

# Columbus Collection and Treatment System Real Time Wet Weather Management

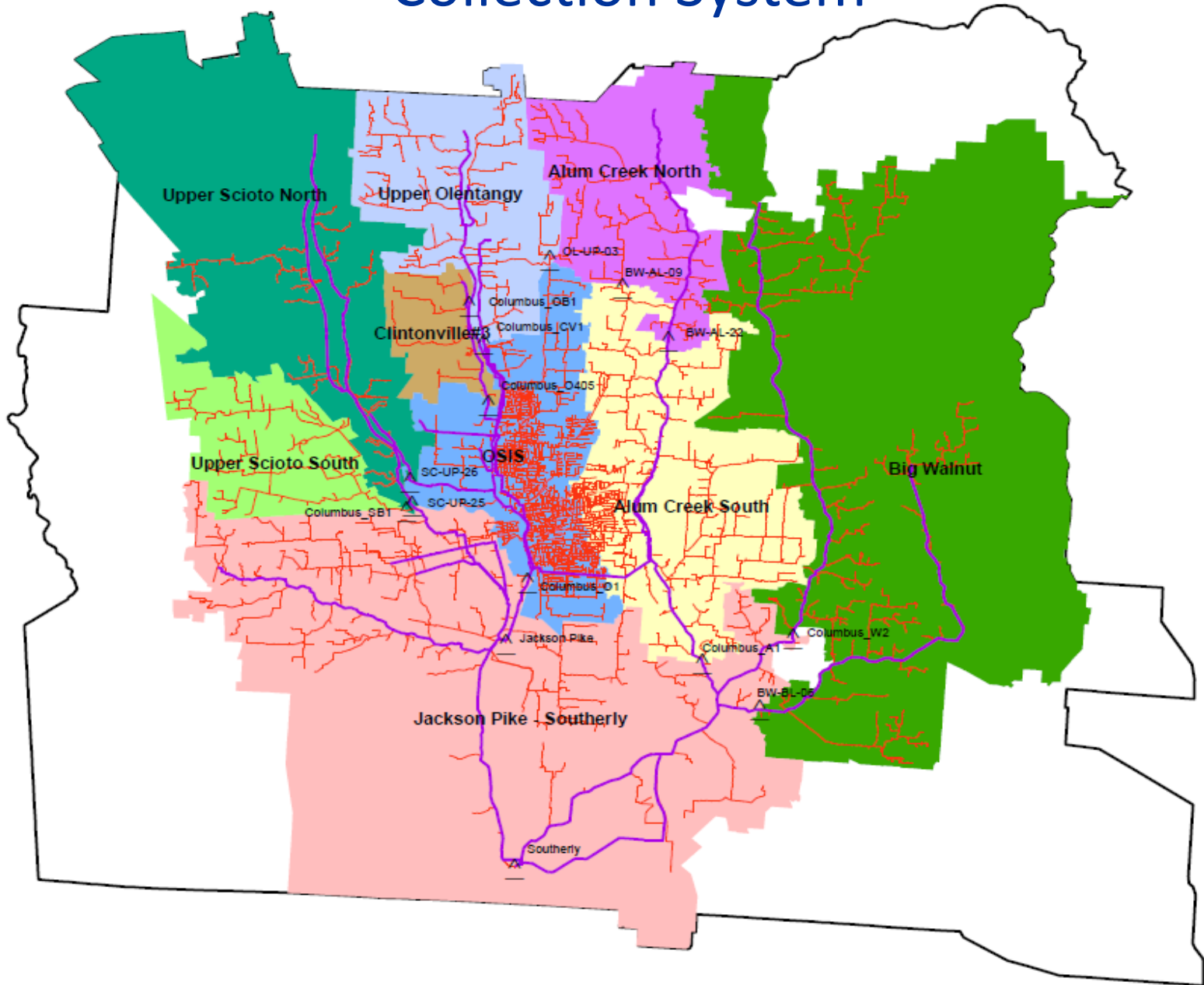
## Presenters

Gary Hickman, JPWWTP Plant Manager

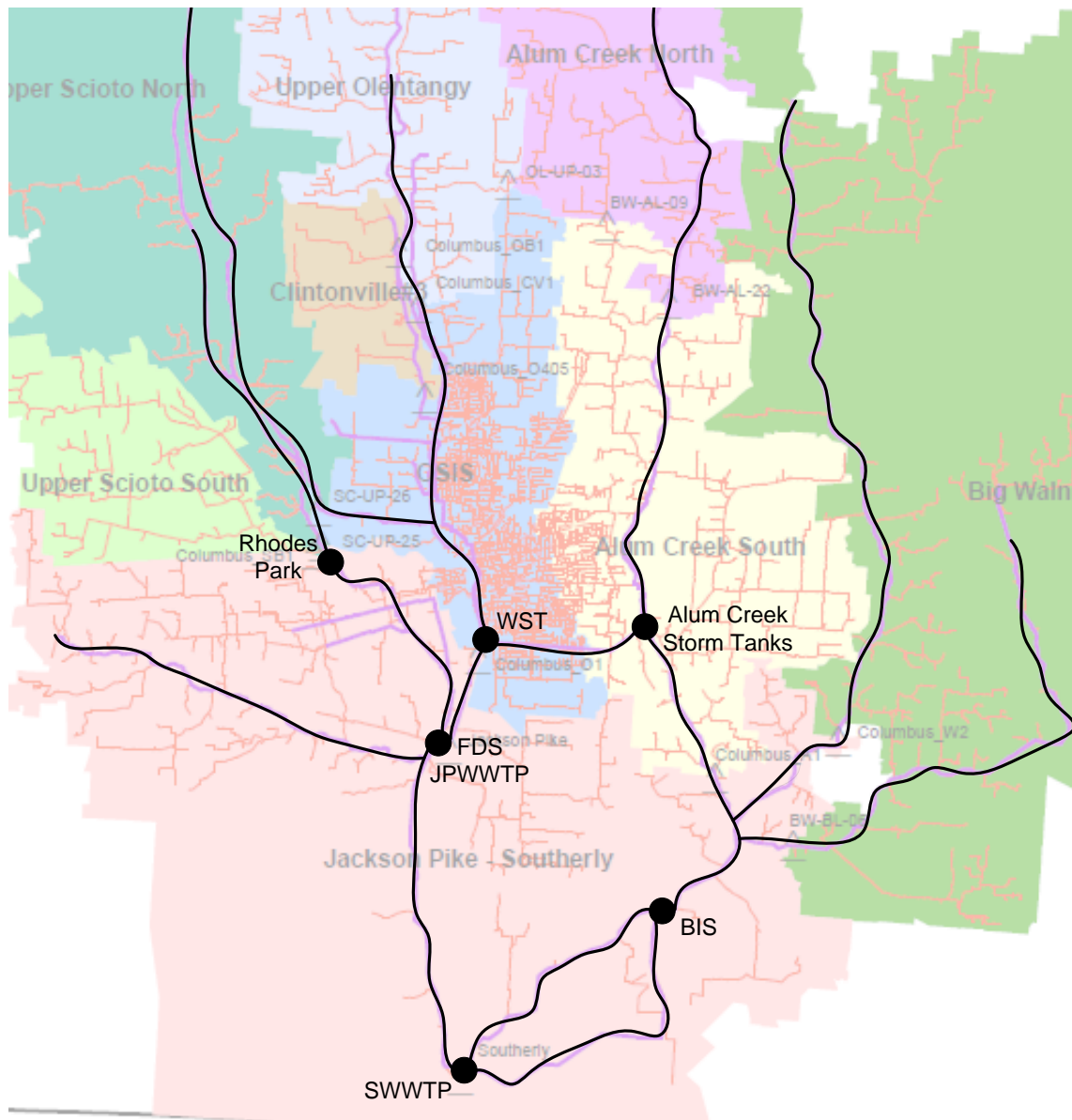
Ed Heyob, CDM Smith Automation Engineer



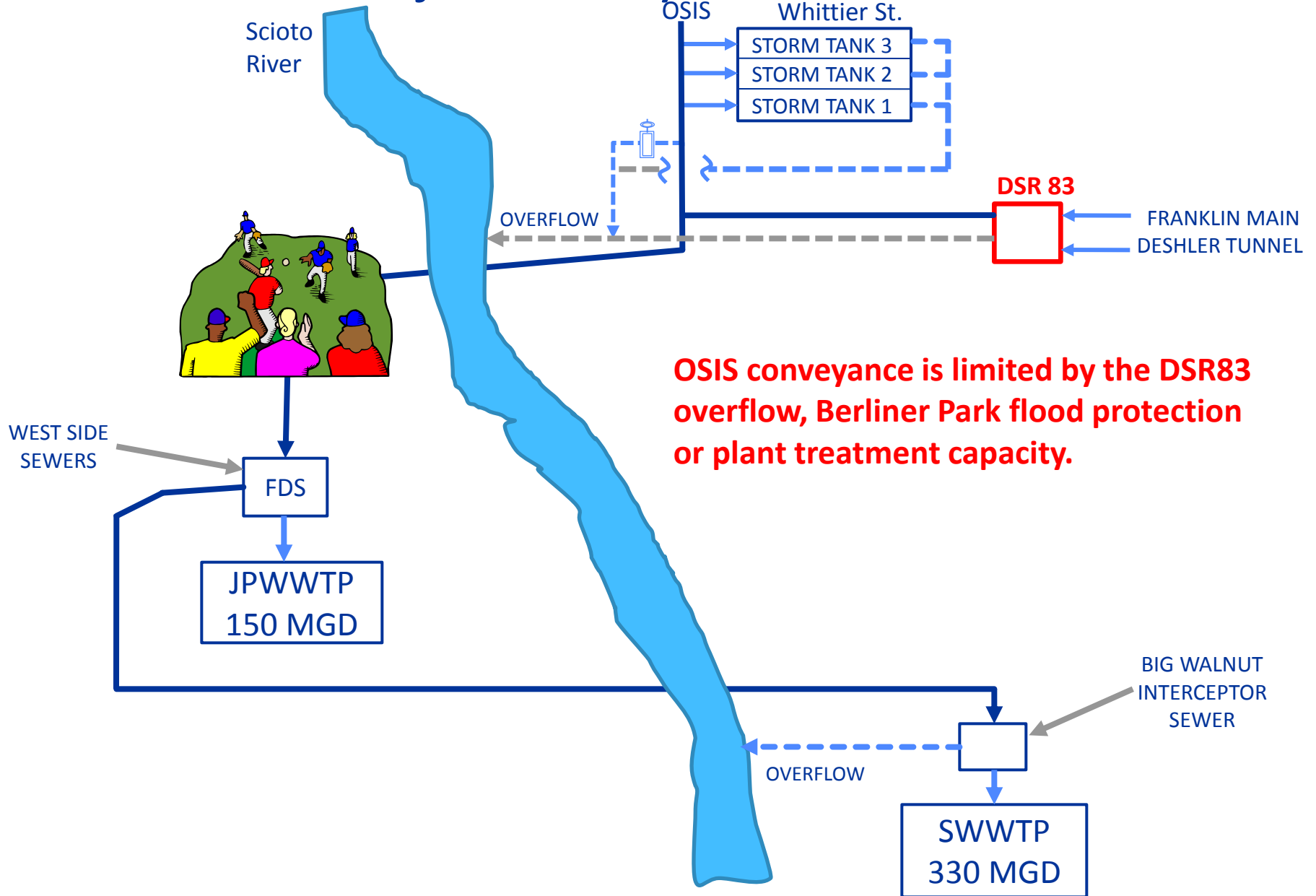
