



Blue Plains Analyzer Workshop

Prince William County Service
Authority

Process, Issues & Experience

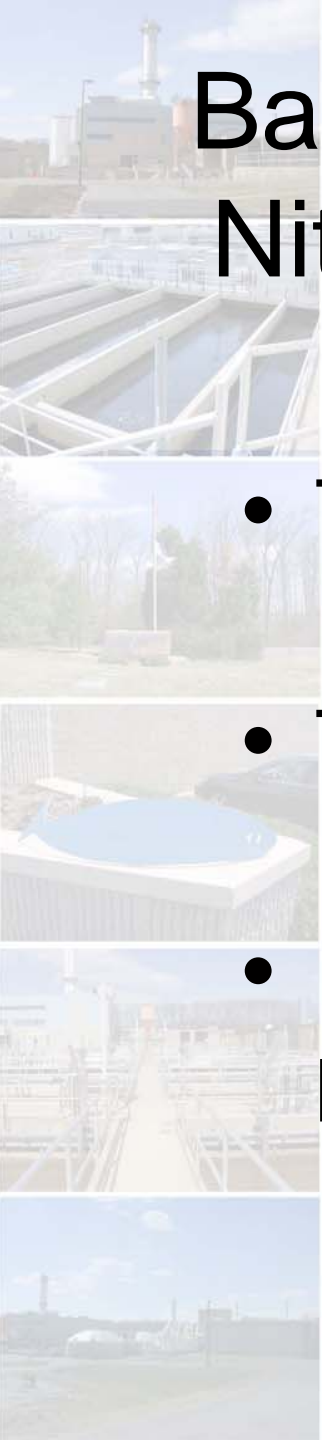
September 15, 2008

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Glenn Harvey



Current Process and Issues

- BNR Process : MLE
 - Five 2-pass MLE basins
 - Deep bed filters not now using methanol
- TN Required = 8 mg/l annual average
- TP required 0.18 mg/l monthly
 - Historically not a problem
- Critical Analyzer needs:
 - DO control critical to maintain anoxic zones
 - Ammonia breakthrough warning



