolids Manager
Biosolids Management Staff

Maintenance and Operations
1. Stickney, Calumet and Egan WRPs
2. Biosolids Management Areas – Biosolids Manager
   - CALSMA – East & West and lagoons
   - LASMA - Drying Sites and lagoons

Monitoring and Research Department
1. Analytical Labs Division – Analyses for permits and for research projects
2. Analytical Microbiology Lab – Pathogen testing for permit and regulatory compliance
3. Biosolids Utilization and Soil Science section
   - sampling & analysis for research & tech support
   - Technical support, marketing, and research
Pillars of the District’s Biosolids Management Program

1. Fulton County Land Reclamation – 1972 – 2004
2. Pretreatment Program
3. Controlled Solids Distribution Permit - 1984
5. Process to Further Reduce Pathogens (PFRP) - 2002
6. Facilities – R&D Greenhouse, and Fulton County lab
7. Applied Research and Collaborations
8. Trust-worthiness in Regulatory Community
Biosolids Management Team

- Revamped in 2006
- M&O and R&D Departments

Purpose of team

1. Issues and responsibilities related to biosolids production, processing, and utilization
2. Opportunity for R&D and M&O to share information on projects and studies
3. Develop Biosolids Management & Utilization Plan
4. Work the Plan
Five-Year Biosolids Management & Marketing Plan

1. Goals
2. Current and Future Biosolids Products
3. Description of Current Markets
4. Biosolids Production and Utilization Projection
5. Biosolids Production and Utilization Costs
6. Projected M&O Budget for Next 5 Years
7. Biosolids Marketing Plan
   a. Background
   b. Evaluation of Biosolids Utilization Outlets
   c. Overall Goals of the Biosolids Marketing Plan
   d. Biosolids Utilization Targets
   e. Biosolids Marketing Strategy
Biosolids Utilization Goals

1. Beneficial use of all biosolids - Environmental responsibility, applicable rules and permits.
2. Increase the Farmland Application and the Controlled Solids beneficial reuse programs
3. Increase public acceptance through research and demonstration programs, and public education
4. Maintain a sustainable range of outlets

*Sustainable* – meeting the needs of a diverse range of customers in the long-term
The Biosolids Story Part 1

Biosolids Production & Utilization

1. Description of District biosolids processing
2. Biosolids utilization programs
3. Environmental Management System (EMS)
4. Looking ahead
LASMA / CALSMA
SOLIDS HANDLING AND PROCESSING SCHEMATIC

1. Rail/Train to Lagoons
   SWRP Only

2. Anaerobic Digesters

3. Aging Lagoons

4. Lagoon Outloading
   Tractor Trailer
   Mechanical Agitator

5. Beneficial Reuse Programs
   To Utilization Sites
   Storage Pile

6. Air Drying

7. Beneficial Reuse Programs

Kirie (52 mgd)
Egan (30 mgd)
Lemont (3.4 mgd)
Northside (333 mgd)
Stickney (1,200 mgd)
Calumet (354 mgd)

NBP - EMS CERTIFIED
Biosolids Production and Processing

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity (mgd)</th>
<th>Process Stage</th>
<th>Product Type</th>
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<tr>
<td>Kirie</td>
<td>52</td>
<td>Anaerobic Digestion</td>
<td>Class B Cake</td>
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<tr>
<td>Egan</td>
<td>30</td>
<td>Centrifuge</td>
<td>Class A Air-dried</td>
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<td>Lemont</td>
<td>3.4</td>
<td>Aging &amp; Air-drying</td>
<td>Class B Cake</td>
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<tr>
<td>Northside</td>
<td>333</td>
<td></td>
<td>Liquid Biosolids</td>
</tr>
<tr>
<td>Stickney</td>
<td>1,200</td>
<td></td>
<td>Class B Cake</td>
</tr>
<tr>
<td>Calumet</td>
<td>354</td>
<td></td>
<td>Class A Air-dried</td>
</tr>
<tr>
<td>Hanover Park</td>
<td>12</td>
<td></td>
<td>Liquid Biosolids</td>
</tr>
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</table>
The District generates approximately 190,000 DT of biosolids for utilization every year.

