

**HRWA Presentation**  
**TDEC Public Hearing**  
**#2007-005**  
**March 8, 2007**

City of Franklin Proposed ARAP Permit to  
Increase Water Withdrawals from Harpeth  
River for Expanded Drinking Water Plant



# **HARPETH RIVER WATERSHED** **ASSOCIATION: MISSION**

“To protect the ecological balance of the Harpeth river watershed for the benefit of public health and enjoyment of our natural resources”



# Thanks to Our Supporters

- World Wildlife Fund
- Patagonia
- Donors to our WATER QUALITY IMPROVEMENT CAMPAIGN.
- Dissolved Oxygen Volunteers
- The Nature Conservancy– in-kind



## **Franklin's low head dam across Harpeth by New Battlefield Park**



**Current withdrawal practices violate state Water Pollution Control Act. Therefore not “grandfathered.”**



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# City's Drinking Water Withdrawal Operation is not "Grandfathered" and Can Not Continue Because Operations Violate State Law

- Under ARAP rules, existing water withdrawals prior to July 25, 2000 which "do not adversely alter or effect the classified use of the stream are exempt.
- UNLAWFUL, except with a permit, to carry out an activity which may result in the alteration of the physical, chemical, radiological, biological, or bacteriological properties of any waters ... These activities include water withdrawals. (1200-4-7-.04(3))





# Harpeth River at Pinkerton Park (6 cfs, Sept 2006)



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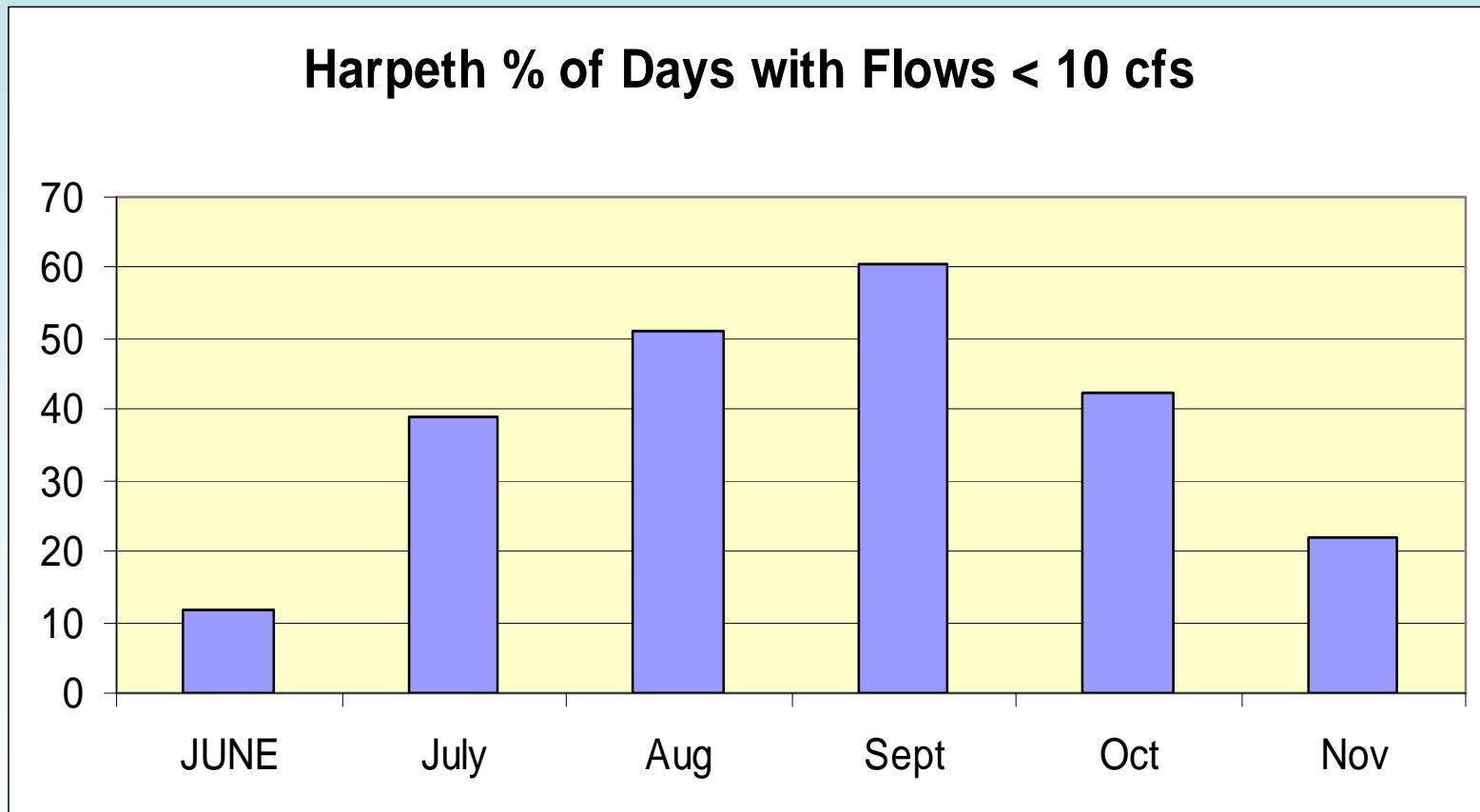


