Deep Row Hybrid Poplar Project Update

OWEA Biosolids Workshop

Heather Curtis
Wastewater Soil Application Coordinator
Compost Facility
Promote waste management strategies that seek to reduce, reuse and recycle. Vastly improve awareness and participation in recycling programs in the community. Seek opportunities to reduce the waste stream of solid waste. Implement programs that address all forms of waste, including solid waste, wastewater and organic waste.
Solids Treatment Utilization Master Plan Considerations (STUMP) 2009
Where we were..... Incineration Dependent!

Jackson Pike Biosolids
2009, Dry Tons

INC 80%

Liquid LA 20%

Southerly Biosolids
2009, Dry Tons

INC 65%

Compost 35%
Where we are going….. 100 Percent Beneficial Reuse!

Jackson Pike Biosolids
2016+, Dry Tons
- DRHP 43%
- Liquid LA 39%
- quasar 13%
- Compost 5%

Southerly Biosolids
2016+, Dry Tons
- DRHP 21%
- Liquid LA 19%
- quasar 18%
- Compost 42%

INC 0%
2014 Plants Combined

Southerly and Jackson Pike Biosolids 2014, Dry Tons

- DRHP 28%
- INC 11%
- Liquid LA 12%
- quasar 17%
- Compost 32%
• The City of Columbus Wastewater Treatment Plants have a combined annual production of 24,500 Dry tons of biosolids.

• 125,000 wet tons of Class B biosolids at 20 percent total solids (TS) are produced per year.

• 125,000 wet tons of Class B = 5,500 semi loads per year.
30,000 WET TONS/yr = 
~ 1500 TRUCK LOADS PER YEAR
NEW LEXINGTON TREE FARM VICINITY MAP

JACKSON PIKE WWTP

SOUTHERLY WWTP

NLTF SITE
TRENCH CONSTRUCTION

Soil Surface

Overburden

Biosolids

16”

42”

24”

36”

NITROGEN CYCLE

Decomposition and oxidation of cellulose by Cellulomonas Bacteria and chitin eating Actinomycetes as well as lignin eating fungus.

NITROGEN MINERALIZATION

Ammonia (NH₃-)

Dead organic matter

Animal proteins

Plant proteins

Consumption of plants by animals

Nitrite ions (NO₂-)

Nitrate ions (NO₃-)

NITROGEN FIXATION

Bacterial fixation of air by Rhizobium, Azobacter, Clostridium, Azotobacter species

Bacterial oxidation by nitrobacter

NITRIFICATION

Bacterial oxidation by nitrosomonas bacteria

NITROGEN UPTAKE

Consumption of organic fertilizer by plants
HARVEST POPLARS AFTER 6-9 YEARS GROWTH
IMPROVING SOIL, REDUCING RUNOFF
MINE SPOIL

PLANT AROUND THE BOULDERS
New Lexington Tree Farm – Pike Township, Perry County
ENVIRONMENTAL REGULATION
<table>
<thead>
<tr>
<th>Field</th>
<th>Permitted Acres</th>
<th>Target Wet Tons</th>
<th>Wet Tons Applied</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM-1</td>
<td>10.7</td>
<td>6,625.44</td>
<td>6,690.32</td>
<td>Complete, lime delivered.</td>
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<tr>
<td>OM-2</td>
<td>18.5</td>
<td>11,455.20</td>
<td>11,518.01</td>
<td>Complete, limed and partially planted.</td>
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<td>OM-3</td>
<td>12.5</td>
<td>7,740.00</td>
<td>4,452.24</td>
<td>In Progress</td>
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<tr>
<td>OM-4</td>
<td>11.5</td>
<td>7,120.80</td>
<td>5,892.09</td>
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<tr>
<td>OM-5</td>
<td>15.3</td>
<td>9,473.76</td>
<td>8,499.92</td>
<td>In Progress</td>
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<tr>
<td>OM-6</td>
<td>14.5</td>
<td>8,978.40</td>
<td>8,968.10</td>
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<tr>
<td>OM-7</td>
<td>12.3</td>
<td>7,616.16</td>
<td>6,439.90</td>
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<tr>
<td>OM-8</td>
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<td>4,015.40</td>
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<tr>
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<td>12,136.32</td>
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<tr>
<td>OM-10</td>
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<td>OM-11</td>
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<td>10,101.44</td>
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<tr>
<td>OM-12</td>
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<td>2,538.72</td>
<td>0.00</td>
<td>Ready</td>
</tr>
<tr>
<td>OM-13</td>
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<td>6,501.60</td>
<td>0.00</td>
<td>Ready</td>
</tr>
<tr>
<td>OM-14</td>
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<td>15,294.24</td>
<td>352.30</td>
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<td>OM-15</td>
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<td>OM-16</td>
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<td>25,387.20</td>
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<tr>
<td>OM-18</td>
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<td>8,049.60</td>
<td>0.00</td>
<td>Ready</td>
</tr>
<tr>
<td>OM-19</td>
<td>9.1</td>
<td>5,634.72</td>
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<tr>
<td>OM-20</td>
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<td>OM-21</td>
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</tbody>
</table>

**Total:**

- Permitted Acres: 280.2
- Target Wet Tons: 173,499.84
- Wet Tons Applied: 82,576.85
Google Earth Image shows application IN ACTION!

TRENCH FILLED WITH BIOSOLIDS
BARE ROOT POPLARS

READY TO PLANT
POPLAR GROWTH
ONE YEARS WORTH OF GROWTH SHOWN
2 years growth
OPERATIONS CHALLENGES
DIRT ROADS

IMAGINE THIS ROAD DURING THE JUNE 2015 RAINS....
SOLUTIONS

ALL TERRAIN TRUCK

SHORT TERM STORAGE BUILDING ON SITE

QUICK RESPONSE TO AVAILABLE MATERIAL AND GOOD WEATHER

“MAKE HAY WHILE THE SUN SHINES”
THINGS HAPPEN.
THE FUTURE

Mines of Ohio
ODNR

THE CITY OF COLUMBUS
QUESTIONS?
Bringing biosolids and agriculture into the public eye... on Mars.

Credit: The Martian, 2015