



# Wastewater Treatment on the Shore Rapid Infiltration Basin System Technology

October 24, 2012



## QUALIFICATIONS

- 83 Water Plants
- 6 Wastewater Treatment Plants
- 36 State of Delaware licensed water operators (over 350 years combined experience)
- 30 State of Delaware licensed wastewater operators (over 100 years combined experience)
- 5 Water/Wastewater Operators licensed to operate in other States (PA, NC & MD)
- 8 Delaware Water / Wastewater Operators of the Year
- 3 Lifetime Achievement Winners
- 85 years of DNREC and Div. of Public Health Regulatory Experience
- Licensed to operate in Maryland and North Carolina.

# Regulated Wastewater Utility

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- ✓ Design
- ✓ Build
- ✓ Own
- ✓ Operate
- ✓ Maintain



## **TIDEWATER RESPONSIBLE FOR:**

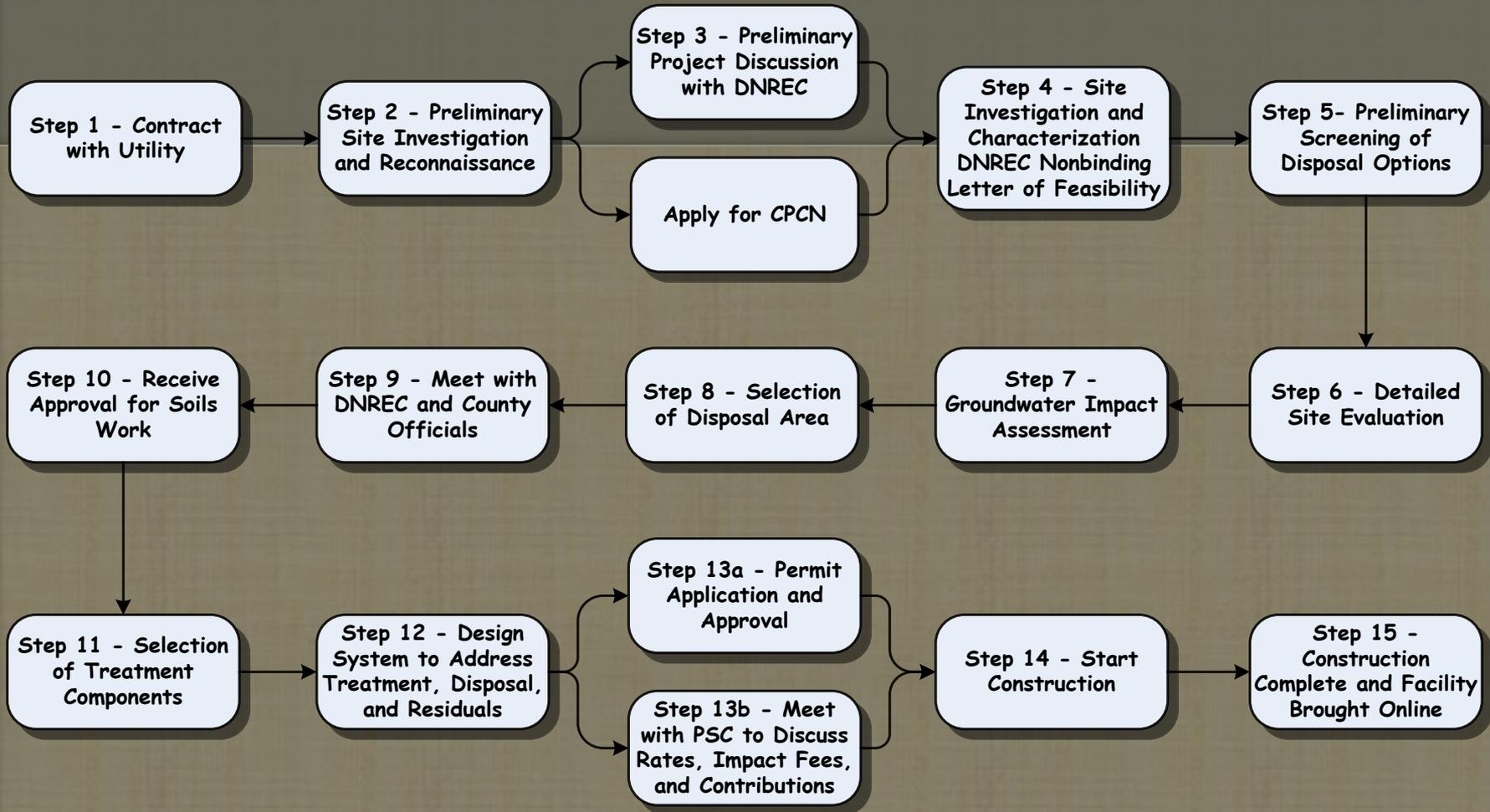
- REGIONALIZATION
- FINANCING (IF REQUESTED)
- OWNERSHIP
- MONITORING
- OPERATION & MAINTENANCE
- SCHEDULED PREVENTIVE MAINTENANCE
- 24/7 CUSTOMER SERVICE
- REGULATORY BACKSTOP