Biosolids are processed for at 4 WRPs:

<table>
<thead>
<tr>
<th>Location</th>
<th>Amount Utilized/Year (DT)</th>
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<tbody>
<tr>
<td>Stickney</td>
<td>150,000</td>
</tr>
<tr>
<td>Calumet</td>
<td>30,000</td>
</tr>
<tr>
<td>John E. Egan</td>
<td>4,500</td>
</tr>
<tr>
<td>Hanover Park</td>
<td>1,600</td>
</tr>
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</table>
Solids Processing Trains

**High Solids Sludge Processing Train**
- Centrifugation to 20-30% TS
- Lagoon Aging*
- Air-Drying** to ≈ 60% TS
- Final Product

**Low Solids Sludge Processing Train**
- *Dewatering, Stabilization, and Inactivation
- **Dewatering and Inactivation

**Class B**
- Lagoon Aging/ Dewatering* to ≈ 8-12% TS
- Final Product

**Class A**
- Air-Drying** to ≈ 60% TS
- Final Product

Anaerobic Digestion ≈ 3-5% TS
Centrifuge Cake transport by Rail to Lagoons
Management Area Machines

• Heavy Equipment
  – Crane with Slacklining System
  – Crane with Clamshell Bucket
  – Tractor with Pump
  – Wheelloader / Bulldozer
  – Tractor and Tiller Combination
  – Paddle Aerators and Augers
  – Screeners
Lagoon at LASMA

Typical Depth 16 Feet
Typical Capacity ~ 350,000 yd³
LASMA

- 7 Active Lagoons: 24 – 30, (~2,300,000 cubic yards)
- Lagoon 23 relining to be completed in 2009 adding ~300,000 cubic yards
- Lagoons 1 - 22 replaced by the Construction of McCook Reservoir
- Five Drying Sites, (243 ACRES)
CALSMA SOUTH LAGOONS

Typical Capacity ~ 100,000 - 200,000 yd³
CALSMA

- 10 Active Lagoons: 1, 2, 5-7, 17-19, (~1,300,000 cubic yards)
- Lagoons 3, 4, 14 and 15 relining to be completed in 2012 adding ~ 460,000 cubic yards
- Lagoon 8 is temporarily out of service and Lagoon 9 was lost to plant expansion.
- Two Drying Sites, (149 ACRES)
Crane with Clamshell Bucket Outloading a Lagoon for Transportation to Drying Site
The Drying Process

• Lagoon Outloading to Drying Cells
  – Crane (High Solids)
  – Tractor and Pump (Low Solids)

• Air Drying
  – Low Solids: Wheelloader or Tractor with a rail attachment or Tractor-Tiller combination
  – High Solids: Tractor-Tiller combination and/or Paddle Aerator
LASMA Biosolids Management Area (Cells)
Biosolids Agitation

Rail System Pulled by a Bulldozer On Paved Drying Cells
Biosolids Agitation

(Tractor-Tiller) on Paved Drying Cells
Biosolids Mechanically Agitated (Auger) During Air-Drying On Paved Drying Cells
Biosolids Mechanically Agitated (Paddle Aerator) During Air-Drying On Paved Drying Cells
(Tiller) During Air-Drying On Paved Drying Cells
(Auger) During Air-Drying On Paved Drying Cells
(Paddle Aerator) During Air-Drying On Paved Drying Cells
Air-Dried Biosolids Being Stacked In Preparation For Transport to Beneficial Use Sites
Air-Dried Biosolids Stockpile Ready for Transport to Sites
How are District Biosolids Used Beneficially in the Chicago Metro Area?
District BIOSOLIDS BENEFICIAL REUSE PROGRAMS