# Collection System



# Control Locations on Trunk Sewers



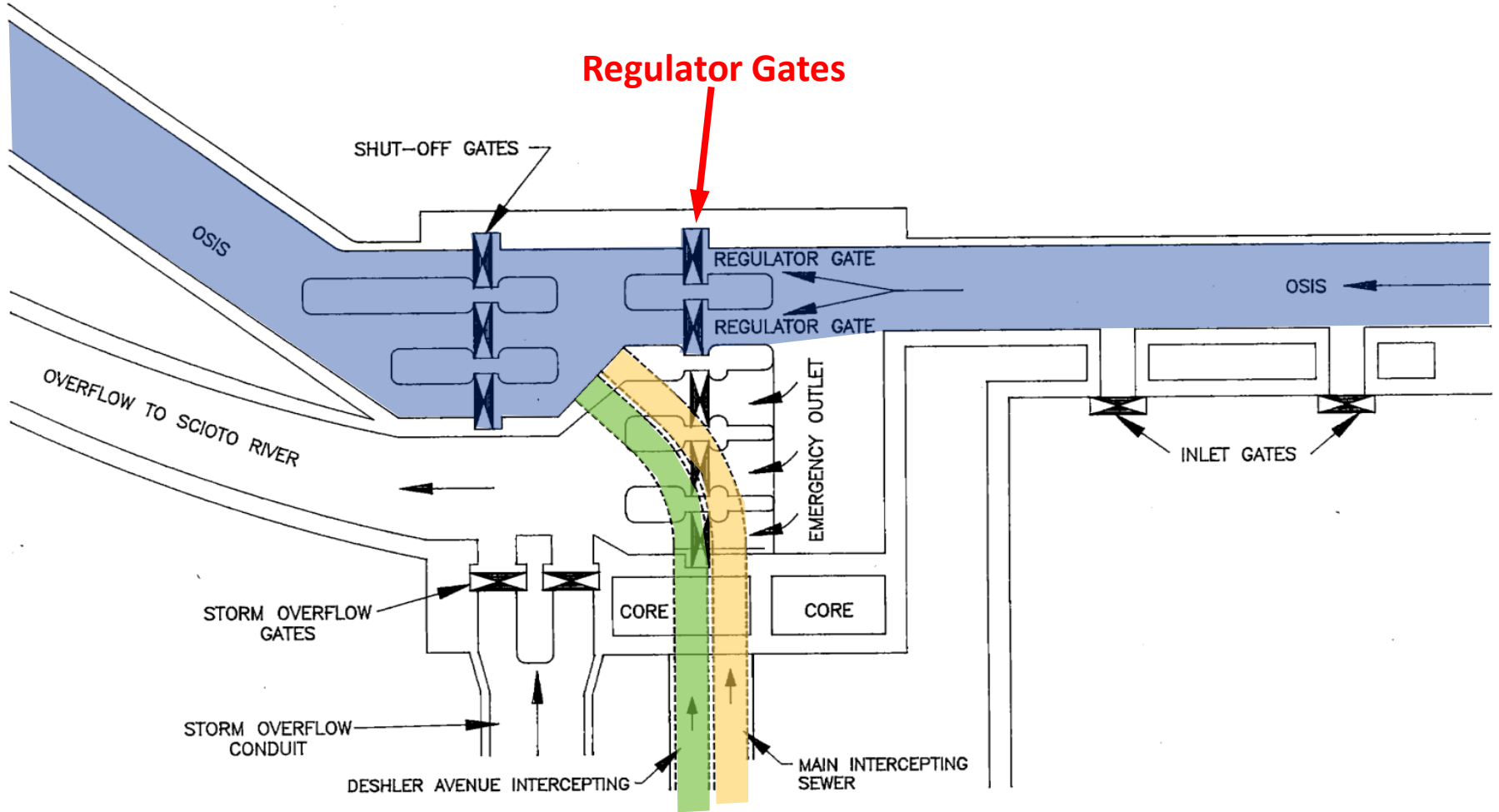
# Major Conveyance Limitations



# Whittier Street Regulator Gates

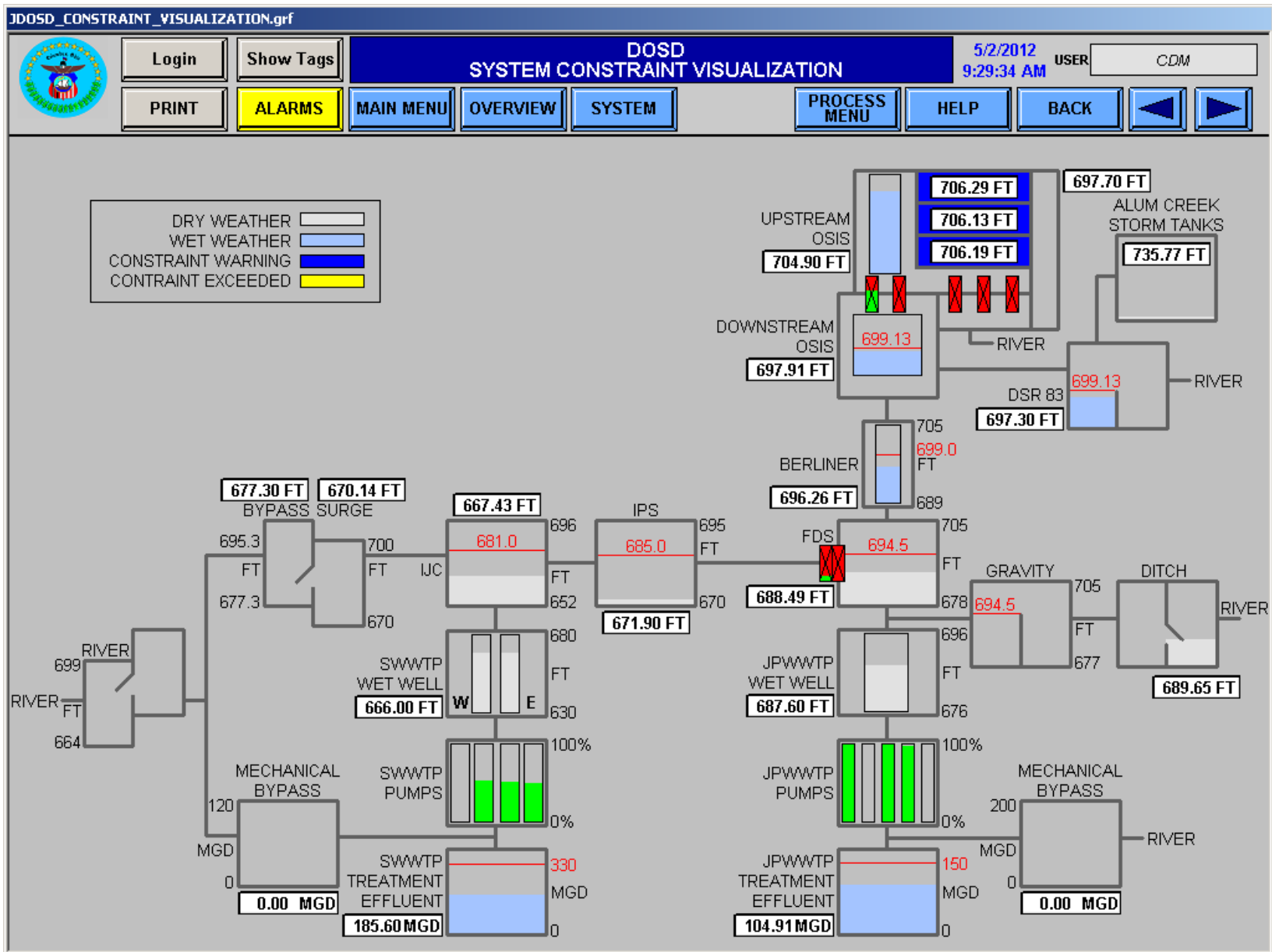
To Berliner Park

Regulator Gates



From/to DSR83

# Visualizing the Decisions

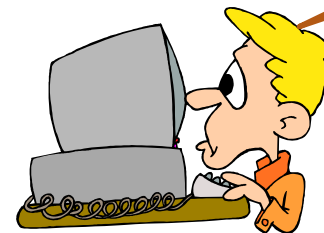