# Harpeth River below Franklin Sewage Treatment Plant. Williamson County Rec. Center (20 cfs)



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# The Harpeth River has a natural low flow, summer/fall season– 6 months



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# City's Proposal has been Determined by TDEC to Cause Water Quality Degradation

- Removing 20% of the river's flow.
- During 6 month river low flow season (June-Nov) this is significant (say 7 cfs-50 cfs)



# State Regulation: must show NO feasible alternative according to anti-degradation statement

“new or additional degradation will only be allowed if the applicant has demonstrated to TDEC that reasonable alternatives to degradation are not feasible. (1200-4-3-.06(1))



# City has Economical and Feasible Alternatives to this Proposal

- Franklin already gets 2/3 to 3/4 of it's drinking water from the Cumberland River via Harpeth Valley Utility District (April-Sept. 2006 city reports: 62%-75%)
- Most people in the river basin get their water from the Cumberland River



# Shutdown of old plant and getting all drinking water from the Cumberland River is the best for city rate payer

- CTE had errors in it's economic comparisons
- HRWA contracted natural resource economic expert to correct errors
- Based on CTE's costs figures for various options, including shutdown option and 10 cfs cutoff option
- NOTE— even working off CTE's figures, all options, including shut down are within 2%-- so toss up even without the corrections





# Items Adjusted in Economic Analysis

- Conduct standard present value financial analysis
- Must use incremental costs not average costs
- Account for variability in the amount of water in the river
- Account for the contract that set a minimum amount of water to purchase from HVUD (not addressed at all by city)
- Incorporate new 5-year rates from HVUD



# CITY LOSES MONEY FROM THE START

- \$525,000 at 5 cfs cutoff
- \$985,000 at 10 cfs cutoff

This is 2007 dollars. Losses through 2012.



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NOT economical for drinking water plant on Harpeth because the river does not have enough flow year round even with a reservoir to enable even a 2 mg plant to run at full capacity.

A 4 MGD plant would need 6 times reservoir capacity city has to run at capacity



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# Transition About 3 Years

- CTE analyzed shut down option
- Need to lay pipe to serve old neighborhoods currently only getting water from city drinking water plant– and no back up
- HVUD letter to TDEC states can meet all of city's demand, need 2 years
- Redundancies in HVUD service to Franklin now





# TDEC DENY THIS PERMIT PROPOSAL

- There are feasible alternatives and the alternative also happen to be less expensive, based on current CTE costs figures and corrections.
- Any restriction to the withdrawal– increase flow cutoff level, only withdraw during 6 wet months-- will simply INCREASE COST of PLANT since it restricts further the plant's output



# City Franklin has Outgrown River for Drinking Water

- FRANKLIN relies on Harpeth in the summer to “assimilate” or handle the sewage treatment effluent.
- Franklin 12 MGD largest Sewer Plant on the Harpeth River.
- Removing water reduces ability of river in summer low flow to handle the effluent from Franklin and other two plants.