1. Fertilizer on farmland (up to 60% of production)

2. Substitute for soil on landfill - Daily Cover and Final Cover

3. Fertilizer and soil amendment in the Chicago metro area (Controlled Solids Distribution)

4. Pelletizer
Land Application Loading
Land Application Loading
## Utilization of District Biosolids in 2002 - 2007

<table>
<thead>
<tr>
<th>District Wide Summary</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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<tr>
<td>Farmland Application – Injection</td>
<td>1,331</td>
<td>950</td>
<td>1,210</td>
<td>4,289</td>
<td>3,414</td>
<td>1,106</td>
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<td>Farmland Application – Cake</td>
<td>31,700</td>
<td>84,321</td>
<td>84,997</td>
<td>64,673</td>
<td>59,802</td>
<td>81,422</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Controlled Solids Distribution</td>
<td>4,810</td>
<td>23,922</td>
<td>680</td>
<td>33,924</td>
<td>1,898</td>
<td>5,801</td>
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<tr>
<td>Fulton County</td>
<td>20,496</td>
<td>20,276</td>
<td>22,037</td>
<td>0</td>
<td>0</td>
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<td>Landfill Applications</td>
<td>91,006</td>
<td>80,906</td>
<td>77,856</td>
<td>70,257</td>
<td>38,057</td>
<td>35,454</td>
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<tr>
<td>Unsuitables</td>
<td>12,381</td>
<td>3,925</td>
<td>2,293</td>
<td>2,759</td>
<td>2,946</td>
<td>9,417</td>
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<td>MBM Peletizing Facility</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>553</td>
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<tr>
<td><strong>Total</strong></td>
<td>161,724</td>
<td>214,300</td>
<td>189,072</td>
<td>175,902</td>
<td>106,117</td>
<td>133,753</td>
</tr>
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</table>
NBP’s EMS

• The Metropolitan Water Reclamation District of Greater became involved with the National Biosolids Partnership’s Environmental Management System in 2000.
• Eight years have past since the District first became involved with the NBP’s EMS.
• Since 2000 we have had 3 General Superintendents
• Two Chief Engineers of Maintenance and Operations
• Each of the Seven WWTP Plant heads has changed and
• There have been 4 EMS Coordinators
• Several Changes in the EMS Field Representation
Biosolids EMS Promotes Four Key Outcomes

**Quality Management Practices**
Ensure consistent product quality

**Regulatory Compliance**
Meet or exceed compliance with regulatory requirements

**Relations with interested parties**
Establish and maintain credibility

**Environmental Performance**
Protect the environment for future generations
We need to manage our biosolids value chain to ensure product quality

- Think of biosolids as a product, not a by-product
- Manage key activities that impact biosolids quality and the environment
- Follow best practices and have documented procedures for key activities
EMS Benefits

- Operations managers at each plant now serve as the EMS Field Representative improving communications and unity throughout the District.

- The EMS binder system for indexing important documentation such as SOP’s, recordkeeping and much more has made all important information readily accessible.

- Procedures at the processing sites have been streamlined and made consistent where possible.

- Contracts for similar work have been combined thus reducing the number of contracts written and reducing related administrative costs.
EMS Benefits

• We are utilizing new technologically advanced heavy equipment and management techniques reducing the time required to dry biosolids, thus, lowering air emissions and costs, (up to 15%).

• In addition, the District’s public outreach program has improved through Field Days Events, A Radio Campaign with Orion Samuelson and local presentations with park districts to explore new outlets. As a result, acceptance of biosolids has risen creating new opportunities for its use.

• For example: In 2000 39,000DT went to Landfill as unsuitable material and 83% of the biosolids were beneficially reused. In 2006 2,900DT were shipped as unsuitable material and our 7 year average for beneficial reuse has climbed to just under 96%.
LASMA CONTRACT AGITATION COST 2002-2007
CONTRACT MACHINE RATES AND LASMA AGITATION/DT COSTS

Year
02 03 04 05 06 07
Hourly Rate
$0 $20 $40 $60 $80 $100 $120 $140 $160 $180 $200
Augers
Tillers
Wheelloaders
LASMA DT Cost
Total-3yr Ave
DT Cost
Biosolids Utilization

- Land Application
- Controlled Solids
- Reuse @ Landfill
- Unsuitables
- Pelletizer

Dry Tons and % Beneficially Utilized from 1999 to 2007.
Innovation: Crossover Auger/Paddle Aerator Experiment
Innovation: Tiller on the front of a Brown Bear
Newer Technology: Paddle Aerator
Goals and Objectives

