OUTLINE

- Reuse Drivers
- Georgia – Planning / Regulation
- Gwinnett Experience
Georgia crop yields suffer from drought

Sep 6, 2000 12:00 PM, Paul L. Hollis

Drought conditions worsen in Georgia

Apr 26, 2007 11:40 AM, By David Stooksbury
University of Georgia
Buford Dam and Lake Lanier
GASP!
People need Water!

Survival

Quality of Life
We’re Water Rich! – (Relatively)
Unsustainable

Population is Growing

Water Supply is Not!
State Planning

Comprehensive Statewide Water Management Planning Act
Major Objectives

- Minimize Withdrawals
- Maximize Returns
- In Stream/Off Stream Needs
- Protect Water Quality
State Planning

Metropolitan North Georgia Water Planning District
Regulating Reuse

NPDES Permits for reuse of reclaimed water.
F. Wayne Hill WRC
Reuse Line to The Chattahoochee River

- 20 MGD + 9 MGD (interim only)
Gwinnett Gets Serious

- Invest \( \frac{1}{2} \) $Billion in Advanced treatment
- Build a 20-mile effluent line
- Sell the Reuse water cheap
GENERAL PERMIT
NO. GAG960000

State Of Georgia
Department Of Natural Resources
Environmental Protection Division

Authorization To Discharge Under The National Pollutant Discharge Elimination System Treated Water Associated With The Use Of Reclaimed Water Discharges From Reclaimed Water Treatment Systems In Gwinnett County

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p.416, as amended), hereinafter called the "State Act," the Federal Clean Water Act, amended (33 U.S.C. 1251 et seq.), hereinafter called the "Clean Water Act," and the Rules and Regulations promulgated to each of those Acts, Reclaimed Water Treatment Systems located within Gwinnett County in the State of Georgia that are currently permitted as a Water Pollution Control Plant to Discharge to Waters of the State under an individual NPDES or Land Application System (LAS) permit, and who desire to beneficially reclaim wastewater for the purpose of reuse, may, on submittal of a notice of intent to produce and supply reclaimed water and acknowledgement by the Environmental Protection Division of coverage under this permit, discharge reclaimed water to designated users in accordance with the limitations, monitoring requirements, and other conditions set forth in Parts I and II hereof.

Designated users, on submittal of a notice of intent, and acknowledgement by the Environmental Protection Division, are authorized to discharge from the reclaimed water holding ponds during storm event episodes, in accordance with the limitations, monitoring requirements, and other conditions set forth in this permit.

This permit shall become effective on August 8, 2001.

This permit and the authorization to discharge shall expire at midnight, August 7, 2006.

Signed this 8th day of August 2001.

[Signature]
Director,
Environmental Protection Division
State Of Georgia
Department Of Natural Resources
Environmental Protection Division

Authorization To Discharge Under The National Pollutant
Discharge Elimination System Treated Water Associated
With The Use Of Reclaimed Water Discharges From Reclaimed
Water Treatment Systems In Gwinnett County
Guidelines for Water Reclamation and Urban Water Reuse

State of Georgia
Department of Natural Resources
Environmental Protection Division
Water Protection Branch
Atlanta, Georgia 30334
Revised February 20, 2002
Water Reuse Permit

- Bears Best Golf Course
- Pinckneyville Park
- River Club
  (Crescent Resources residential development)
- Gwinnett Environmental & Heritage Center
- Bunten Road Park (a City of Duluth park).
Bears Best

• 18 holes selected by JN
• Two miles off trunk
• 1.5 million gallon pond
• Irrigates 125 acres
River Club

- Championship Course
- Taps off Bears Best
- Modest homes on course
Bunten Road Park

- 45 acres
- soccer, baseball, football
- pumped off trunk
Pinckneyville Park

- 58 acre multi use
- Pinch valve
Gwinnett Environmental & Heritage Center

- Green roof
- Water feature
Guidelines for Water Reclamation and Urban Water Reuse

State of Georgia
Department of Natural Resources
Environmental Protection Division
Water Protection Branch
Atlanta, Georgia 30334
Revised February 20, 2002
Storm water / reclaimed water storage requirements