# Withdrawing Water Must be Evaluated in Terms of Protecting River's Ability to Handle Effluent

- State regulations (ARAP) requires that water withdrawal permits protect stream's resource value
- This includes benefit to filter settle, and/or eliminate pollutants (1200-4-7-.03(29)(a))



# River Below Franklin in Low Flow Conditions is Dominated by Effluent Discharges

- Violations of dissolved oxygen standard up and down river over 100 miles at river flows in Franklin at proposed levels to withdraw water
- EPA field data in 2000- 55% effluent flow below Franklin
- No one wants to canoe on river of mostly effluent





# USEPA DISSOLVED OXYGEN DATA AUGUST 2000

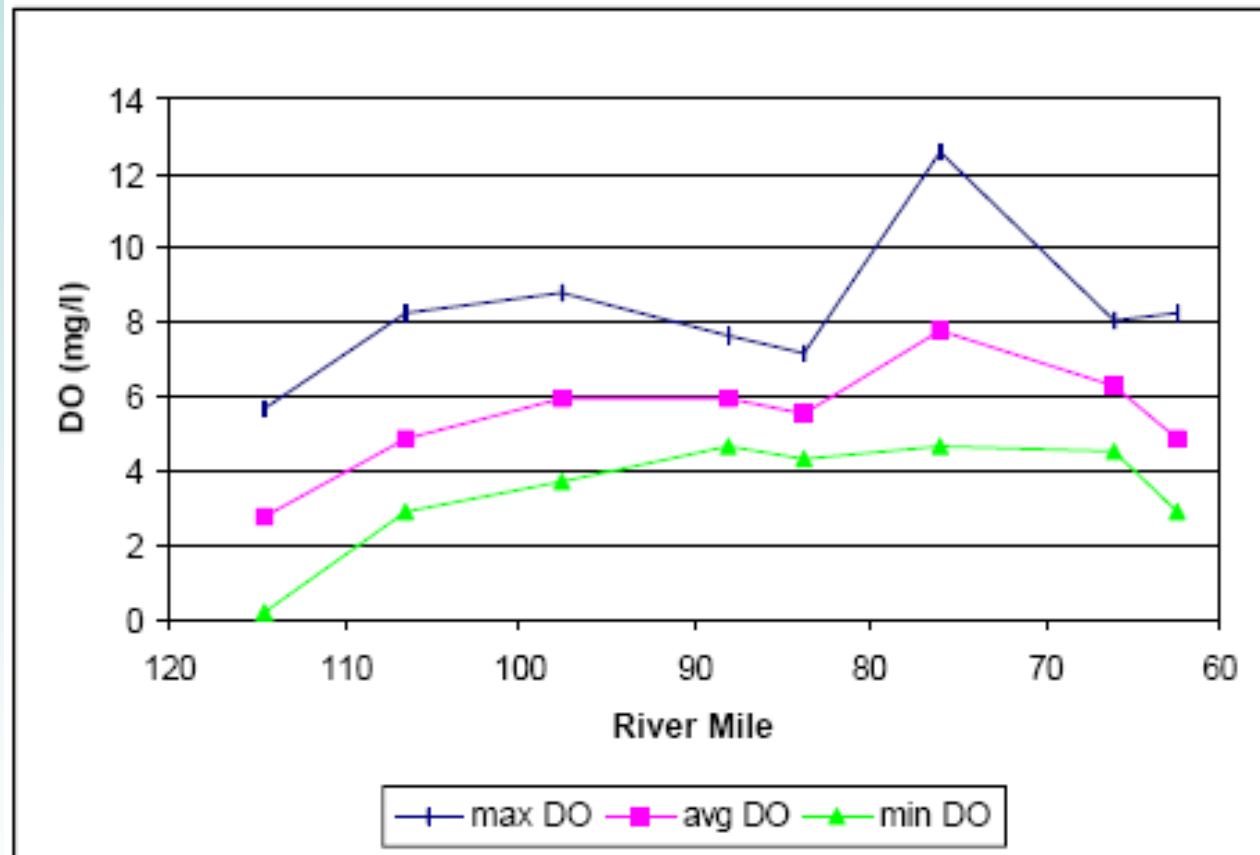


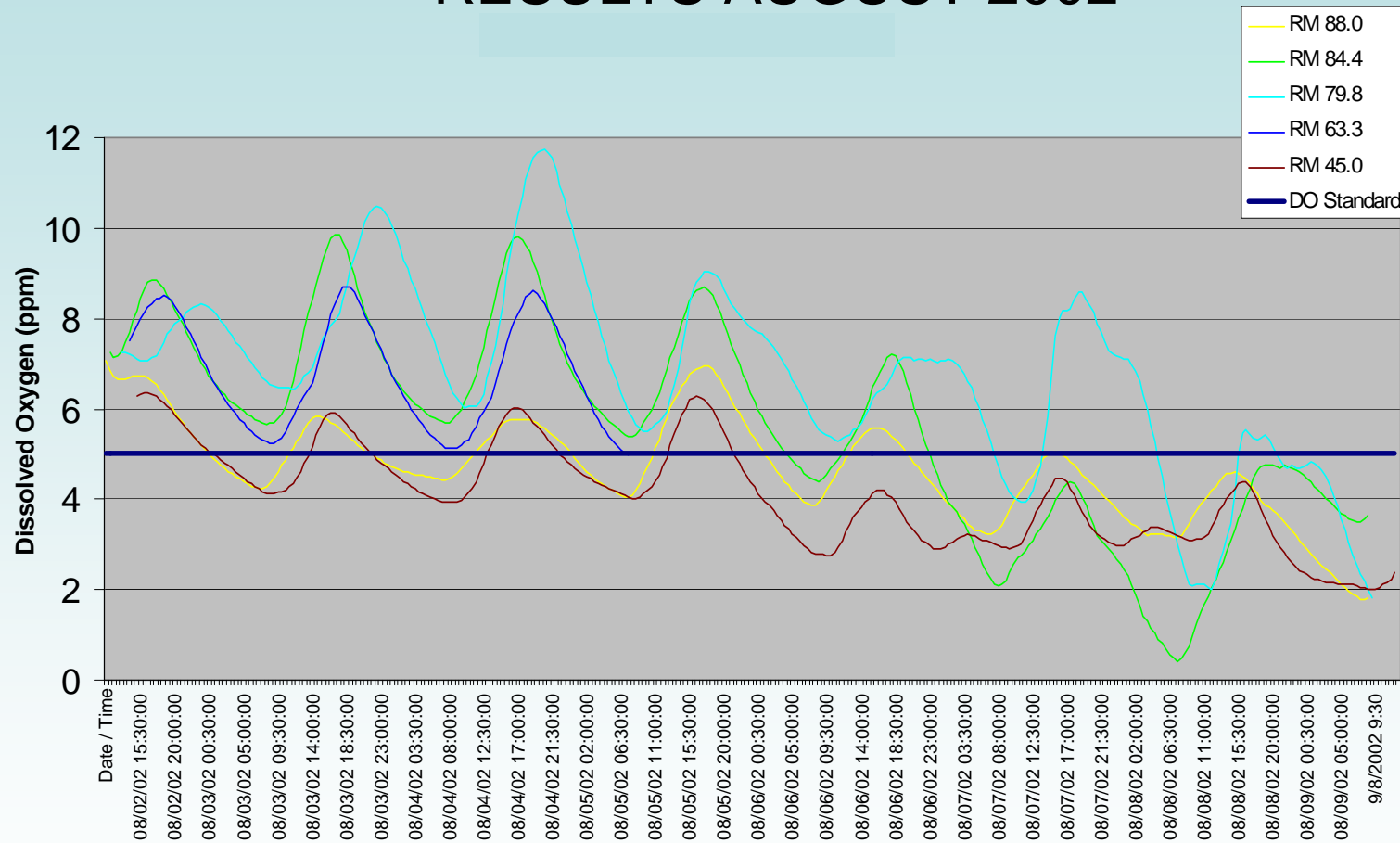
Figure 5 Longitudinal DO profile during the August 2000 study



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# TDEC DIURNAL DISSOLVED OXYGEN STUDY

## RESULTS AUGUST 2002



Flow range coming to Franklin POTW – 3 to 4.5 cfs. Downstream from Franklin POTW – 11 to 14 cfs  
 Estimated Effluent Percentage Downstream Using POTW Flow of 3 mgd – 33% to 42%  
 Estimated Effluent Percentage Downstream Using POTW Flow of 6 mgd – 66% to 84%