Balance Act : Maintain complete Nitrification while optimizing TN removal

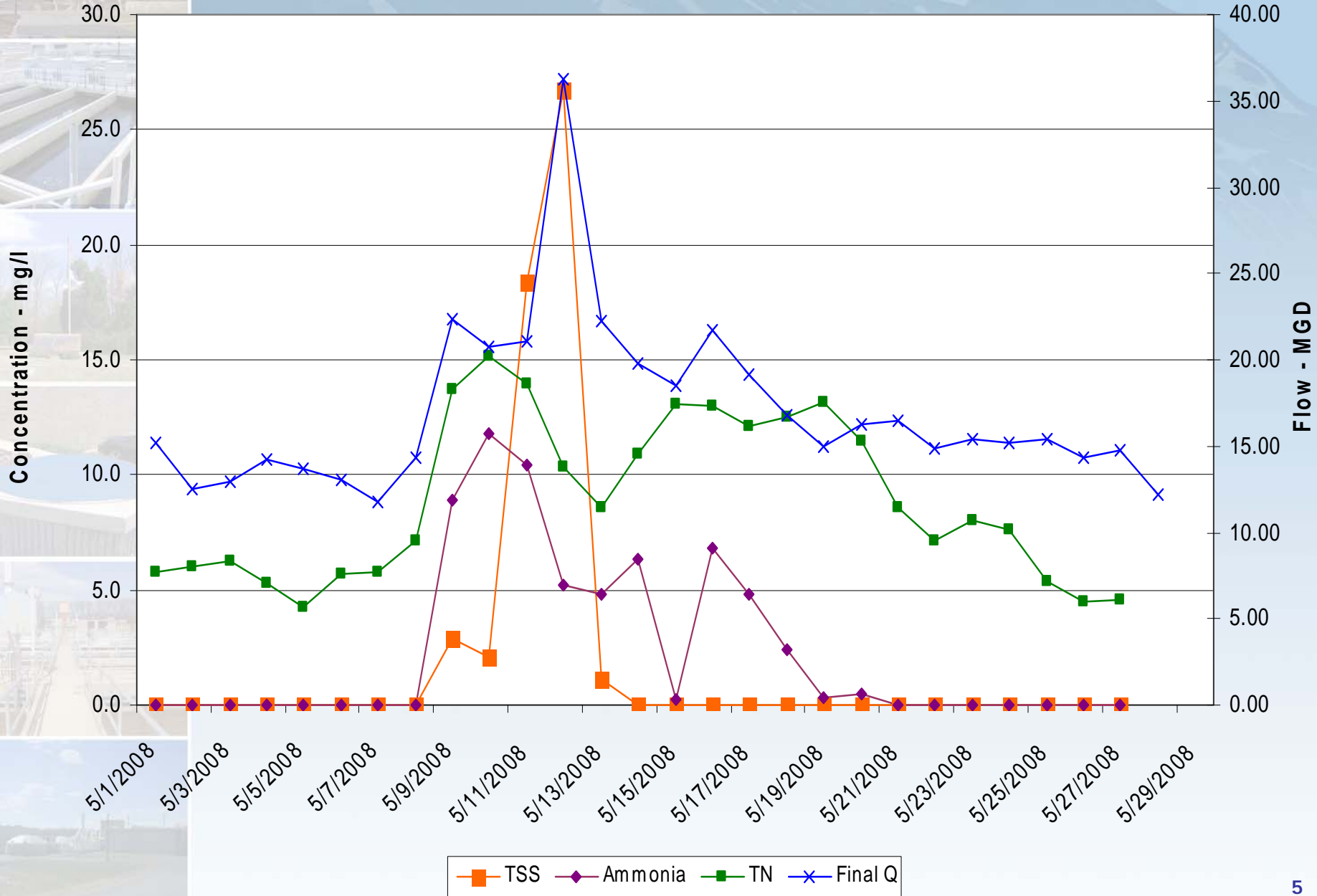
- Try to maximize anoxic zones
 - – while maintaining nitrification
- Try to limit DO bleed to anoxic zone
 - – while maintaining nitrification
- Limit MLSS inventory due to historically poor settling sludge
 - – while maintaining nitrification



Infrequent ammonia breakthrough

- High Flow events greatest threat
- No major industrial sources
- MLSS kept low to limit clarifier loading
- AMSA Gold Awards 2006 & 2007
- Not in 2008
 - Major breakthrough from May hydraulic back to back shocks
- Response
 - Increase DO
 - Stop wasting
 - Cut MLE recycle
 - Put swing zones in oxic mode

