

Gwinnett County  
Department of Water Resources

Water Reuse



# 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

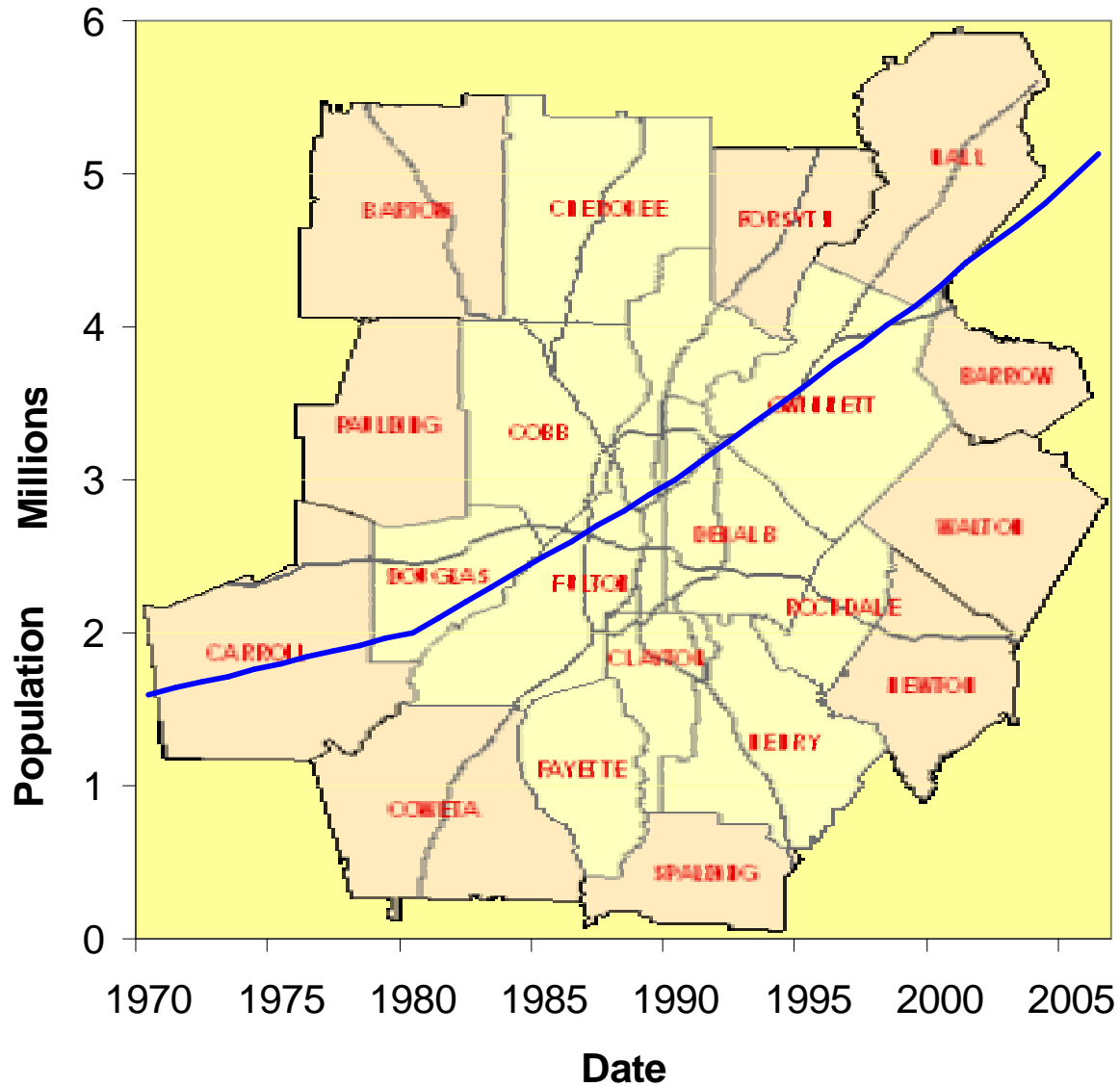




**GASP!**



## 20-County Metro Atlanta Population



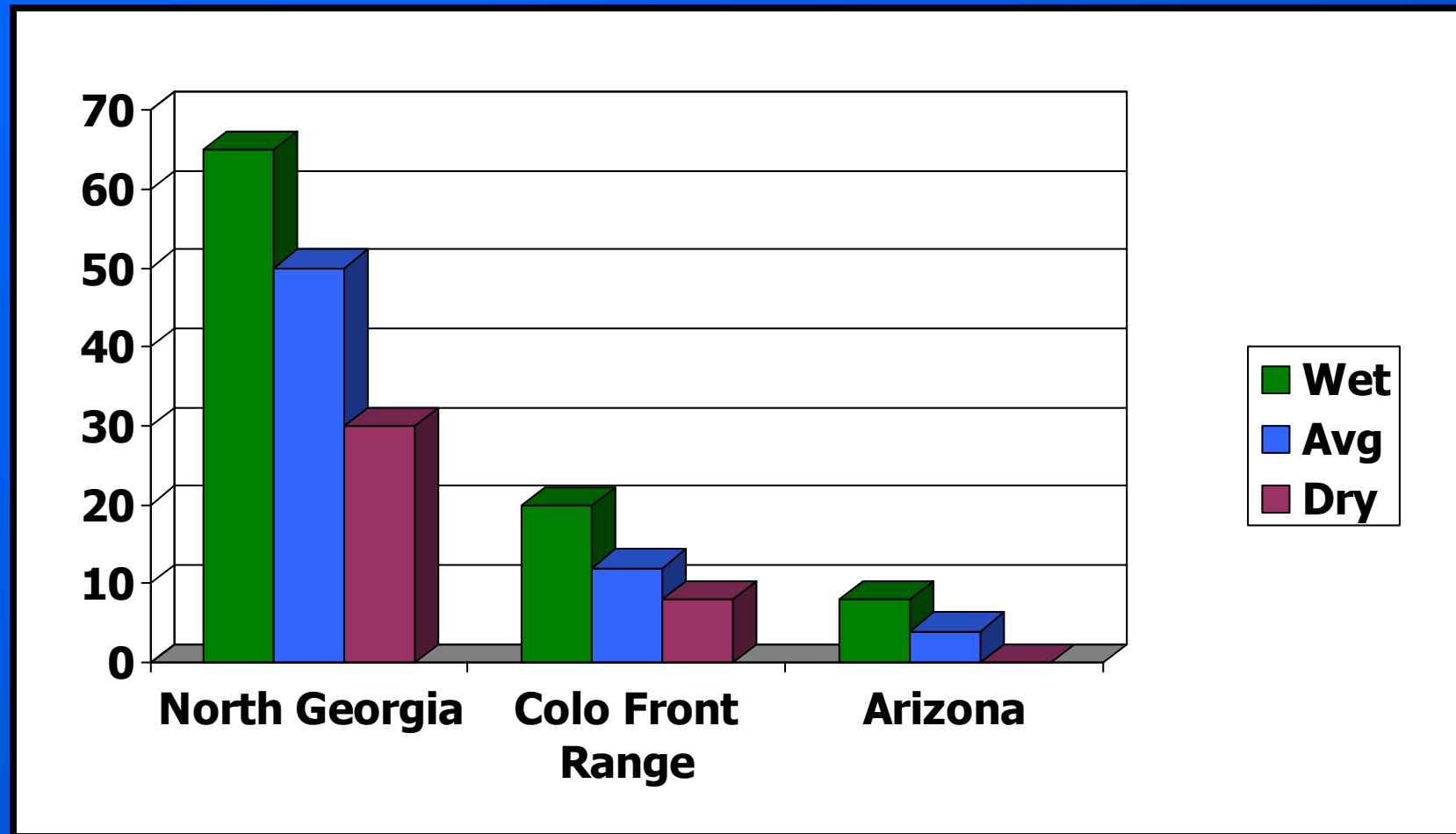
People need Water!