- Utilize all 15,000dt of Class A dried biosolids in the Controlled Solids Distribution Program.
- Purchase 3 environmentally friendly tractors for use with lagoon pumps and tillers. (Air emissions)
- Implement environmentally friendly Crane for outloading cake lagoons. (Air emissions)
- Reduce hours worked per dry ton processed. (Air emissions)
- Continue to work with R&D to locate additional final utilization outlets in the Chicagoland area.
- RFP for Topsoil Manufacturing
- Investigate future opportunities such as biosolids composting and biosolids to energy conversion.
Green Initiatives

• Lower Emissions
  – Utilize Tier 3 Equipment: Tractors, Cranes, WL
  – More efficient operations
    • More efficient equipment (Decrease hrs/dt)
      – New Crane with larger bucket capacity
      – New Wheelloader with larger bucket capacity
      – Tractor/Pump combination replaces Dredge Pump operation for low solids loading.
  – Reduction in Truck Miles
    • Closer Final Utilization Sites
    • Chicago Park District (6,000 acres)
    • Direct Haul to Cells for processing instead of lagoons for storage
NBP Seal of Approval
The Biosolids Story Part 2

Technical Support, Marketing and Public Relations

1. Technical support to biosolids users
   - Farmland application program
   - Controlled Solids Distribution Program

2. Biosolids benefits and safety

3. Biosolids marketing & public education program

4. What have we accomplished thus far?

5. Are there areas for improvement?

6. Where do we go from here?
Farmland Application Program

- Class B centrifuge cake biosolids used as fertilizer for producing row crops in Cook and nearby counties
- Land application contractor responsible for enrolling farmers
- Land application rates based on crop nitrogen needs
Farmland Application Program

Why Technical Oversight?
To compliment contractor’s efforts on:
- District and Contractor’s permit issued by IEPA
- Public Relations
- Long-term sustainability of the program

What Do We Do?
- Approve Fields – Review field info, including:
  - Maps (plat, soils) and aerial photo
  - Notification to public officials and field neighbors
  - Soil test report
- Field Inspections–permit compliance or odor complaint
Why Technical Oversight and Assistance?
The goal is to help plan how biosolids are used:

- Compliance with CSD permit issued by IEPA
- Make best use of biosolids – application rates, etc.
- Minimize potential for odors and other PR issues

What Do We Do?

- Site visit – before, during, or after biosolids applied
- Collect soil samples for pH and other tests
- Assist with preparing *User Information Form*
Biosolids Benefits-Farmland Application

1. Primarily substitutes fertilizer N, P, micronutrients and some K
   - Approx. 40 - 50 WT replaces typical corn crop N needs (~150 pounds N/ac)
2. Improves soil OM and physical properties
3. Increased crop yield
What can Biosolids Do for Athletics Fields, Parks, Golf Courses, Community etc.?
Biosolids Benefits—Controlled Solids

Soil Amendment
- Reduce cost of topsoil - $ave your $
- Improve organic matter and quality of ‘junk’ soil
- Large supply of slow release plant nutrients over time
- More consistent quality compared to topsoil

Fertilizer
- Decrease cost of fertilizer – Don’t throw away $
- Improve managed and unmanaged (“eyesores”) turf
- Slow release fertilizer - Does not leach out easily

Opportunity to Go “Green” with Recycle/Reuse
- Recycle organic material in place of chemical fertilizer
- Do your part in Chicago’s Green Initiative
- We’ve paid $ to produce EQ biosolids. Now, let’s use it
Biosolids Benefits—Controlled Solids

And.....Still at No Cost

Technical Support

- R&D staff of five soil scientists
- Reliable service staff at the biosolids drying sites
- Nutrient analysis of biosolids as needed
- Assistance in community outreach, and promoting biosolids program to community officials
Is it Safe to Use Biosolids on Turf?
Based on comprehensive risk assessment

The rule establish limits on:
- Trace metal content
- Trace metal loading rates
- Pathogen content
- Vector attraction

All District air-dried biosolids meet USEPA’s Exceptional Quality standard
USEPA Part 503 Risk Assessment