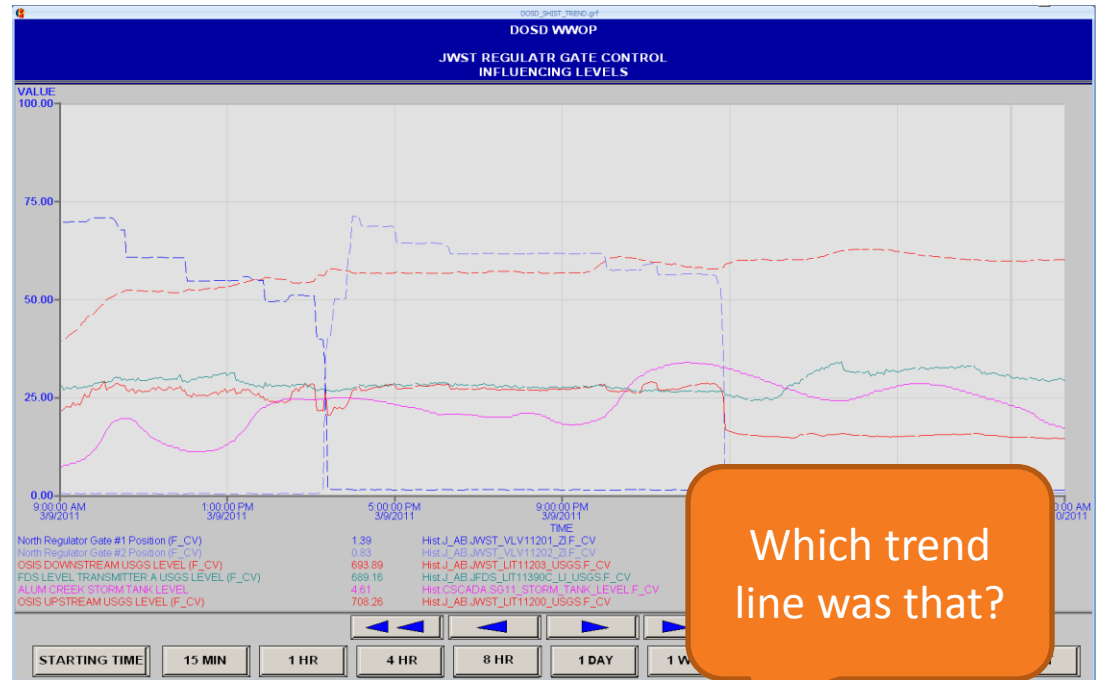


# What is Real Time Data

- Sample inputs 3x more than controlled action
- Regulator gate movement effects noticed in less than 5 minutes
- Operations is accustomed to 1-2 second updates within plant