# Governmental Agency Oversight

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- PSC oversee us for:
  - Tariff
  - Franchise
  - Service
  
- DNREC – for environmental aspects
  - Coastal Zone permit
  - Construction permit
  - Operating permit
  
- Sussex County
  - Conditional use approval

# Wastewater Onsite System Design and Construction Strategy Schematic



# Types of Wastewater Treatment Used by TUI

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- Facultative Lagoons
- SBR
- RBC
- Various forms of activated sludge
- MBR

# Types of Wastewater Disposal Systems Used by TUI

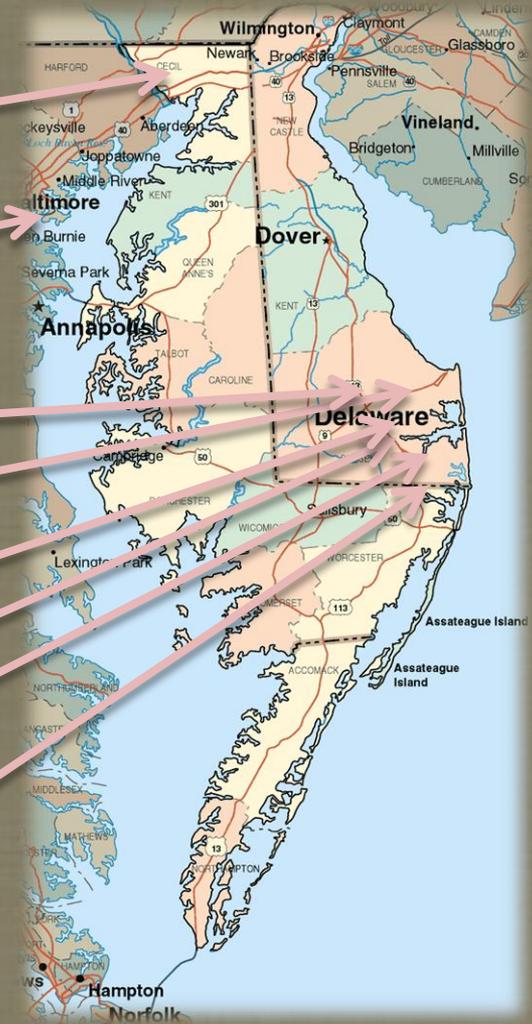
- Rapid Infiltration Basins (RIBs)
- Drip Irrigation
- Spray Irrigation (Slow rate land treatment)
- Subsurface Disposal Beds
- NPDES Discharge
- Others