May 2008

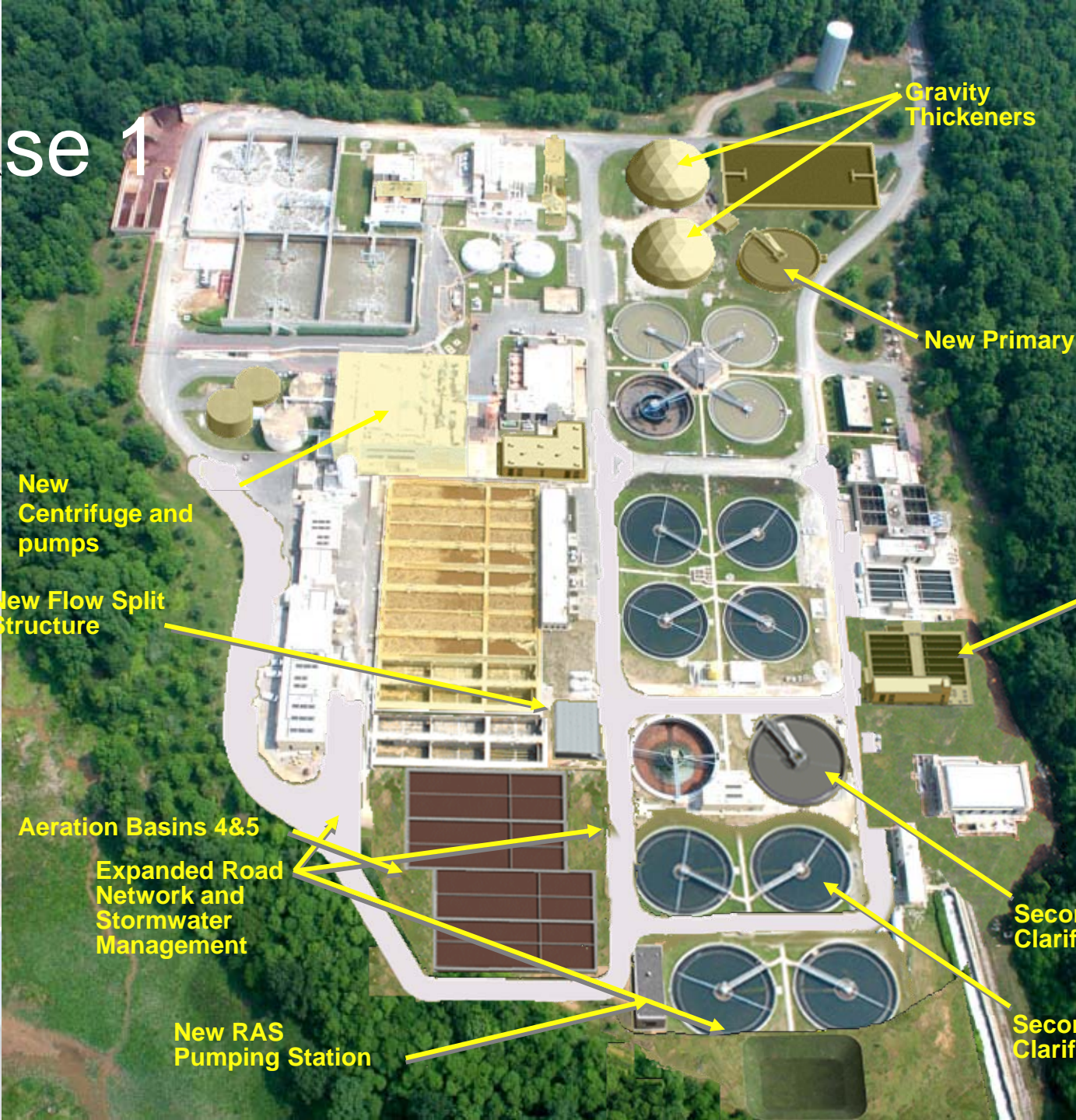




Future Process & Issues

- MLE with second stage anoxic zone
 - Five 4-pass MLE basins
 - 4 stage Bardenpho
 - DO control will remain critical
 - Ammonia monitoring will remain critical
- Deep Bed Denitrification Filters
 - Need to monitor influent NO_3 to pace methanol feed
 - May need ortho-P monitor to control phosphoric acid
 - Hopefully will not be necessary
 - Like to have final COD monitor to protect from over-methanol feed