- Ideal monitoring around Whittier Street would update at least every 30 seconds

# Ability to Learn from Each Event

- There are more items than can be easily trended together
- Trends lose some of the dynamic “feel” of watching the system behave



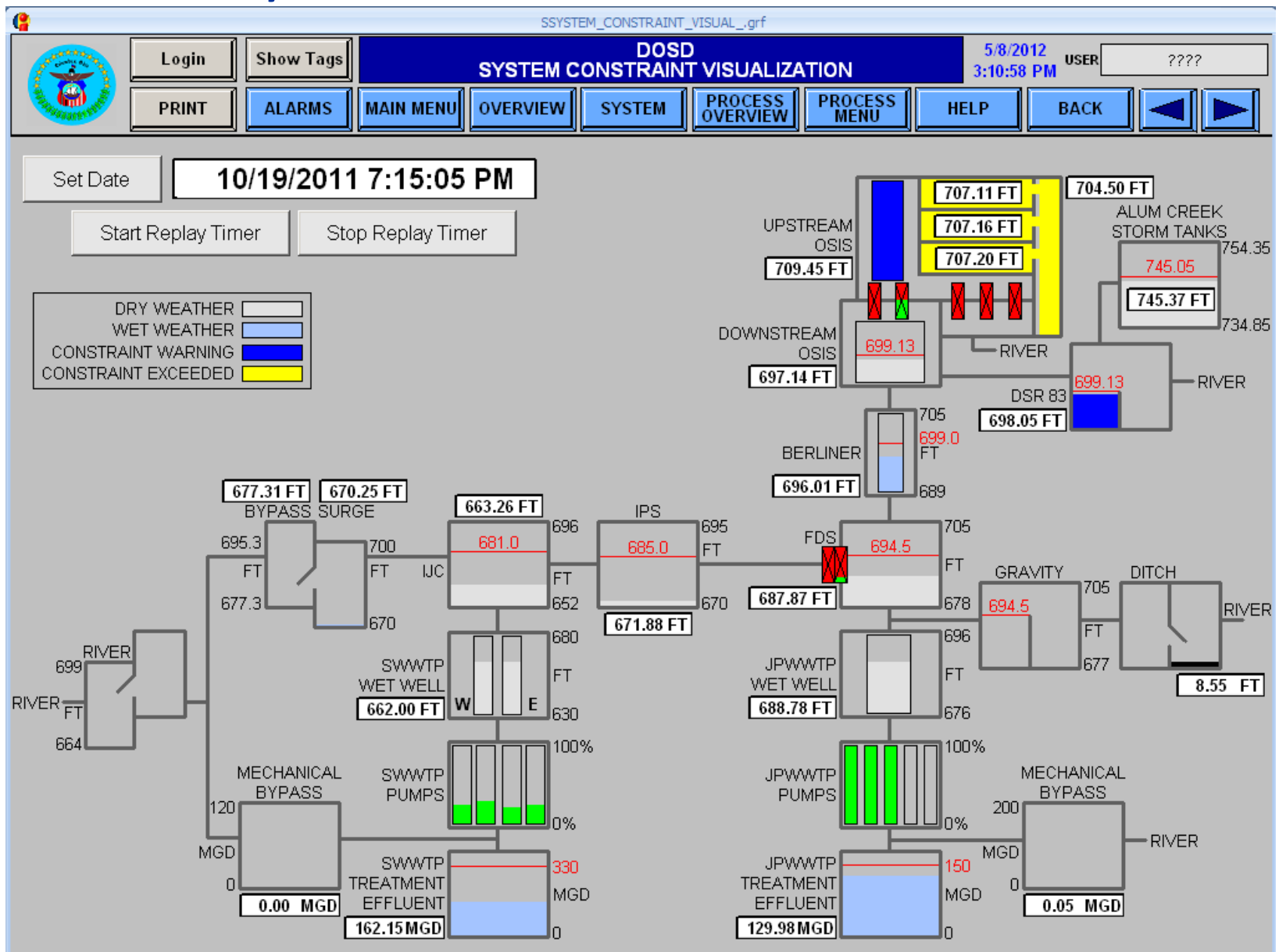
Which trend line was that?