Proper Treatment Must Match  
Proper Disposal Depending  
Upon Circumstances

High Level Treatment Must  
Precede RIB Disposal

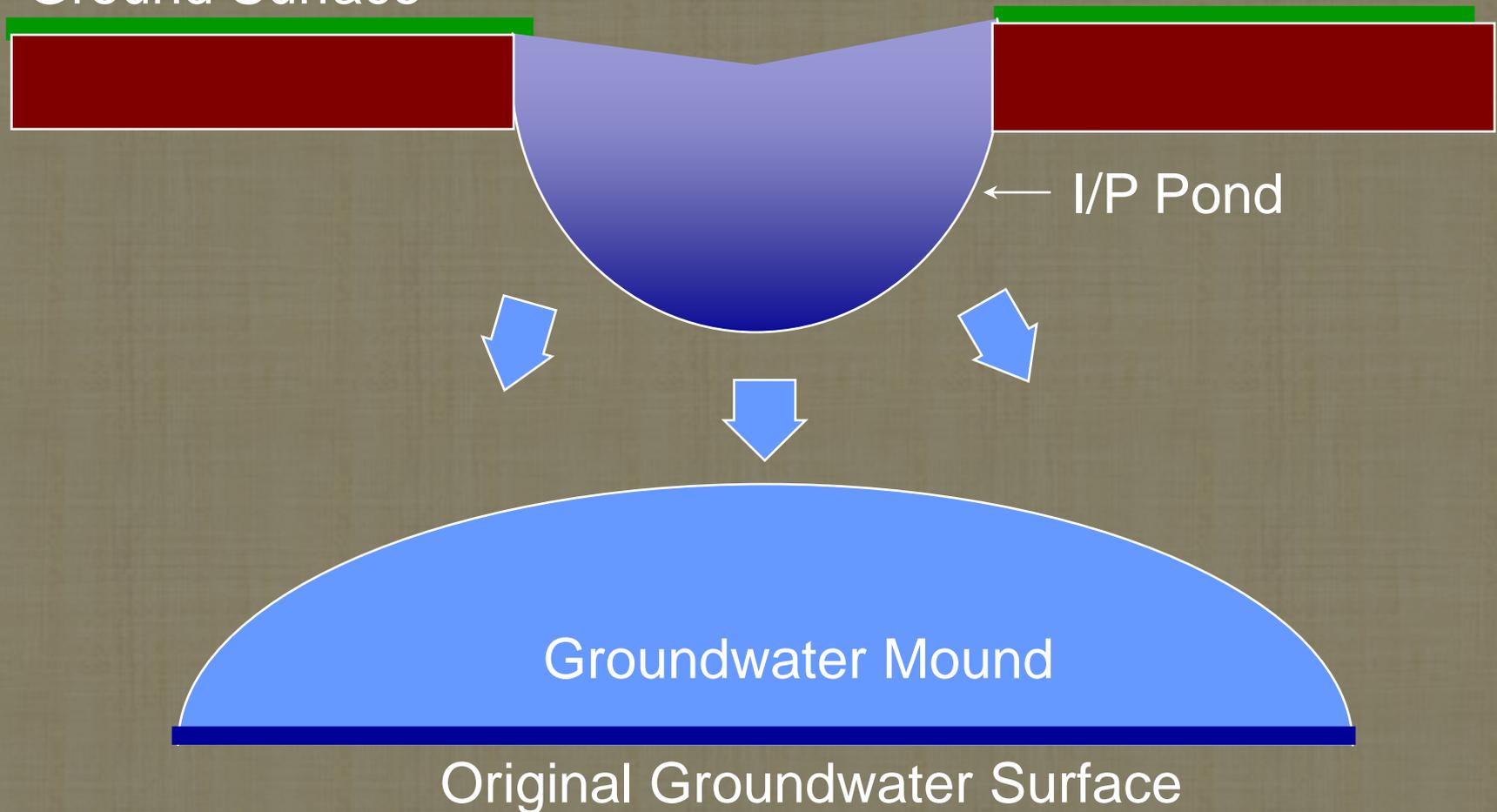
# Nearby MBR's

- Cecil County, MD
- Baltimore County, MD
- Hart's Landing, Lewes, DE
- City of Lewes, DE
- Wandendale (proposed)
- Bayfront, Lewes, DE
- Town of Millsboro, DE
- Glen Riddle Development – Ocean City, MD.