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

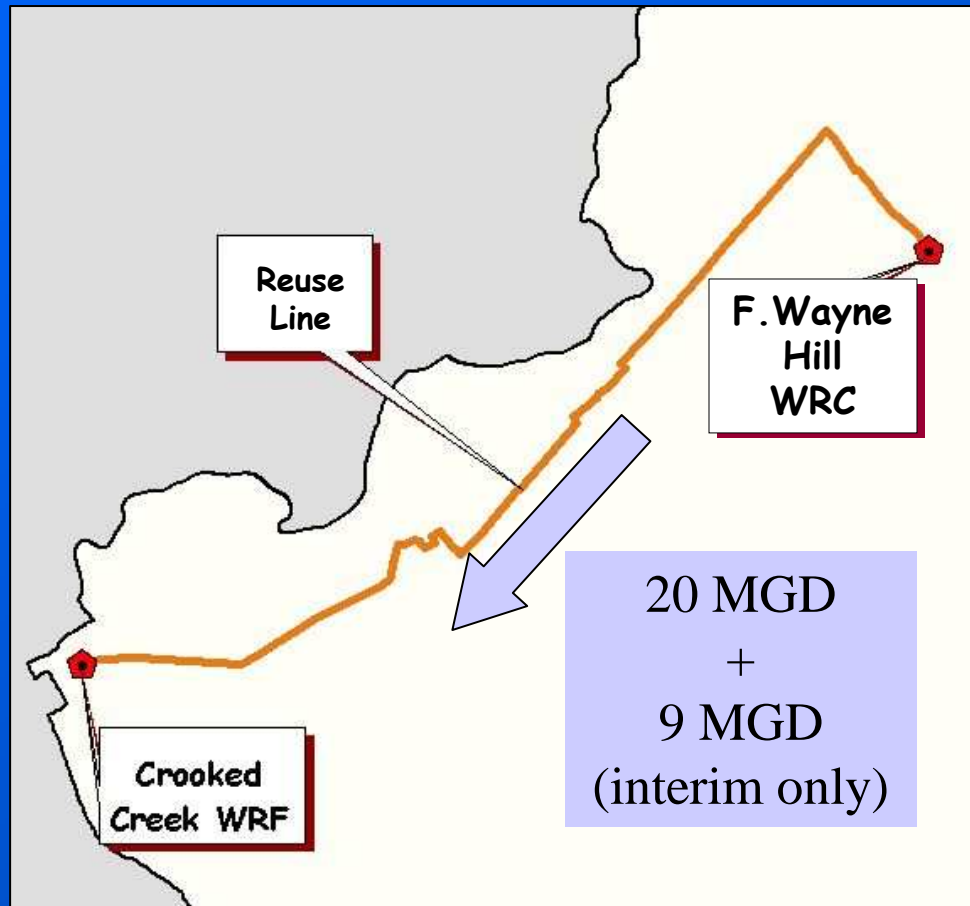


NPDES Permits for reuse of reclaimed water.

-

# F. Wayne Hill WRC

## Reuse Line to The Chattahoochee River



# Gwinnett Gets Serious

- Invest ½ \$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 these 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 8<sup>th</sup> day of August 2001.