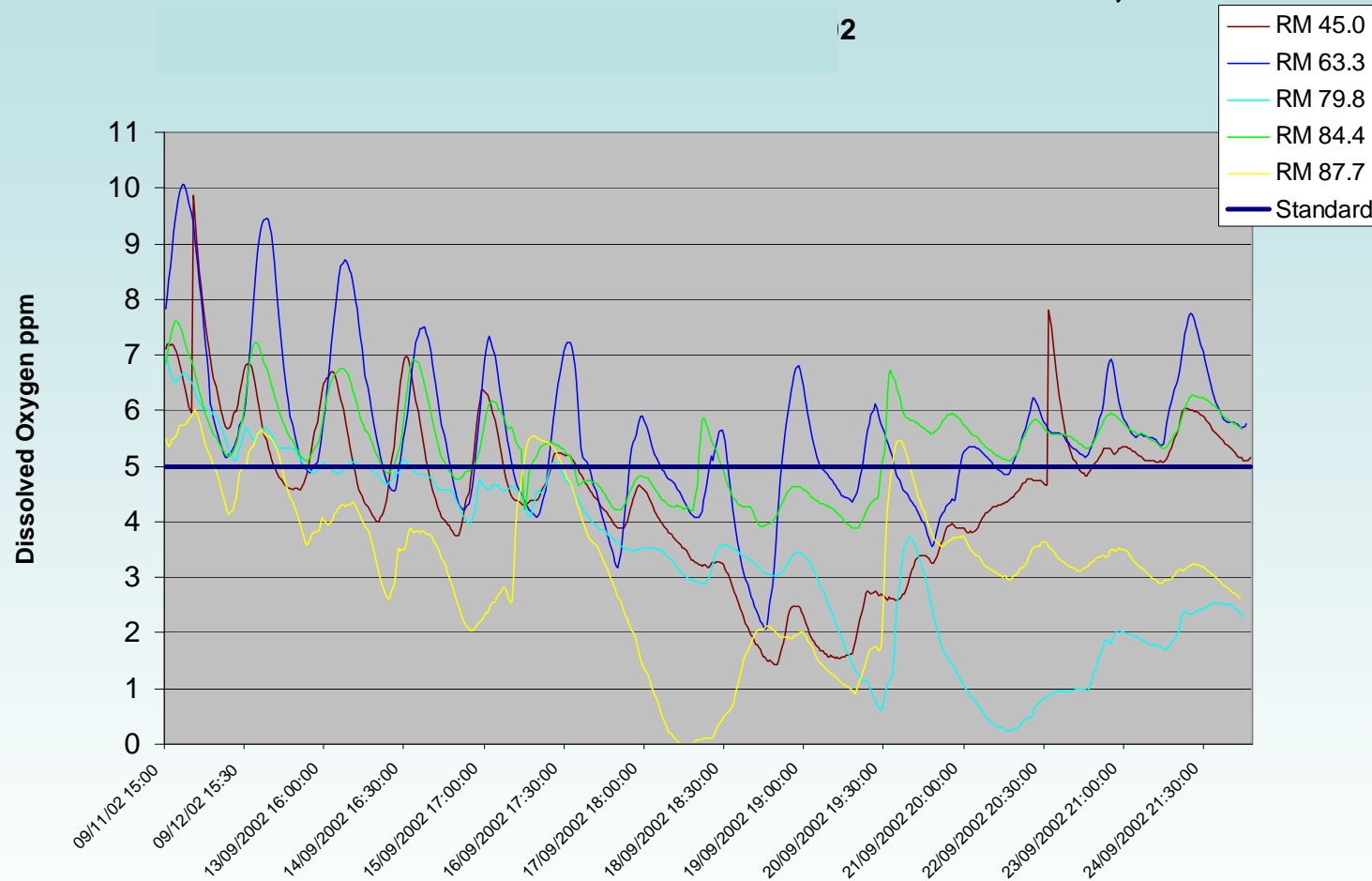


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# TDEC DIURNAL DISSOLVED OXYGEN STUDY