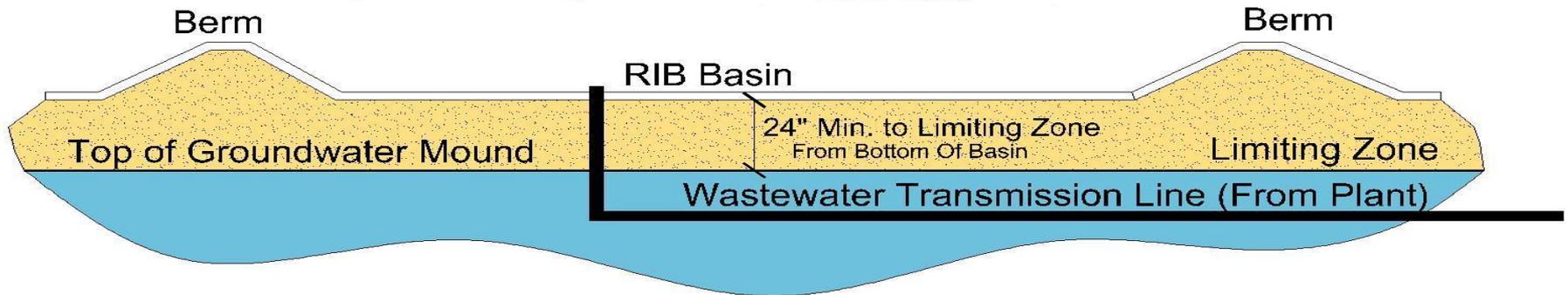


# Rapid Infiltration Basins (RIBs)

Ground Surface



# RIB Cross-Section



# Breeders Crown Facility



# Breeders Crown



Wastewater Treatment  
Facility

- Parkson Geo-Reactor 60 RBC
- Discharging to Six Rapid Infiltration Beds (RIBs)
- 63 Wastewater units
- Plant Capacity - 18,900 GPD
- Plant Treatment Capabilities:
  - 30 mg/l BOD
  - 30mg/l TSS

# Breeders Crown RIB Disposal



# Breeders Crown Plant View



# Previous Day RIB



# Breeders Crown After Dosing



# Country Grove Facility



# Country Grove

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Wastewater Treatment  
Facility

- Fluidyne ISAM Sequential Batch Reactor
- Discharging to Rapid Six Infiltration Beds (RIBs)
- 180 Water and Wastewater units
- Plant Capacity 54,000 GPD
- Plant Treatment Capabilities:
  - 10mg/l BOD
  - 10mg/l TSS
  - 10mg/l TN

# Country Grove Previous Day



# Country Grove After Dosing



# Country Grove Effluent Pipe



# Angola District RIBs (Aerial View)



# Proposed Wandendale Facility



319-139  
JULY 2009  
319c

AESTHETIC LANDSCAPE

ATTACHMENT

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# Wandendale Type of Disposal

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## RIBS

- Shallow basins (18-24" deep) that accept the treated water
- 15.4 acres area approved for RIBs
- Six (6) basins
- Dose one basin per day, then let it rest for five days and rotate the basins.

# Bay Front RIB System



# Bay Front



Wastewater Treatment  
Facility

- Kubota Membrane Bio-Reactor Facility
- Discharging to Rapid Five Infiltration Beds (RIBs)
- 360 Water and Wastewater units
- Plant Capacity - 54,000 GPD – Capacity can be expanded to 108,000
- Plant Treatment Capabilities:
  - 3mg/l BOD
  - 3 mg/l TSS
  - 3 mg/l TN

# Bay Front RIB Disposal



# Bay Front Effluent Pipe



# Inside View of Bay Front



# RIB During Dose video1



GOPR0072.MP4

# RIB After Dose Video 2



GOPR0073.MP4

# West Bay Park RIB Disposal



# West Bay Park RIB Disposal



# West Bay Park RIB Disposal





***"Providing Water and Wastewater  
Solutions That Make Sense"***