- **Air (Dust, volatiles)**
- **Biosolids Land Appl.**
- **Surface & well water**
- **Leaching & Runoff**
- **Predators Soil Biota**
- **Plants**
- **Animals**
- **Humans**

1. Direct Ingestion
2. Direct Ingestion
3. Direct Ingestion
4. Direct Ingestion
5. Direct Ingestion
6. Direct Ingestion
7. Direct Ingestion
8. Direct Ingestion
9. Direct Ingestion
10. Direct Ingestion
11. Direct Ingestion
12. Direct Ingestion
13. Direct Ingestion
14. Direct Ingestion

Numbers in parentheses indicate specific pathways.
# Annual Mean Levels of Trace Metals in District Biosolids Compared to USEPA Part 503 EQ Limits

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<tr>
<td>Cd</td>
<td>293</td>
<td>308</td>
<td>92</td>
<td>4</td>
<td>39</td>
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<tr>
<td>Cu</td>
<td>1,659</td>
<td>1,888</td>
<td>426</td>
<td>422</td>
<td>1500</td>
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<tr>
<td>Hg</td>
<td>4.9</td>
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<td>0.5</td>
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<tr>
<td>Ni</td>
<td>415</td>
<td>449</td>
<td>202</td>
<td>37</td>
<td>420</td>
</tr>
<tr>
<td>Pb</td>
<td>805</td>
<td>1159</td>
<td>374</td>
<td>86</td>
<td>300</td>
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<tr>
<td>Zn</td>
<td>3,829</td>
<td>4,318</td>
<td>1,820</td>
<td>899</td>
<td>2,800</td>
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Biosolids Safety Rules

IEPA Regulation

- Title 35 Subtitle C Chapter II Part 391: ‘Design Criteria for Biosolids Application on Land’
- More stringent than USEPA Part 503 rule
- IEPA requires monitoring of biosolids and management practices to ensure protection of environment and public health
- All users are covered under the District’s *Controlled Solids Distribution Permit* issued by IEPA
- Addressing IDOT concerns, IEPA issued letter to confirm biosolids-amended soil is not contaminated
Biosolids Safety Rules

Chicago DOE Risk Assessment

➢ Goes beyond IEPA and USEPA - apply standards that are used to define “clean soil” in Illinois

➢ Evaluate Many Factors
  ➢ Various sites for biosolids use – Athletic fields, playgrounds, picnic areas, community gardens, parking lots, and park buildings
  ➢ Who is exposed– Children, employees, patrons
  ➢ Methods of contact – Ingestion and skin contact

➢ Result – Meets “clean soil” definition when used according to District’s guidelines
How To Use Biosolids?
How to Use Biosolids

1. Soil Amendment – Renovation and New Construction
   - Spread ~1-1/2 inch and roto-till to 5 to 6-inch depth
   - Seed or place sod

2. Fertilizer Topdressing
   - Spread up to ¼-inch layer on turf using fertilizer spreader
   - Custom rates - based on biosolids N content and turf N requirement
   - Best if done after aerification

3. Blending - With Other Materials to Make Topsoil
   - Spread other materials and biosolids in layers
   - Mix using bobcat or other mechanical methods
Typical Biosolids Use as Soil Amendment

Morton West H.S. Soccer Field

- Spread 2” biosolids
- Blend with top 4 inch soil
- Level and prepare seedbed
- Seed
Biosolids Spread as Fertilizer Topdressing
Blue Island Park District, 2008
And How Do I Get Biosolids?
How to Get Biosolids?

1. Call in Advance to Facilitate Planning
   • Dan Collins, Biosolids Manager (708-588-4300)
   • Albert Cox, Soil Scientist (708-588-4063)

2. District Consultation and Site Visit
   • District soil scientist will visit to assist in planning
   • Soil scientist will assist in filling User Information Form required by IEPA permit

3. Don’t Need Your Check Book
   • Biosolids are free
   • No delivery charge
   • Usually delivered to within ~ 50 miles of Calumet or Stickney WRPs
5. Are Biosolids Always Available?

- Available during drying season, Mid May – October
- Dependent on weather conditions
- Premier Customers are our highest priority
  - Those who have shown commitment to long-term biosolids beneficial reuse
  - Other topdressing projects
Biosolids Marketing and Public Education
Farmland Application Program

What’s the Size of Farmland Application Market?