*Harold J. Alhas*

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

W-10-100-0000-0000

# 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

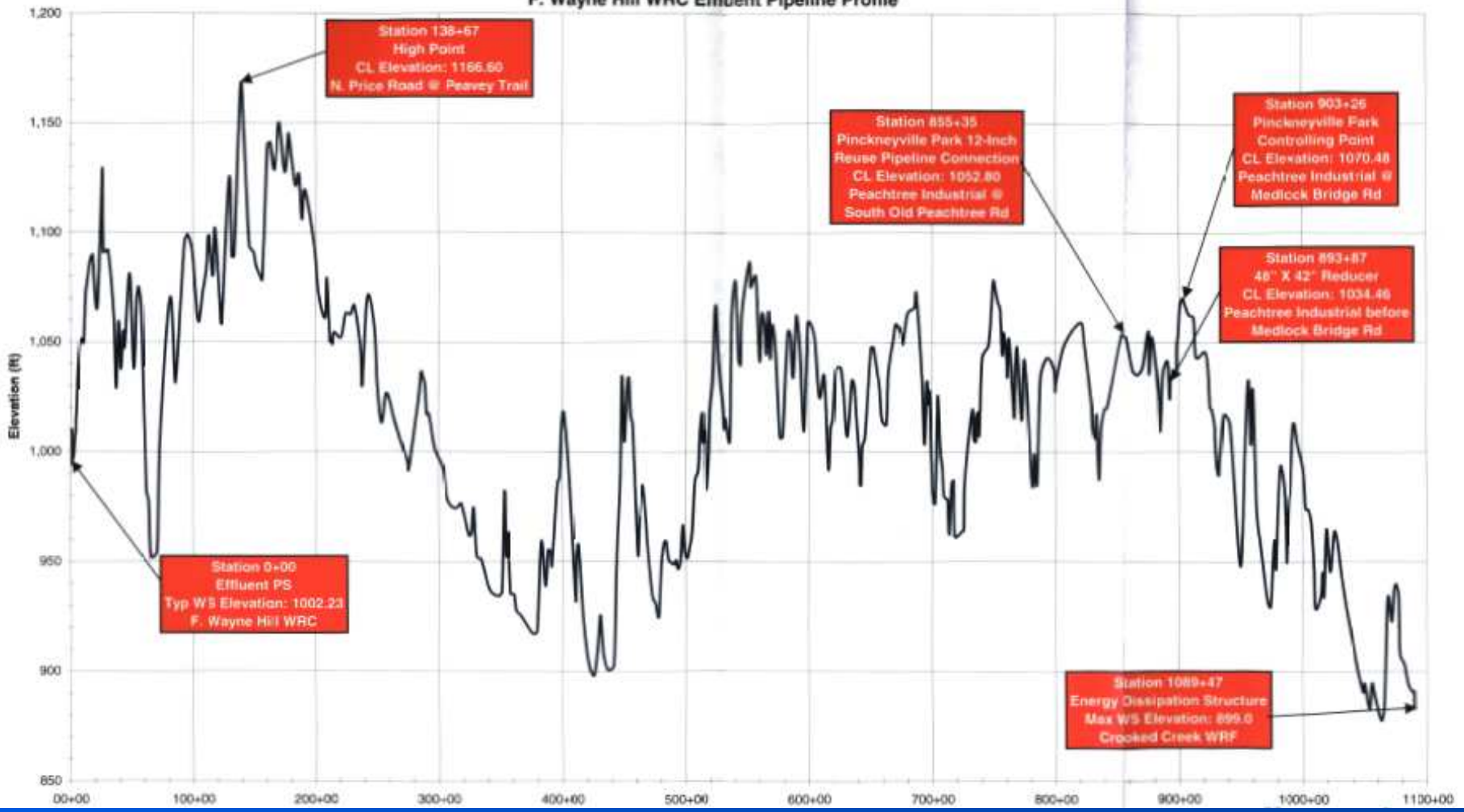
# Pinckneyville Park

- 58 acre multi use
- Pinch valve





**Figure 3**  
**F. Wayne Hill WRC Effluent Pipeline Profile**



# Gwinnett Environmental & Heritage Center

- Green roof
- Water feature

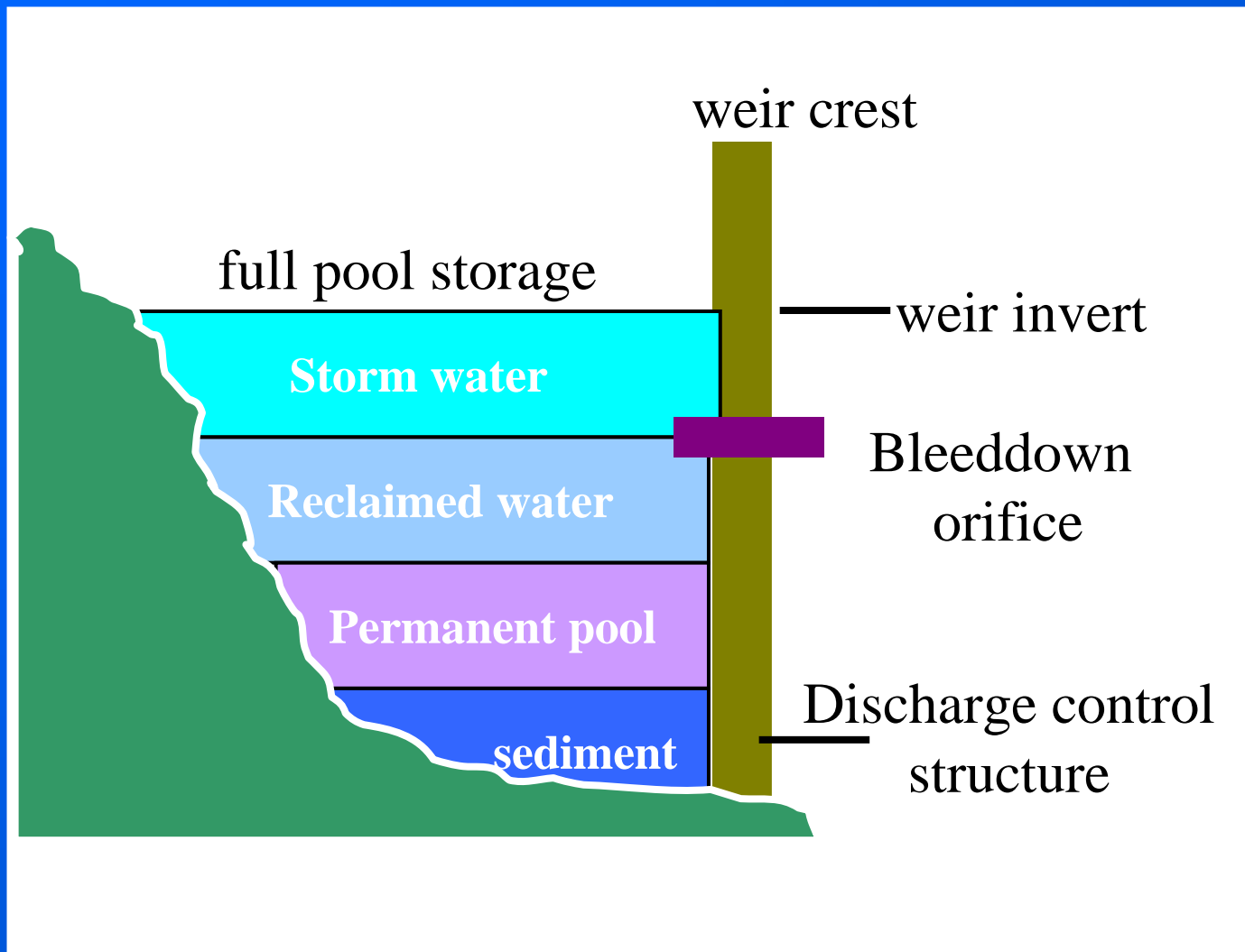


***Guidelines for Water  
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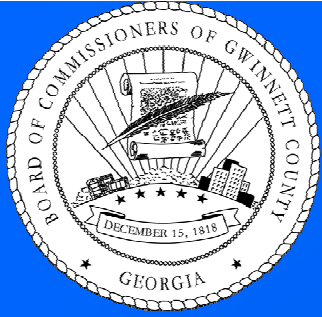


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# Storm water / reclaimed water storage requirements