Phase 1



Gravity Thickeners

New Primary Clarifier

New Centrifuge and pumps

New Flow Split Structure

Aeration Basins 4&5

Expanded Road Network and Stormwater Management

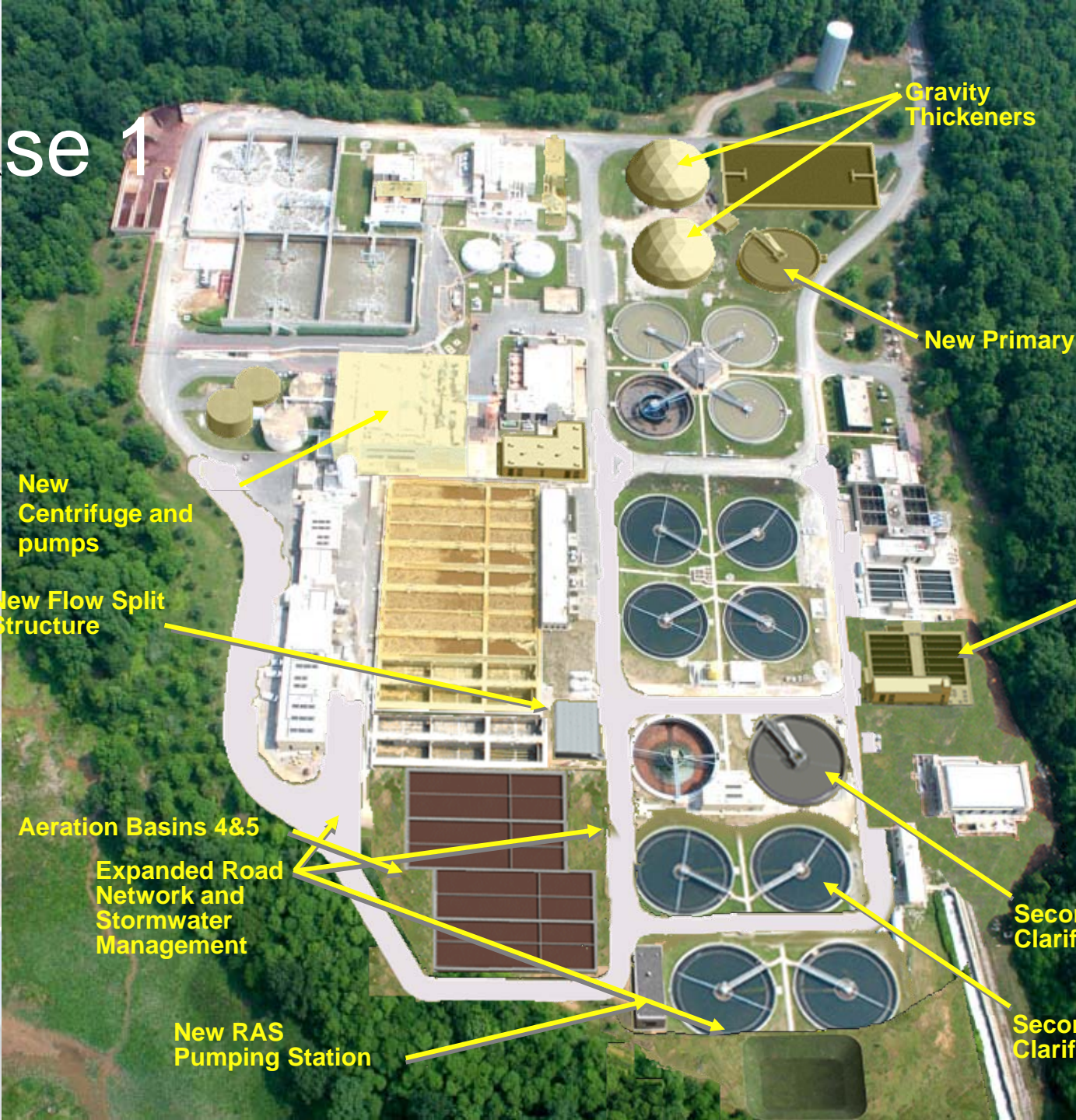
New RAS Pumping Station

Dentrification Filters 11 - 24

Secondary Clarifier 6

Secondary Clarifiers 7-10

Phase 1



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Secondary Clarifier 6

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PWCSA Historical O&M Experience

- Ammonia
 - Chemscan
 - Hach
- Nitrate
 - GL Opticain
 - Chemscan
 - Hach sc100
- DO
 - Delta Scientific
 - Great Lakes / Zullig
 - Evita



Questions ???