Historical replay example

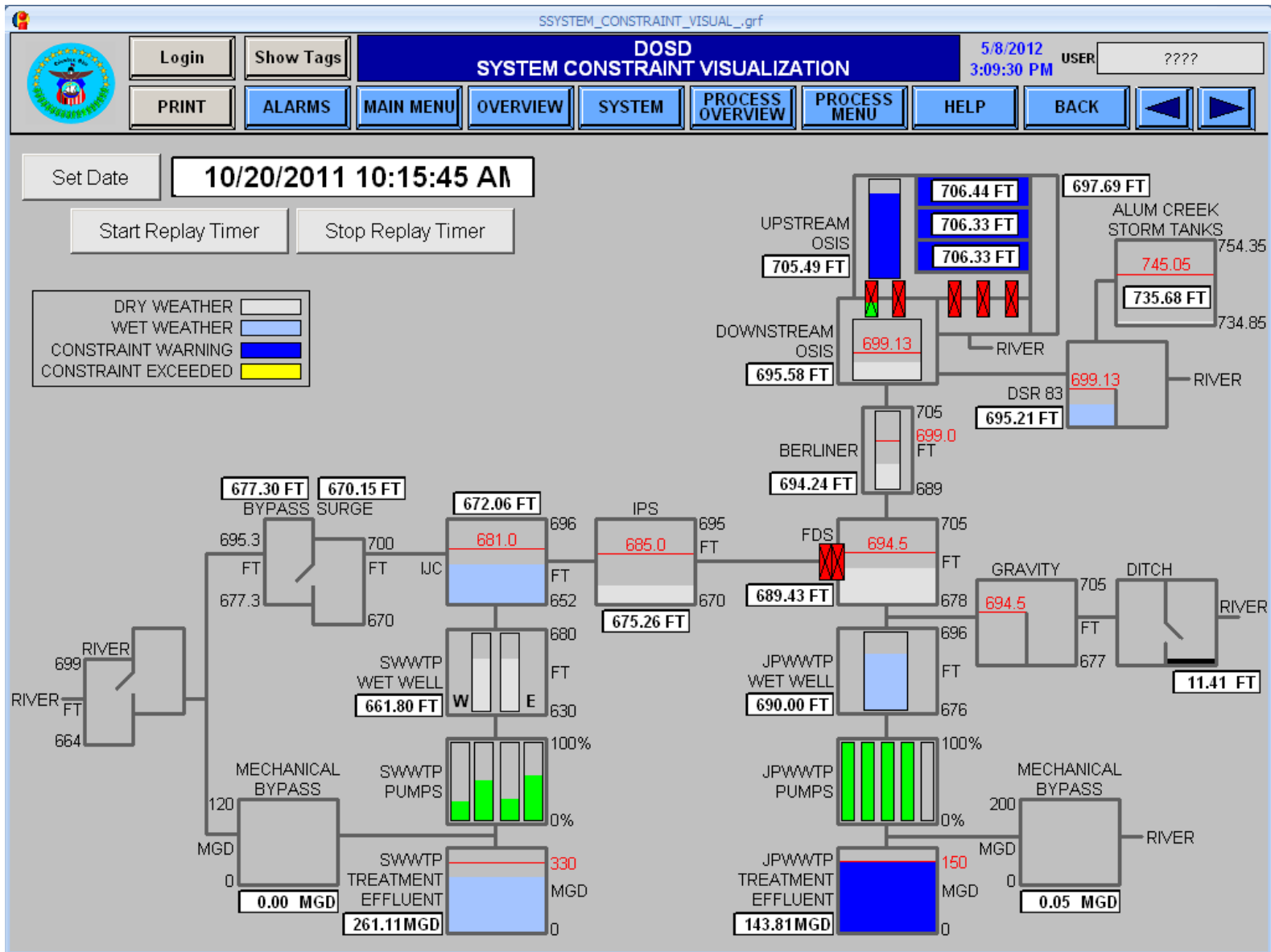




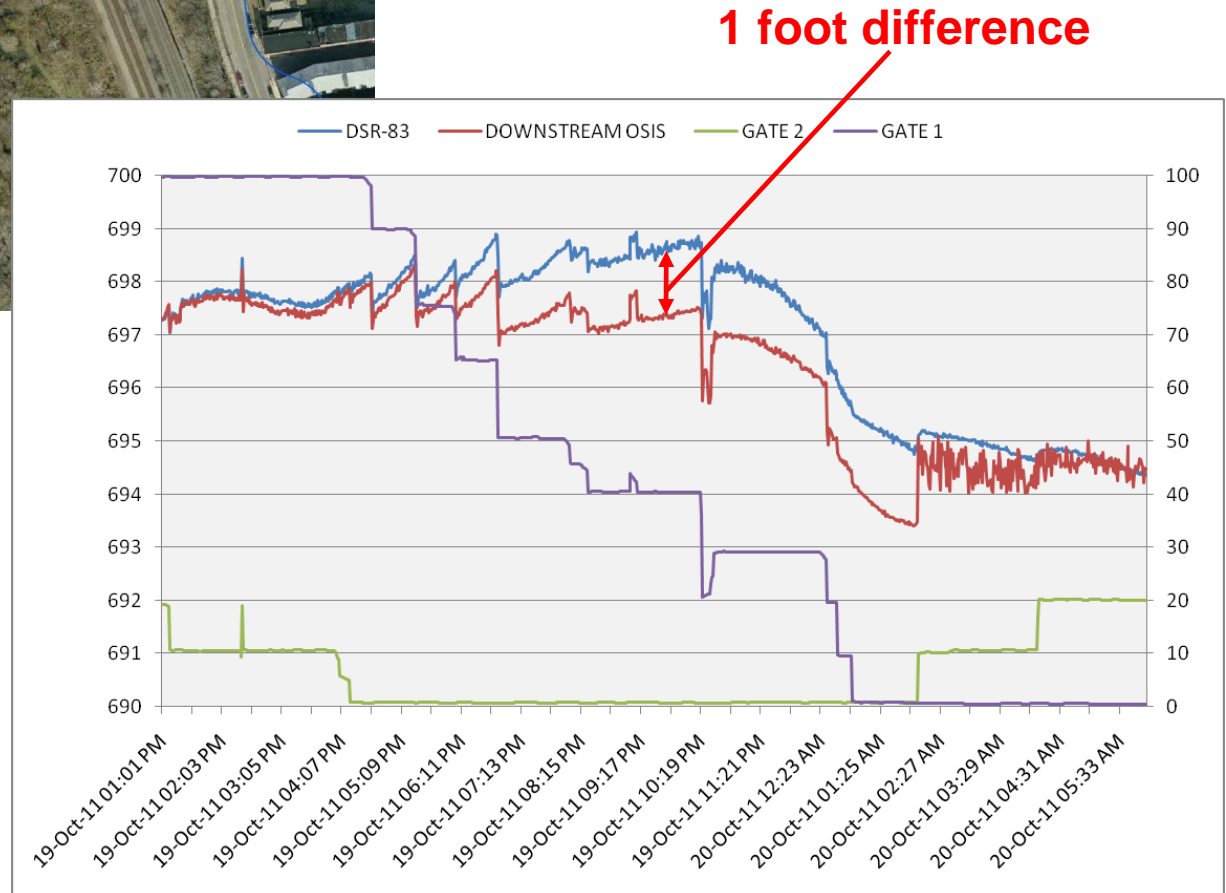
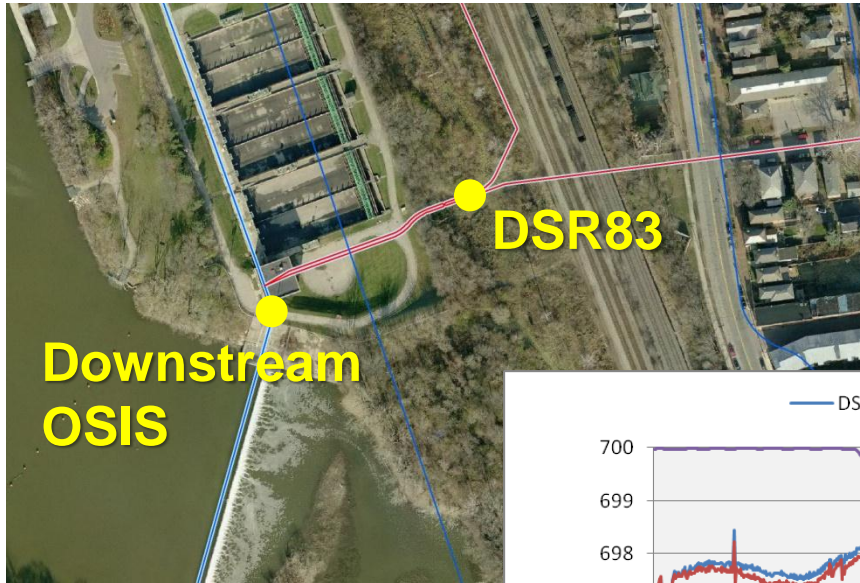
# System Constraints Exceeded