- Distance from WRP is key – 50-mile radius from WRPs
- Primary target is farmland in Will, Kankakee, Cook, Dupage, Kane, McHenry Counties
- Number of fields approved for use
  
<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
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<td>2005</td>
<td>241</td>
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<tr>
<td>2006</td>
<td>182</td>
</tr>
<tr>
<td>2007</td>
<td>175</td>
</tr>
<tr>
<td>2008</td>
<td>190</td>
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- Contractor uses about 60 – 70% of the approved fields
Farmland Application Program

Main Challenges

- Public perception (odors, and safety)
- Public concern about liabilities on biosolids-amended land
- Timing of biosolids application
  - Accessibility of fields after harvesting
  - Increased potential compaction of soil
Controlled Solids Program

What’s the Potential of the CSD Market?

- Distance from WRP is key – 50-mile radius from WRP
  - Cook, Will, Dupage, and Lake Counties
- Municipalities
  - City of Chicago Park District
  - Park Districts and Villages of 123 suburban communities
- Over 200 golf courses
- Schools and Universities
- Landscapers
Main Challenges

- Many people don’t know what they don’t know - The benefits of biosolids reuse is *No Secret!*
- Quality of biosolids to meet specific user fertilizer needs
- Synchronizing availability with demands
- Public perception (odors, and safety)

*To Know and not to Do, is not to Know*
Farmland Application PR Program

Research & Demonstration Plots

Collaborate with two farmers in Will & Kankakee Co.

- Compare corn production with Class B biosolids vs. chemical fertilizer - corn yield, soil and ground water

Benefits of the Plots

- Demonstrate the benefits and safety of biosolids
- Collect data on biosolids benefits, such as crop yield
- Visible in the farming community
- Back drop for field days
Farmland Application PR Program
Farmland Application PR Program

Field Days at Research and Demo plots

- District hosted in 2005 and 2007
- Contractor hosted in 2008
  - with contribution from

So! What’s the occasion?

Nice for a change! What do you think?
Farmland Application PR Program

Biosolids Hit the Air Waves

- Orion Samuelson – WGN Radio *Farm Report* host
- Advertise Field Days
- Biosolids radio ads
- Spice up the field day

Let’s hear from WGN!
Goals of marketing and PR program

- Increase biosolids use under the program
- Improve quality of biosolids
- Educate the public at large on benefits and safety of biosolids
- Sync the demand and availability of biosolids during the year
Controlled Solids Marketing & PR
Phone Calls, Mass Mailing and Meetings

Phone Calls from Directories
- Golf Courses – golflink.com directory
- Directory of IL Schools
- Landscape Contractor Customer Directory

Letters and Brochures to Over 600 Prospects
- Schools, Park Districts, Villages

Follow-up Presentations: e.g.
- Board of St. Charles Park District
- Green Team of Fox Valley Park District
- Kiwanis Club of Village of Berwyn
- Board of Dupage County Forest Preserve
1. Beneficial Reuse of Biosolids in the Chicago Area
2. Biosolids: Value as a Fertilizer and Soil Amendment
3. Guidelines and Specifications for Using District Class A Air-dried Exceptional Quality Biosolids as a Soil Amendment or Fertilizer
4. Do Biosolids Contain Metals?
5. Biosolids Use on Golf Courses
Controlled Solids Marketing & PR

Biosolids Quality

- Screen biosolids when used as topdressing esp. for golf courses
- Increase vigilance for odor potential of biosolids
- Conduct nutrient testing in advance –
  - Available on customer request
  - Designate for projects based on N content
Controlled Solids Marketing & PR

Demonstrations at Prospective Users Sites

- Spread 1 load biosolids as demonstration
- Two Demonstrations
  - Blue Island Park District
  - Lombard Park District
- Prospective users attended demonstrations
Controlled Solids Marketing & PR

Field Day – June 2008

- Hosted by Blue Island Park District
- ~ 50 attendees
- Presentation by District and U of I staff
- Blue Island Park District Commissioner declare “No More Chemical Fertilizer”
Controlled Solids Marketing & PR