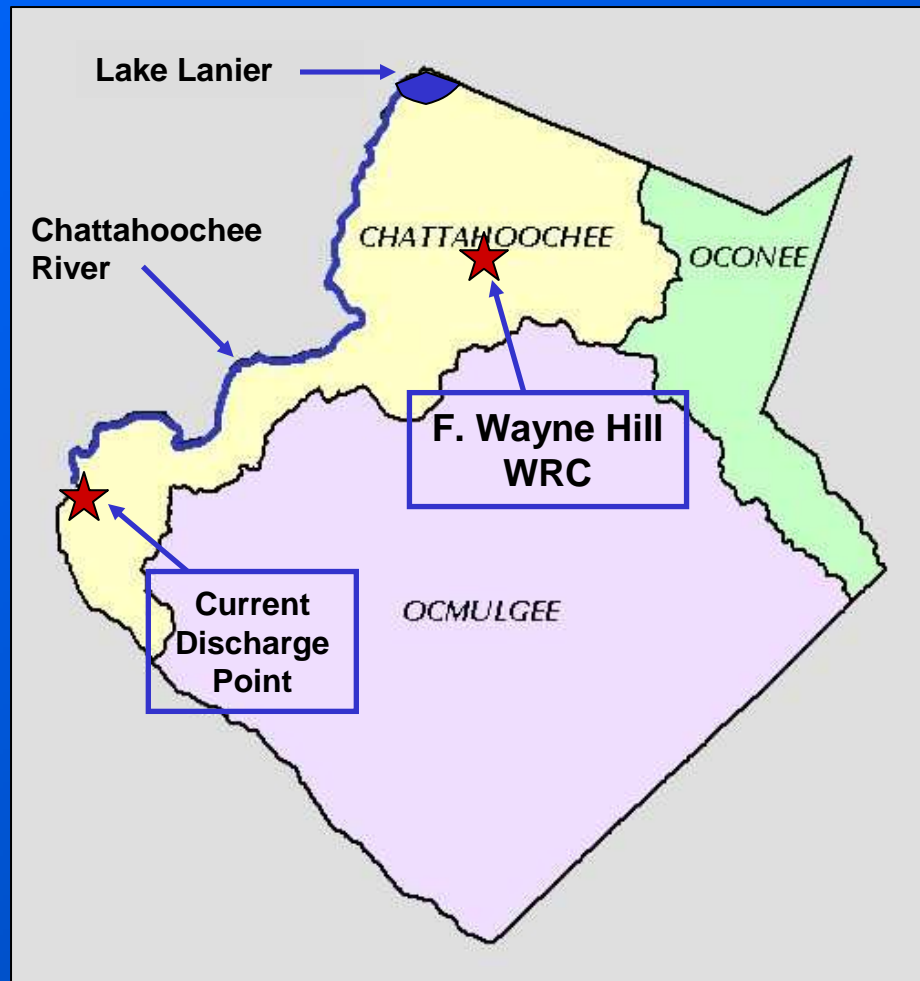


# F. Wayne Hill WRC

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



# Facility Location



# Treatment Steps

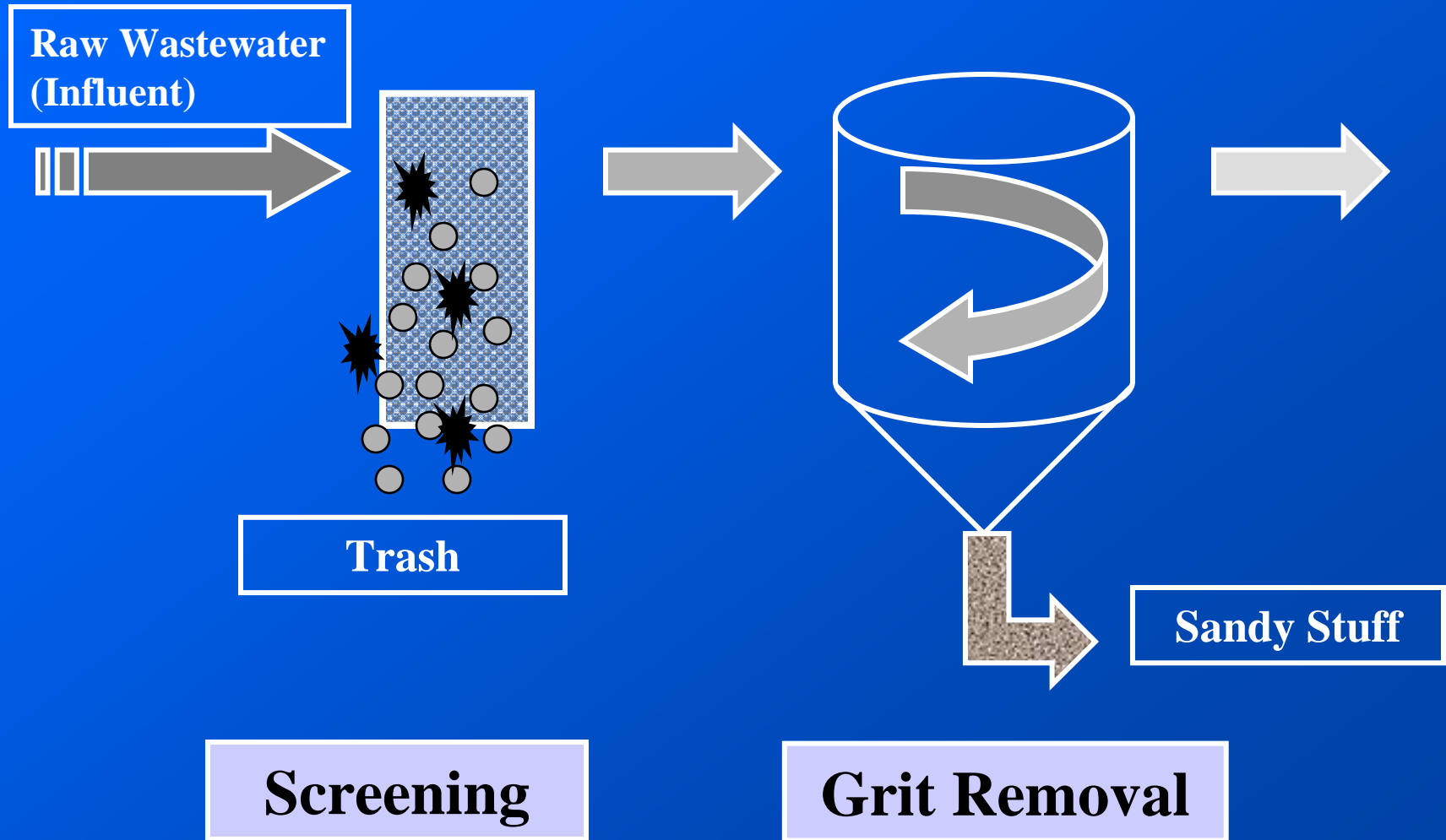
- Regional Pump Stations Deliver Influent
- Storage Tanks
- Preliminary Treatment
- Primary Treatment
- Secondary Treatment
- Tertiary Treatment (2 types)
- Post-Tertiary Treatment
- Disinfection & Reaeration
- Effluent Pumping