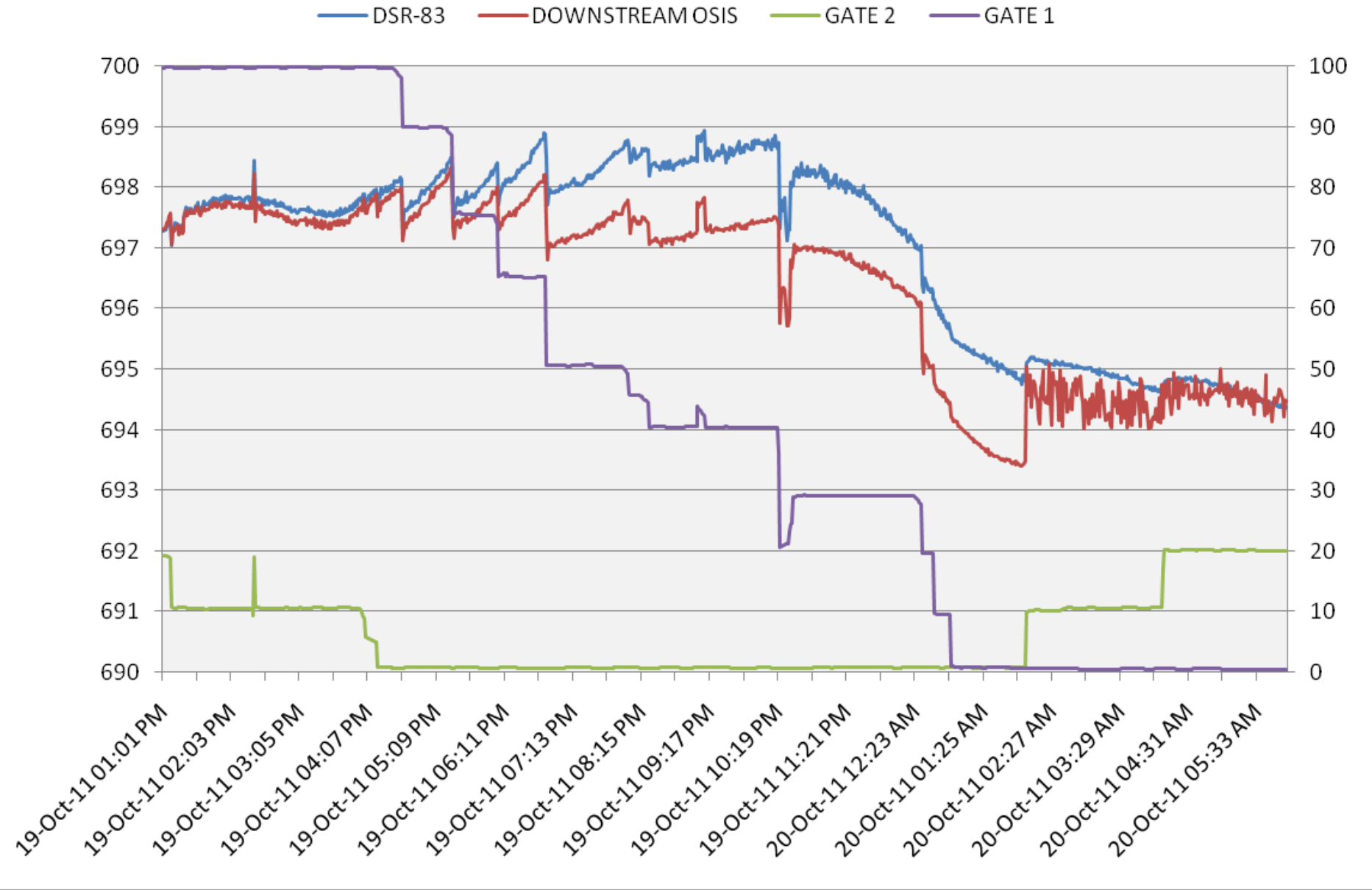
# System Draw Down After Event



# So Close Together, but Different Responses

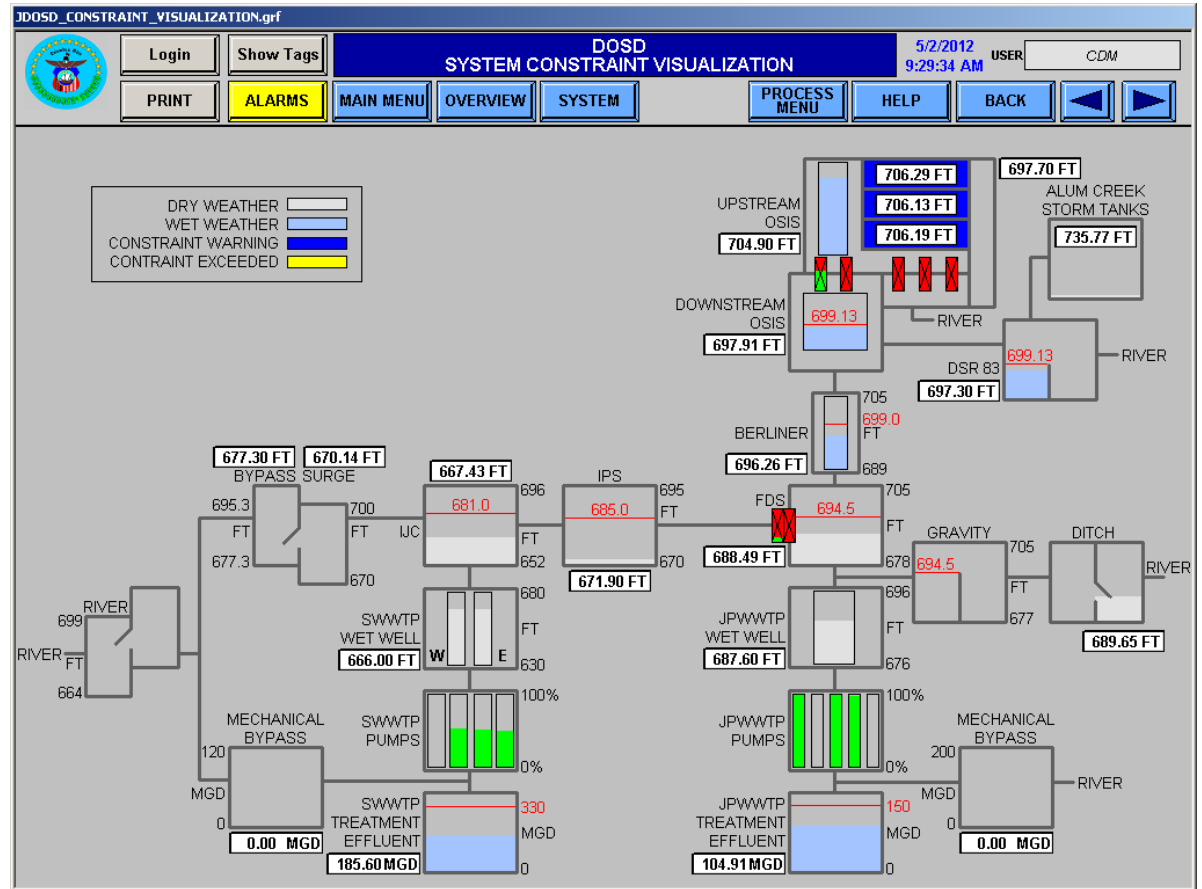