Collaboration With Government Entities

Illinois Department of Transportation (IDOT)
- Still needs some work

City of Chicago Departments
- Chicago Public Schools
  - Needs more work - Biosolids used at only two schools
- Dept of Environ (DOE)
  - Collaboration on TACO risk assessment – Determine if biosolids meet “clean soil standard”

Chicago Park District
- OK with biosolids use as soil amendment
- Work with District to prepare biosolids beneficial reuse portfolio for public outreach
Controlled Solids Marketing & PR

Exhibitions & Networking at Local Conferences

- Mid-America Horticultural Show (Mid Am) 2007
- IL Assoc. Park Districts/IL Park & Rec. Assoc. – 2006 -
  - Biosolids presentation in 2006
- IL Professional Turf Conf – 2006 - current
- Midwest Institute of Park Executives – meets monthly
  - Biosolids presentation at Nov 2008 meeting
- IL Sports Turf Management Assoc.
- Keep America Playing Conference
Collaboration with U of I Turfgrass Extension Service

- Plots compare biosolids with other fertilizers
- Six Golf Courses and Recreation Fields
  - Lake Forest Academy, Lake Forest
  - Coyote Run, Flossmoor
  - Knollwood, Lake Forest
  - Midwest Golf Club, Lemont
  - Northshore Country Club, Glenview
  - Park District of Highland Park
- Turf performance indices measured
- Midwest Golf Club hosted field day in 2007
- Develop guidelines for extension publication
Controlled Solids Marketing & PR

Onsite Research and Demonstration

Coyote Run Golf Course

Biosolids

No biosolids
Recent Accomplishments
Recent Accomplishments
Biosolids Management Program

2008 National Environmental Achievement Award for "Mission is Possible: Educating People to Promote Beneficial Use of Biosolids"
National Association of Clean Water Agencies (NACWA)

2008 Clean Water Act Recognition Award "Exemplary Biosolids Management Award: First Place in Public Acceptance Category"
United States Environmental Protection Agency (USEPA)
Recent Accomplishments

Farmland Application Program

Sustainability of the Farmland Application Program

- Decrease in odor complaints
- Increased demand for biosolids
- Improved relationship with farming community
- USDA-NRCS endorsement of biosolids in farm nutrient plans
Recent Accomplishments

Controlled Solids Distribution Program

City of Chicago Departments Begin to Use Biosolids

- After over 6 years of collaboration and on-site demonstration at USX site
- Construction of Park at USX by CPD
- ~ 2,000 DT biosolids blended with river sediment

USX Park Construction September 2008
## Recent Accomplishments

### Controlled Solids Distribution Program

**Increased Number of Customers & Quantity Used**

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. of Users</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>12</td>
<td>37</td>
<td>35*</td>
</tr>
<tr>
<td>New</td>
<td>--</td>
<td>10</td>
<td>35</td>
<td>16</td>
</tr>
<tr>
<td><strong>Quantity (DT)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>33,924</td>
<td>1,900</td>
<td>4,800</td>
<td>20,000</td>
</tr>
<tr>
<td>Large users (&gt;1,000 DT)</td>
<td>31,629**</td>
<td>0</td>
<td>0</td>
<td>16,000***</td>
</tr>
</tbody>
</table>

*Some 2007 users skipped 2008, most due to scheduling

**Cinder Ridge reclamation (30,329 DT) and Willow Springs berm (1,300 DT)

***Highlands GC (10,000 DT), Miller Meadows Recl. (4,000 DT), USX (2,000 DT)
Recent Accomplishments

Controlled Solids Distribution Program

Who Are The Customers (2007 – 2008)?