## RESULTS SEPTEMBER 11-25, 2002

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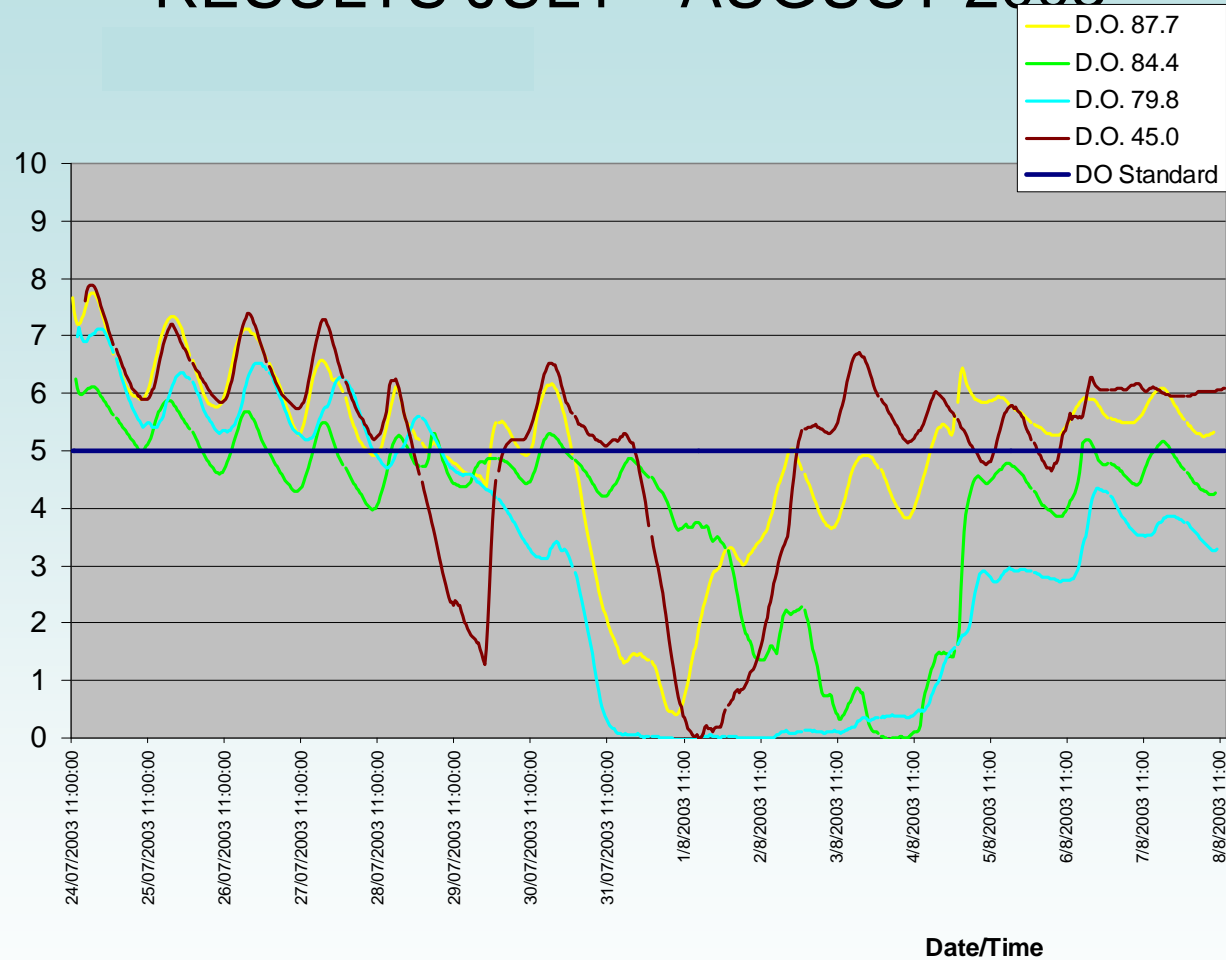


Flow range coming to Franklin POTW – 2.6 to 127 cfs. Downstream from Franklin POTW – 10 to 135 cfs  
 Estimated Effluent Percentage Downstream Using POTW Flow of 3 mgd – 3% to 49%  
 Estimated Effluent Percentage Downstream Using POTW Flow of 6 mgd – 7% to 73%