# Optimization of DSR83 Constraint



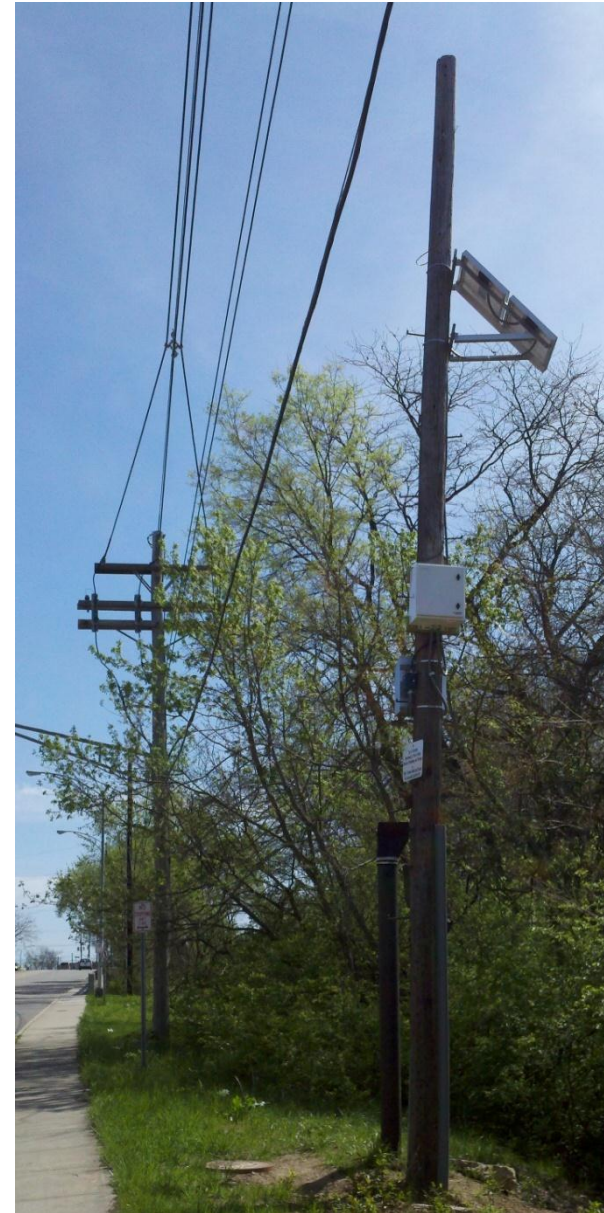
# Further Constraint Management Improvements

- Berliner Park Level
- Assisted or Automatic control of regulator gates
- OARS Tunnel