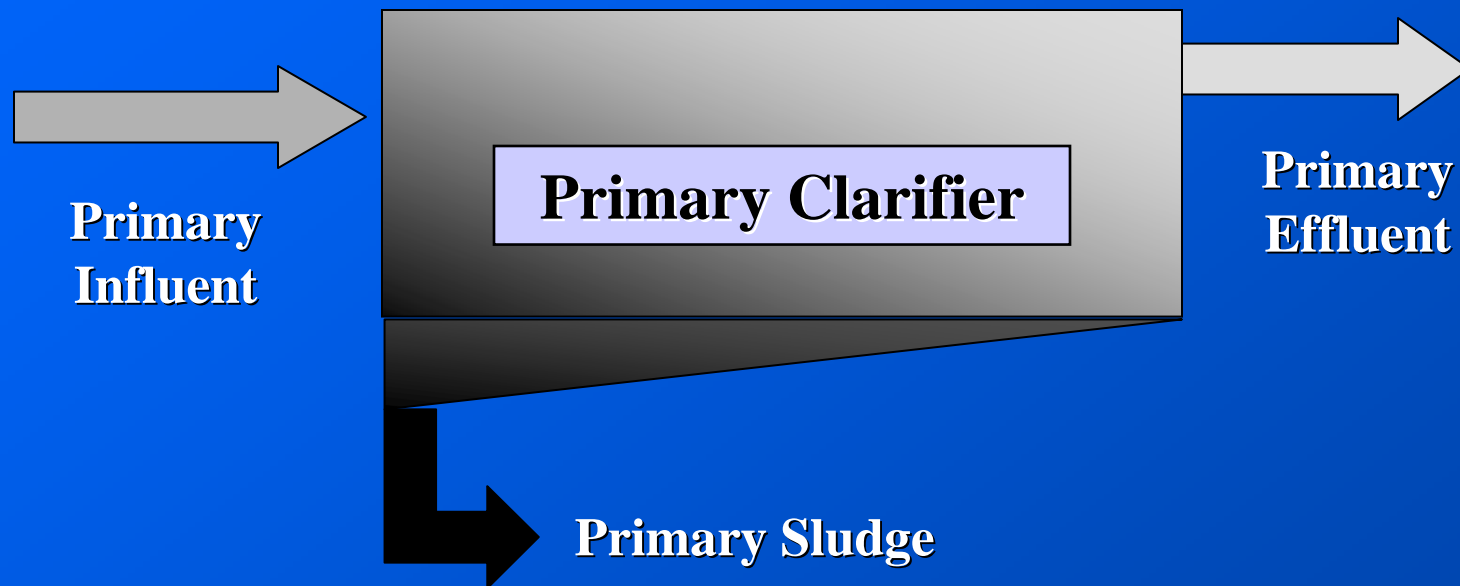
# Influent From Regional Pump Stations



# Preliminary Treatment

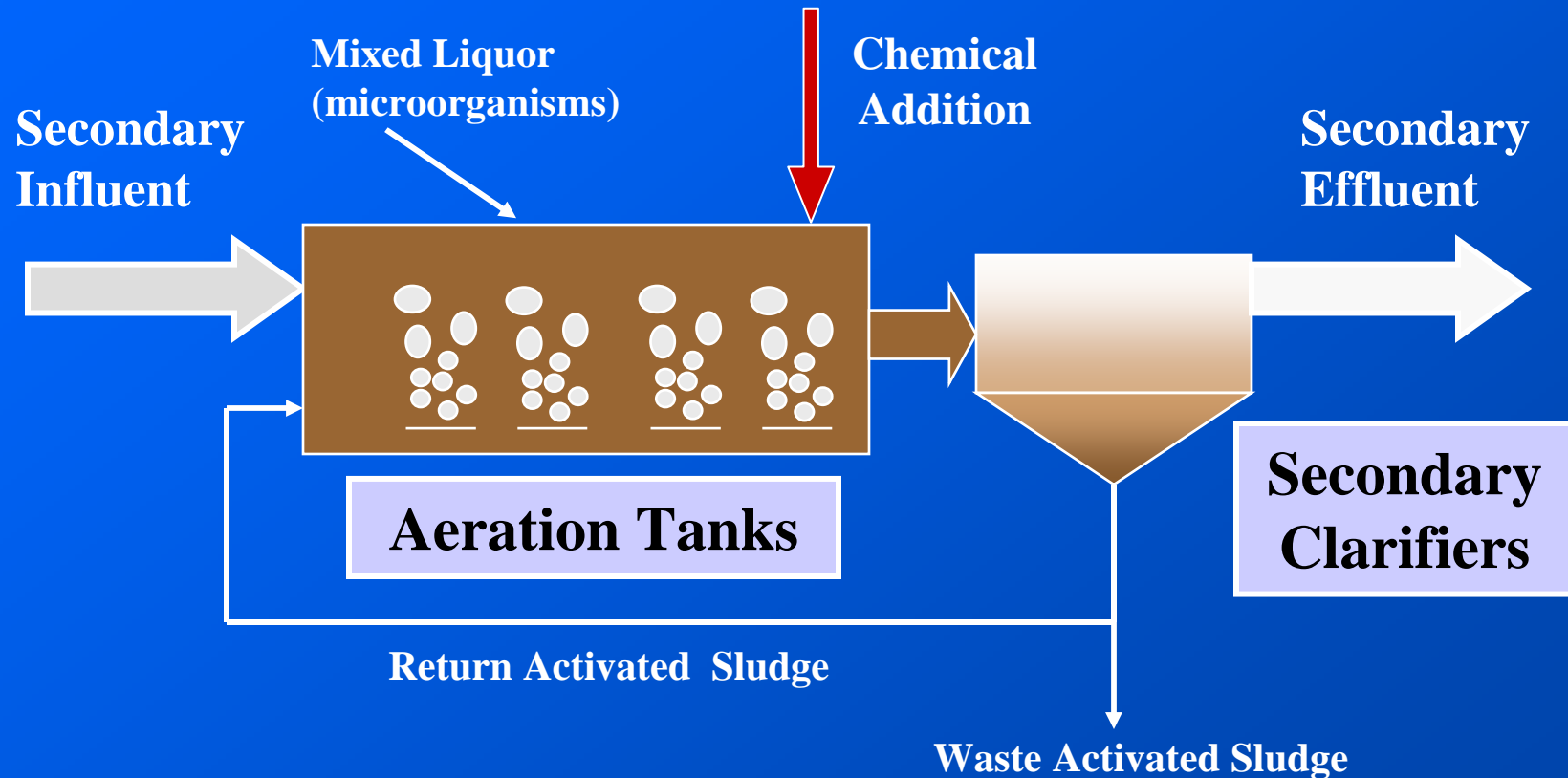