- Storm water
- Reclaimed water
- Permanent pool
- Sediment

Full pool storage
Weir crest
Weir invert
Bleeddown orifice
Discharge control structure
F. Wayne Hill WRC

- 60 MGD
- Opened 2001 – Expanded 2005
- 20 mile effluent line to Chattahoochee R.
Facility Location

- Lake Lanier
- Chattahoochee River
- Current Discharge Point
- F. Wayne Hill WRC
- OC Mulgee
- OCONEE
Treatment Steps

• Regional Pump Stations Deliver Influent
• Storage Tanks
• Preliminary Treatment
• Primary Treatment
• Secondary Treatment
• Tertiary Treatment (2 types)
• Post-Tertiary Treatment
• Disinfection & Reaeration
• Effluent Pumping
Influent From
Regional Pump Stations
Preliminary Treatment

Raw Wastewater (Influent)

Screening

Grit Removal

Trash

Sandy Stuff
Primary Treatment

Primary Clarification (sedimentation or settling)

Primary Influent → Primary Clarifier → Primary Effluent

Primary Sludge
Secondary Treatment
(Biological Treatment)

Secondary Influent → Aeration Tanks → Secondary Clarifiers → Secondary Effluent

Mixed Liquor (microorganisms) → Chemical Addition

Return Activated Sludge → Waste Activated Sludge

Activated Sludge System
F. Wayne Hill WRC
Tertiary Treatment (20 MGD)

Chemical Addition
Secondary Effluent

Chemical Clarifiers
Phosphorus Solids

Chemical Clarification

Deep Bed Filters

Granular Media Filtration (GMF)

Filter Effluent
Backwash Waste
F. Wayne Hill WRC Expansion

Tertiary Treatment (40 MGD)

Chemical Addition

Secondary Effluent

Chemical Clarification

Membrane Filtration

Phosphorus Solids

Filter Backwash

Filter Effluent

Pump
F. Wayne Hill WRC & Expansion

Post-Tertiary Treatment

- Ozone Addition
- Tertiary Effluent
- Pre-Ozonation
- Granular Activated Carbon (GAC) Filtration
- Post-Tertiary Effluent
F. Wayne Hill WRC Expansion

Disinfection & Reaeration

- Tertiary Effluent
- Ozone Addition
- Ozone Contactor
- Pumps
- Final Effluent
- Lake Lanier
- Chattahoochee River

Disinfection & Reaeration
F. Wayne Hill WRC
Storage Tanks

- 8 Tanks
- 20 MG/Tank
- Emergency Storage
- Equalization
- Off-Spec Effluent
Pollutant Removal

F. Wayne Hill WRC

Biological
Chem Clarification
Filtration
Pre-Ozonation
Activated Carbon
Post-Ozonation
River or Lake

Organics
Nitrogen
Phosphorus
Metals & Solids

Phosphorus
Metals Pathogens
Phosphorus
Metals Pathogens Solids
Pathogens
Organics
Pathogens
# F. Wayne Hill WRC Permit Effluent Limits

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<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Permit Limit</th>
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<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>40</td>
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<tr>
<td>COD (Chemical Oxygen Demand)</td>
<td>mg/L</td>
<td>18</td>
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<tr>
<td>TSS (Total Suspended Solids)</td>
<td>mg/L</td>
<td>3</td>
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<tr>
<td>Fecal Coliform</td>
<td>#/100 ml</td>
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<tr>
<td>Ammonia-Nitrogen</td>
<td>mg/L</td>
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<tr>
<td>TP (Total Phosphorus)</td>
<td>mg/L</td>
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<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>0.5</td>
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<tr>
<td>D.O. (Dissolved Oxygen)</td>
<td>mg/L</td>
<td>7.0</td>
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</tbody>
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How Cheap?

75% discount

....teaser rate.
Public Education

- Community Meetings
- Web site
- On site signs
- Good Speakers
- Conrad Gelot
Problems?

- Water Quality - No
- Distribution – a few (learning)
- P.R. – green is glorious
- Riots – none ........so far
Questions?