- Golf Courses – 10
- Suburban Villages & Park Districts – 20
- Schools – 16
- Landscape Blenders – 3
- Landscape Contractors (customer referrals) – 1
High Schools and Universities-Athletic Fields

1. Andrews High, Tinley Park
2. Downers Grove High
3. Plainfield Community and Consolidated SD
4. Bolingbrook High
5. Oak Lawn Community High
6. St. Xavier Univ., Chicago
7. Univ. Illinois-Chicago
8. Univ. Chicago
9. Tinley Park High
10. Oak Forest High
11. St. Laurence High, Burbank
12. Morton West High, Berwyn
13. St. Charles North High
14. Valley View SD, Romeoville
15. Stag High, Palos Hills
16. Notre Dame High, Niles
17. Crete-Monee SD, Crete
<table>
<thead>
<tr>
<th></th>
<th>Golf Courses</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Cinder Ridge GC, Wilmington</td>
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<tr>
<td>2</td>
<td>Chalet Hills GC, Cary</td>
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<tr>
<td>3</td>
<td>North Shore Country Club, Glenview</td>
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<tr>
<td>4</td>
<td>Longwood Country Club, Crete</td>
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<tr>
<td>5</td>
<td>Hickory Hills GC</td>
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<tr>
<td>6</td>
<td>Coyote Run GC, Flossmoor</td>
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<td>7</td>
<td>Arlington Lakes GC, Arlington</td>
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<td>8</td>
<td>White Pines GC, Bensenville</td>
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<td>9</td>
<td>Renwood GC, Round Lake</td>
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<tr>
<td>10</td>
<td>Glenwoodie GC, Glenwood</td>
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<td>11</td>
<td>Indian Lake Resort, Bloomingdale</td>
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<tr>
<td>12</td>
<td>Joliet County Club</td>
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<tr>
<td>Municipalities - Parks &amp; Rec. Fields</td>
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<td>-------------------------------------</td>
<td></td>
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<tr>
<td>1. St. Charles Park District</td>
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<tr>
<td>2. Summit Park District</td>
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<tr>
<td>3. Village of Steger</td>
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<td>4. Village of Evergreen Park</td>
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<td>5. Westmont Park District</td>
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<tr>
<td>6. Blue Island Park District</td>
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<td>7. Village of Riverside</td>
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<tr>
<td>8. MWRD - Landscaping</td>
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<tr>
<td>9. Burbank Park District</td>
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<tr>
<td>10. Elmhurst Park District</td>
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<tr>
<td>11. Village of Romeoville</td>
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<tr>
<td>12. Village of South Holland</td>
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<tr>
<td>13. Frankfort Park District</td>
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<tr>
<td>14. Franklin Park District</td>
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<tr>
<td>15. Oakbrook Park District</td>
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<tr>
<td>16. River Forest Park District</td>
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</tbody>
</table>
Recent Accomplishments
Farmland Application Program

Oak Forest High School football field just after biosolids applied, May 2008

Oak Forest High School football field – Greener in July 2008

Stan’s Park, Blue Island - Just before biosolids applied, August 2008

Stan’s Park, Blue Island after biosolids topdressing – Greener in September 2008
Recent Accomplishments

Controlled Solids Distribution Program

Commitment to Biosolids Beneficial Reuse

- Eliminate chemical fertilizer use
  - Blue Island Park District

- Purchase Dedicated Biosolids Spreader
  - Blue Island Park District
  - Westmont Park District
  - Lombard Park District
Looking Ahead

Controlled Solids Program

1. Expand Market
   - Expand fertilizer topdressing market to sustain use of 15,000 DT of air-dried biosolids from CWRP
   - Topdressing CPD parks – Seal the deal in 2009
   - Harvest the fruits of previous efforts
   - Focus on most effective marketing activities
   - Continue to target other large potential users – e.g. IDOT, CPS

2. Synchronize Availability and Demand
   - Work closer with larger users to meet their schedules
   - Construct cover to reserve dried biosolids
Looking Ahead

Controlled Solids Program

3. Research and testing to improve quality
   - Minimize potential for odors
   - Improve guarantee of nutrient value of biosolids

4. Seek opportunities to recover some program costs
   - Promote customer biosolids pickup
   - Customers could begin paying for the value of the service

5. Award program to recognize biosolids users
   - Opportunity for communities to innovate and compete for environmental stewardship
   - Increase visibility of the beneficial reuse program
Looking Ahead

Controlled Solids Program

6. Large opportunities ahead

- Chicago Park District – Over 6,000 acres of parks available for topdressing
- Extension of Harbor Side golf course
Thank You

Happy Holidays!