# Primary Treatment



**Primary Clarification  
(sedimentation or settling)**

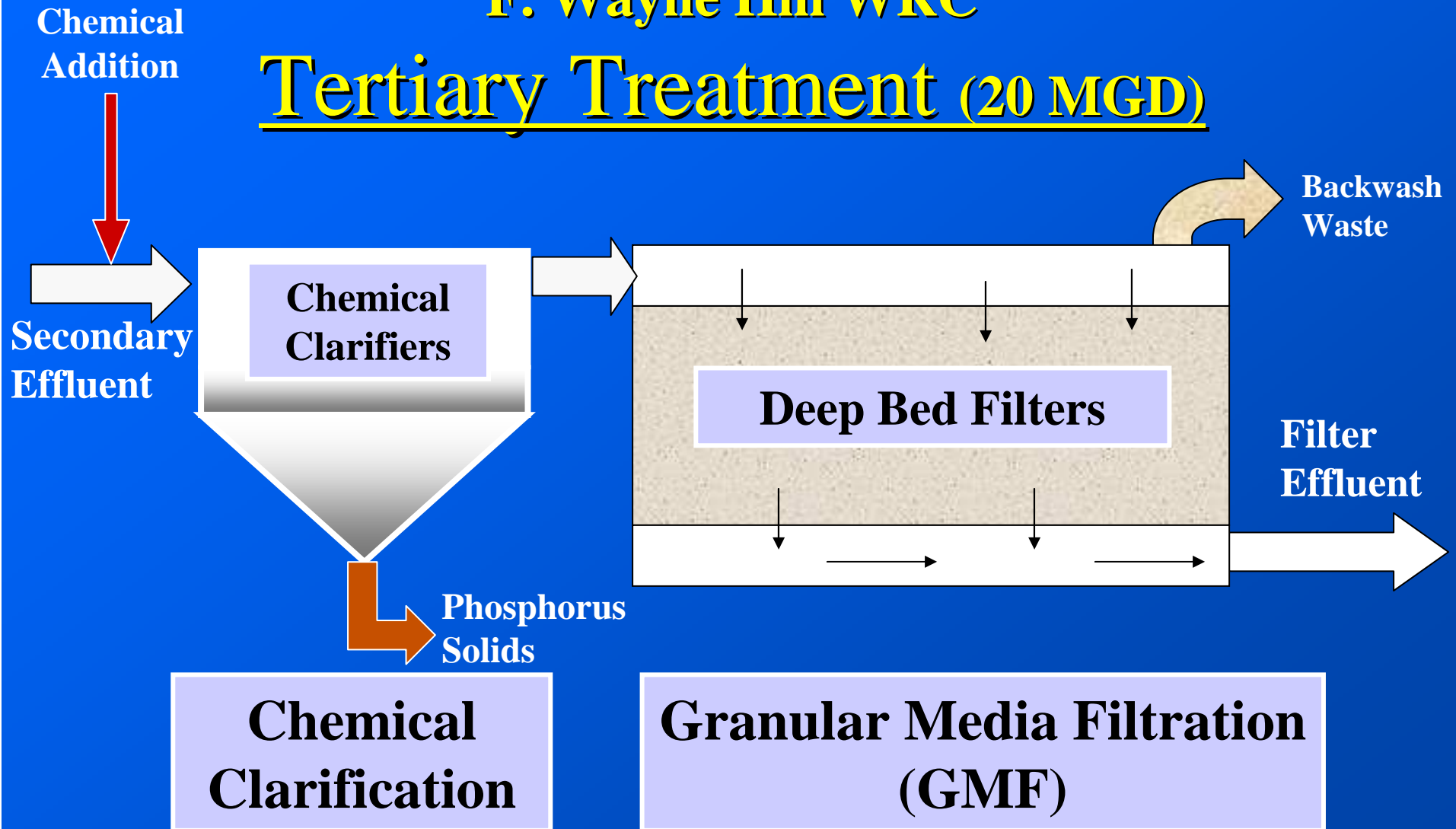
# Secondary Treatment (Biological Treatment)