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# TDEC DIURNAL DISSOLVED OXYGEN STUDY RESULTS JULY - AUGUST 2003



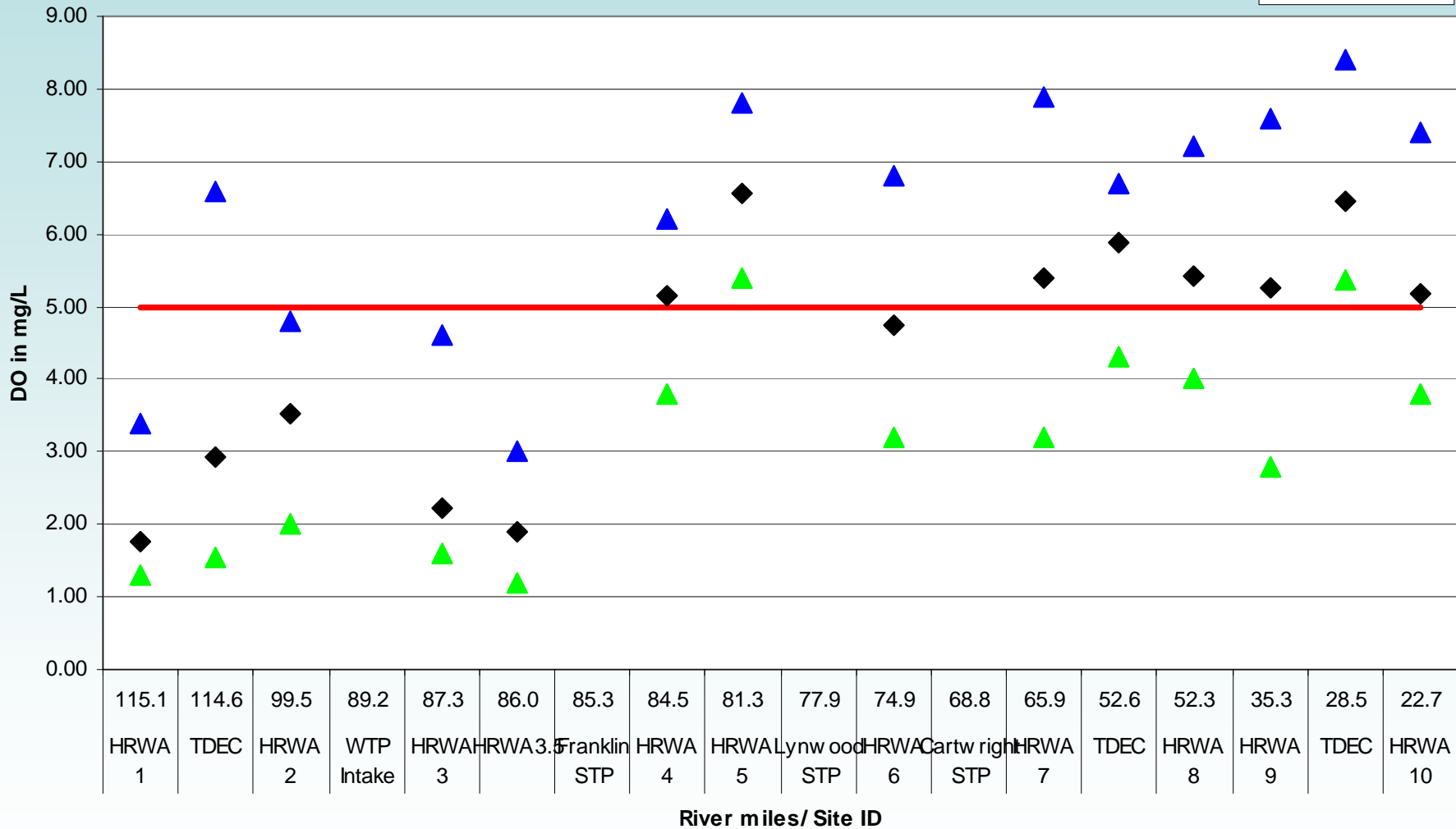
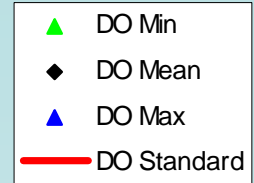
Flow range coming to Franklin POTW – 9 to 82 cfs. Downstream from Franklin POTW – 22 to 105 cfs  
 Estimated Effluent Percentage Downstream Using POTW Flow of 3 mgd – 4% to 21%  
 Estimated Effluent Percentage Downstream Using POTW Flow of 6 mgd – 9% to 42%



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# DO Levels in Harpeth River, Sept 06

## HRWA and TDEC



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# Efforts Underway by City, HRWA to Improve River for **EVERYONE**

- Effluent reuse— help reduce drinking water needs in peak summer
- HRWA restoration in headwaters—state funds
- HRWA has EPA grant with city, county, TDEC to develop ways to reduce pollution loads in new development areas
- EPA wants to work on sewer permits with new approaches— require adjustments
- **WATER EFFICIENCY EFFORTS— Let's Start**





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