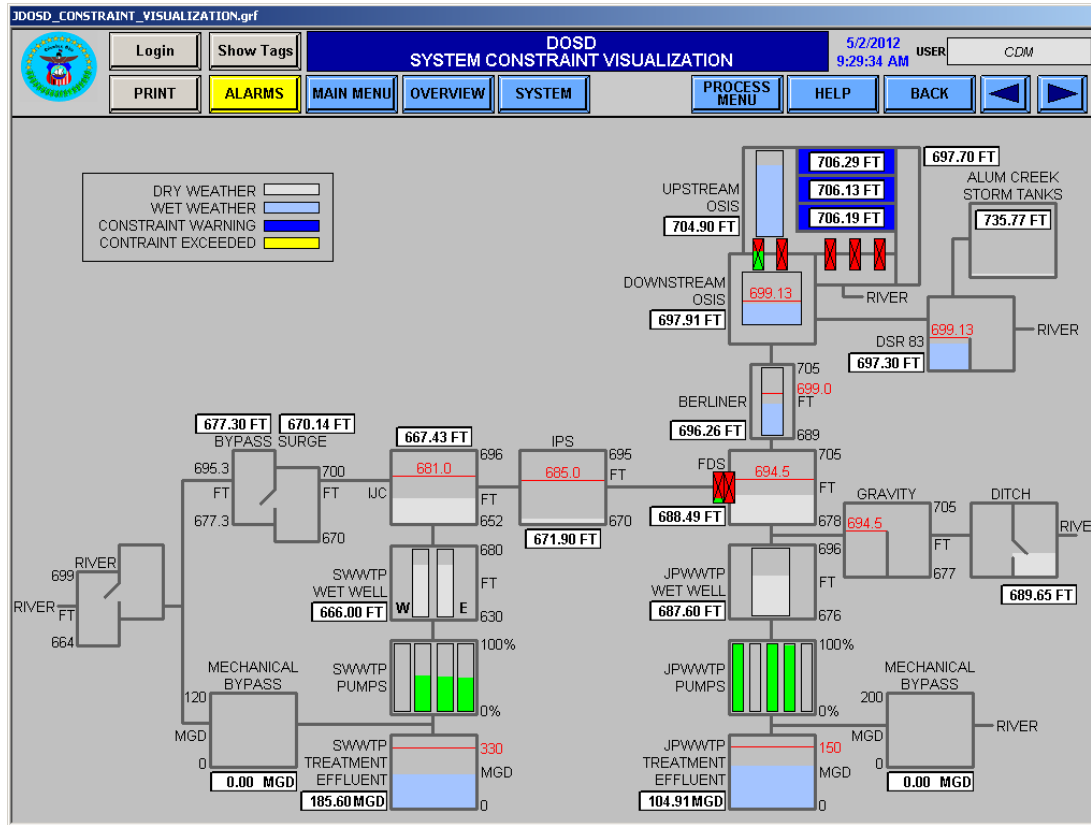


# Berliner Park Level Sensor

- Solar Powered
- Readings every 4 seconds
- Intrinsically safe instrument
- Low powered radio
- Direct I/O on radio



# Real Time Control Feasibility Study



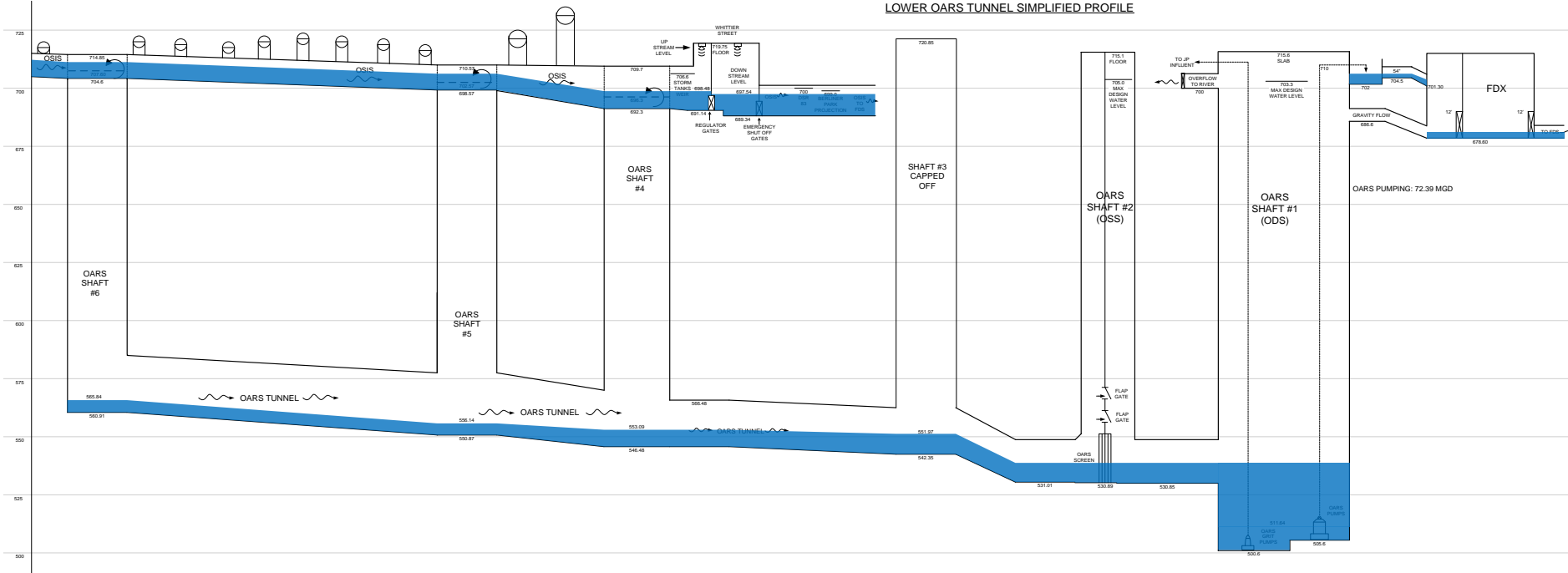
- Builds upon lessons learned through efforts so far
- Identify other possible controls and monitoring
- Evaluate how to apply them to the collection and treatment system



# OARS Tunnel

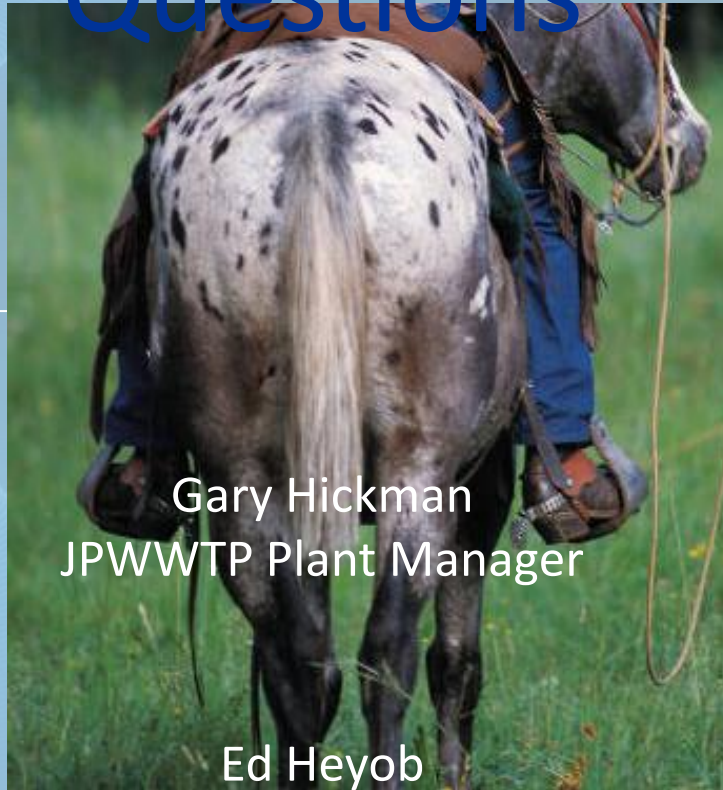
UPPER OARS TUNNEL SIMPLIFIED PROFILE

LOWER OARS TUNNEL SIMPLIFIED PROFILE



OARS Tunnel and pump station adds many more options for managing constraints

# The End Questions



Gary Hickman  
JPWWTP Plant Manager

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