**Activated Sludge System**

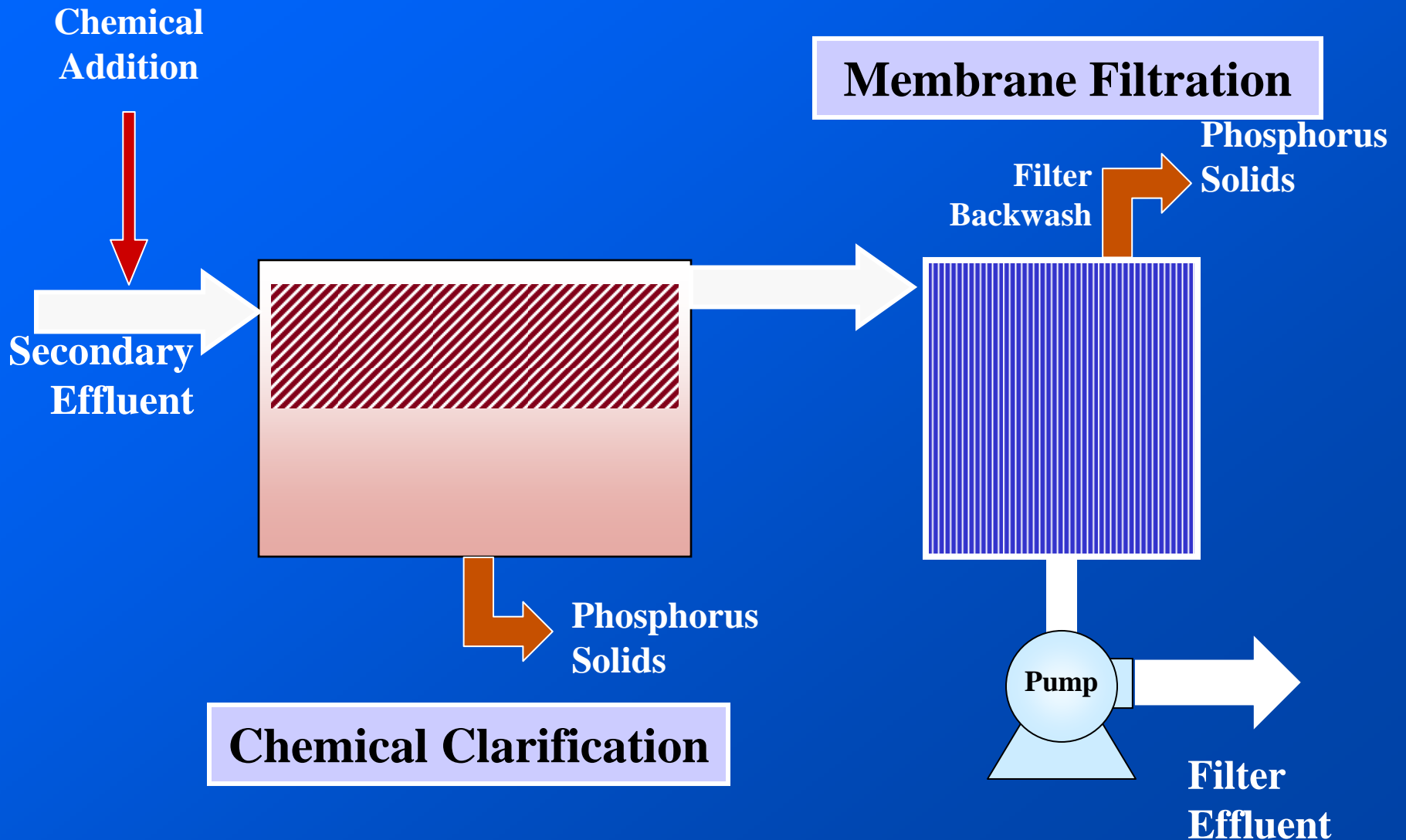
## F. Wayne Hill WRC

# Tertiary Treatment (20 MGD)



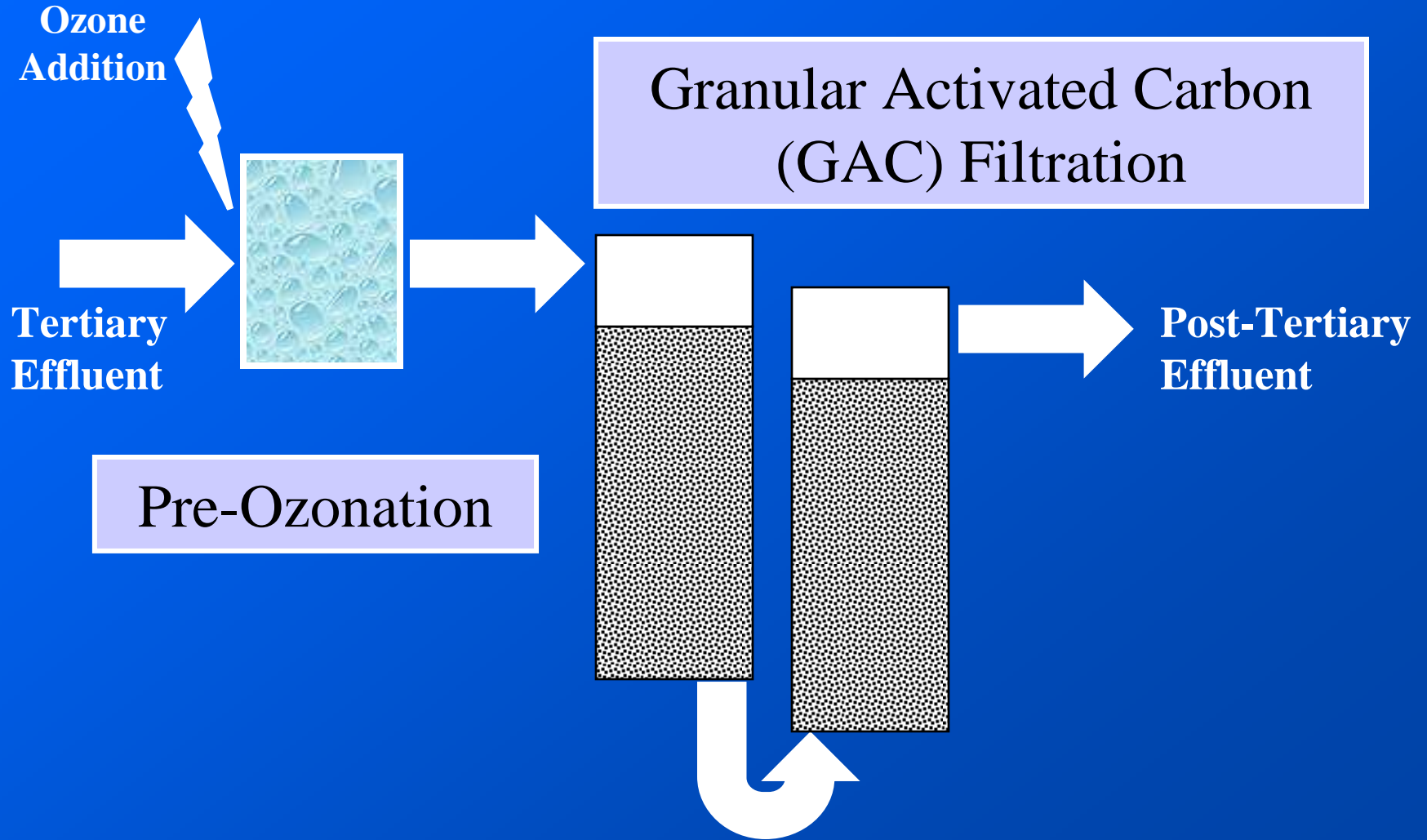
# F. Wayne Hill WRC Expansion

## Tertiary Treatment (40 MGD)



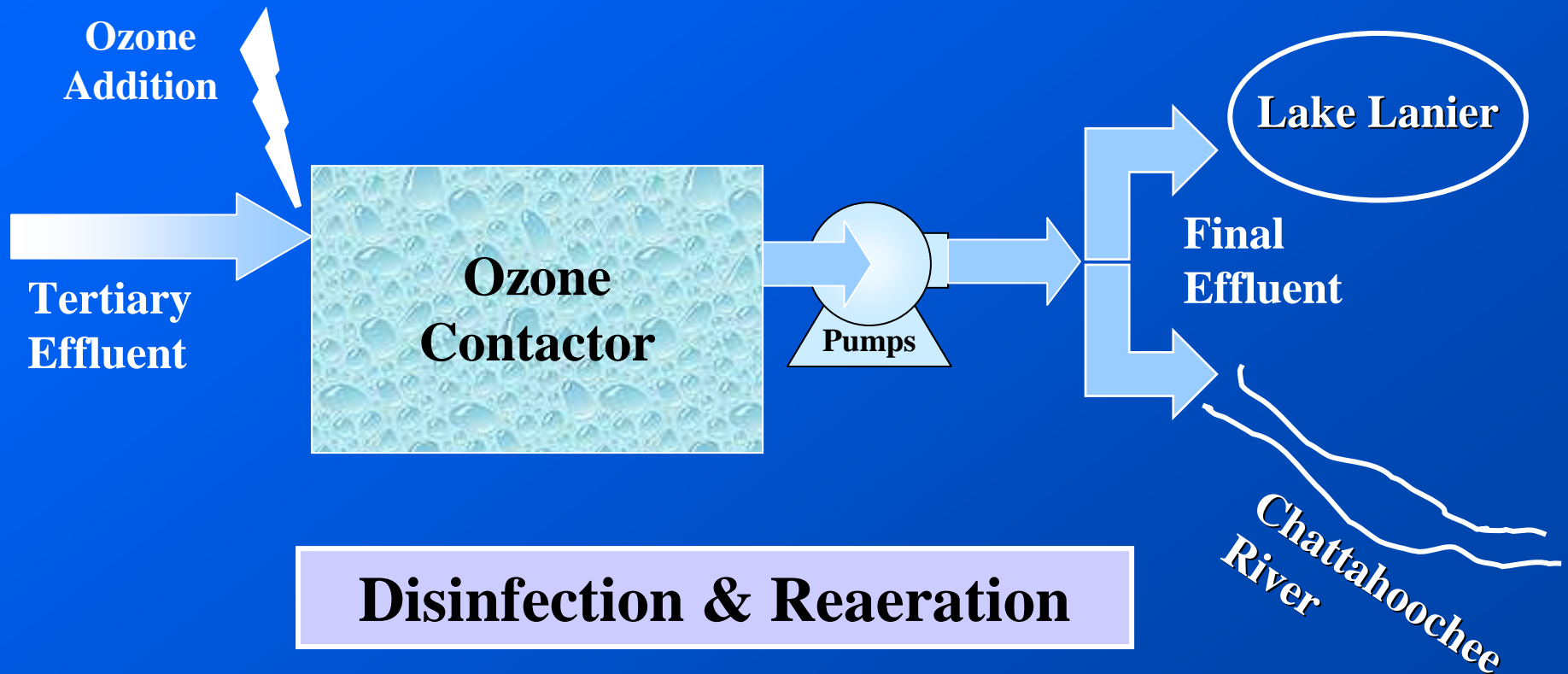
# F. Wayne Hill WRC & Expansion

## Post-Tertiary Treatment



# F. Wayne Hill WRC Expansion

## Disinfection & Reaeration





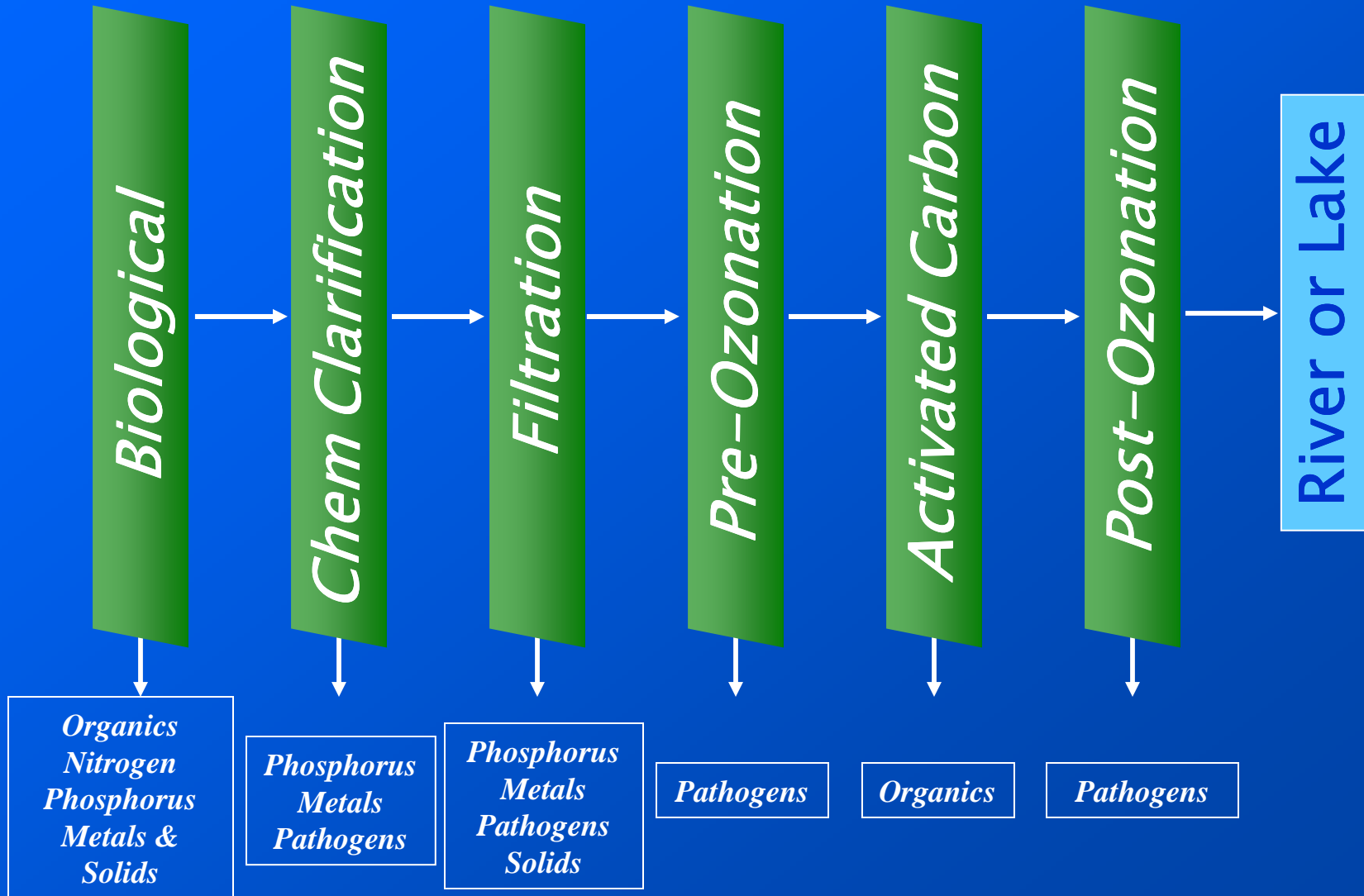
# F. Wayne Hill WRC Storage Tanks



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

# F. Wayne Hill WRC

## Pollutant Removal



# F. Wayne Hill WRC

## Permit Effluent Limits

Parameter	Units	Permit Limit
Flow	mgd	40
COD (Chemical Oxygen Demand)	mg/L	18
TSS (Total Suspended Solids)	mg/L	3
Fecal Coliform	#/100 ml	2
Ammonia-Nitrogen	mg/L	0.4
TP (Total Phosphorus)	mg/L	0.08
Turbidity	NTU	0.5
D.O. (Dissolved Oxygen)	mg/L	7.0

# 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?

