Non-Tidal Passaic River Basin Nitrate Improvement Study

Presentation to NJCWC

Presentation by:
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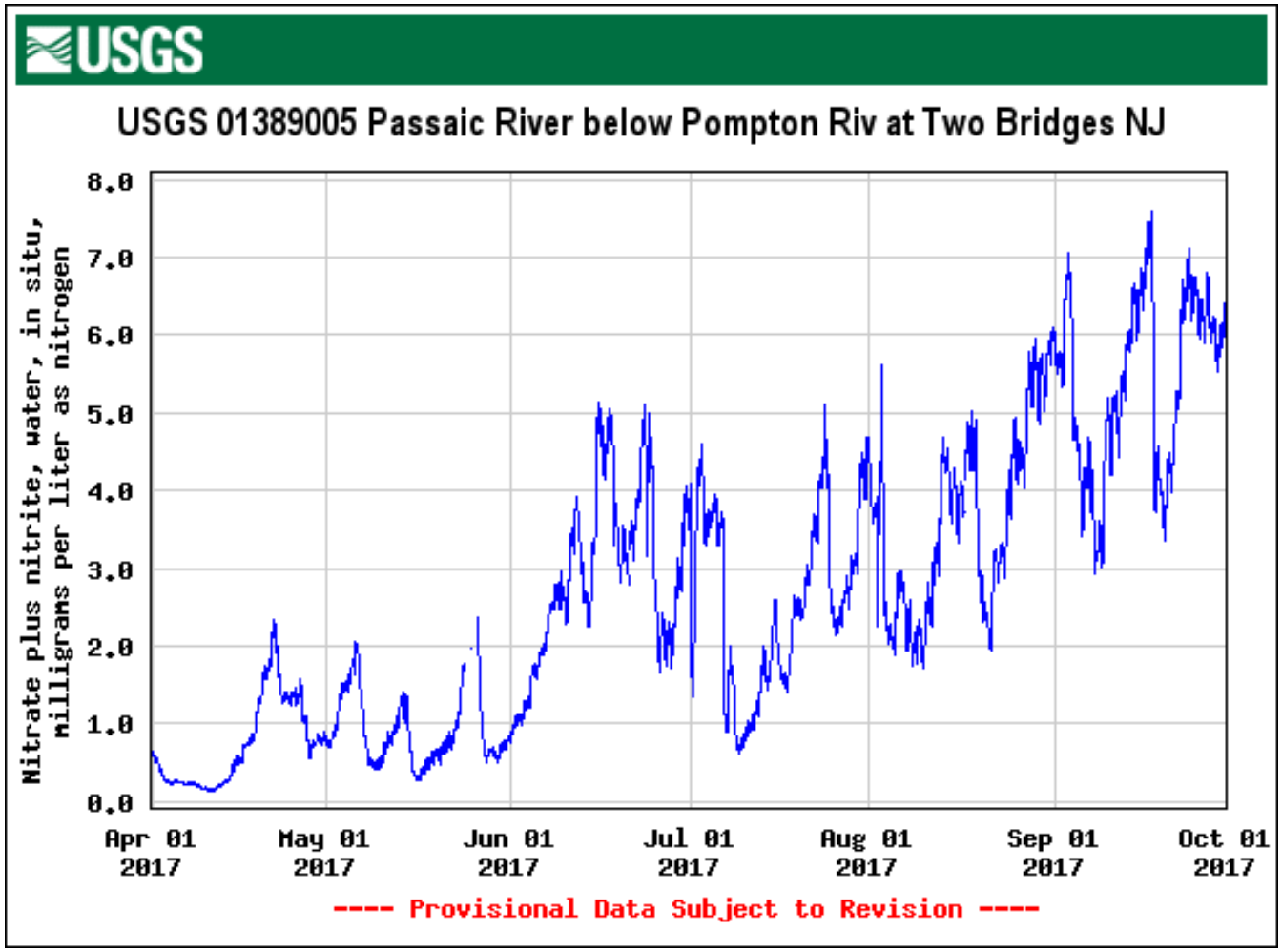
Agenda

- What's the Issue?
- Update Modeling Results
- Discussion/Next Steps

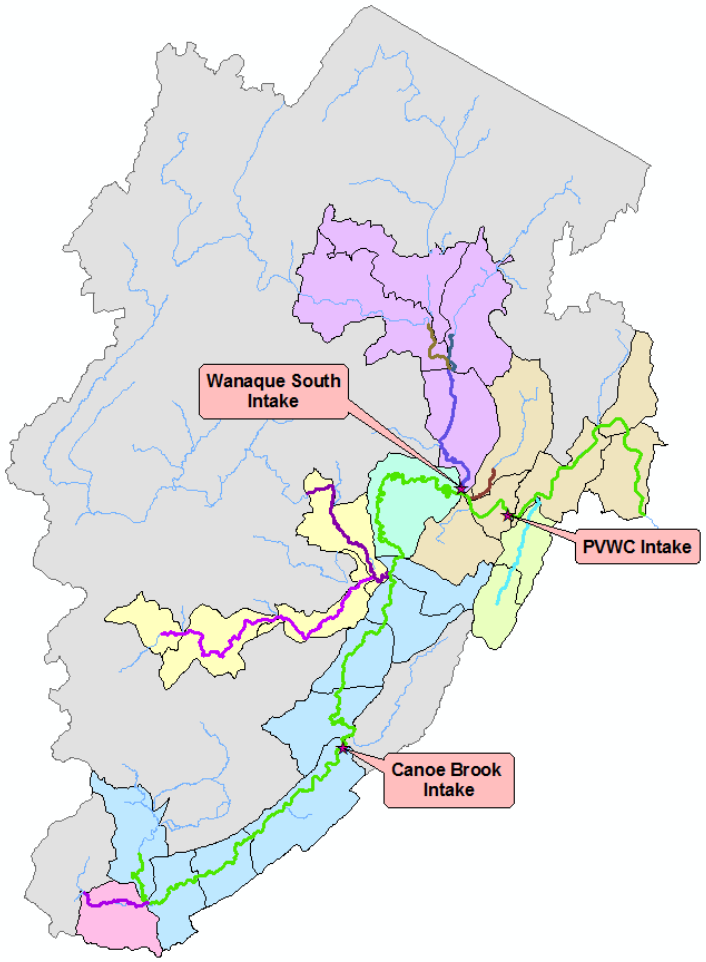
The issue…



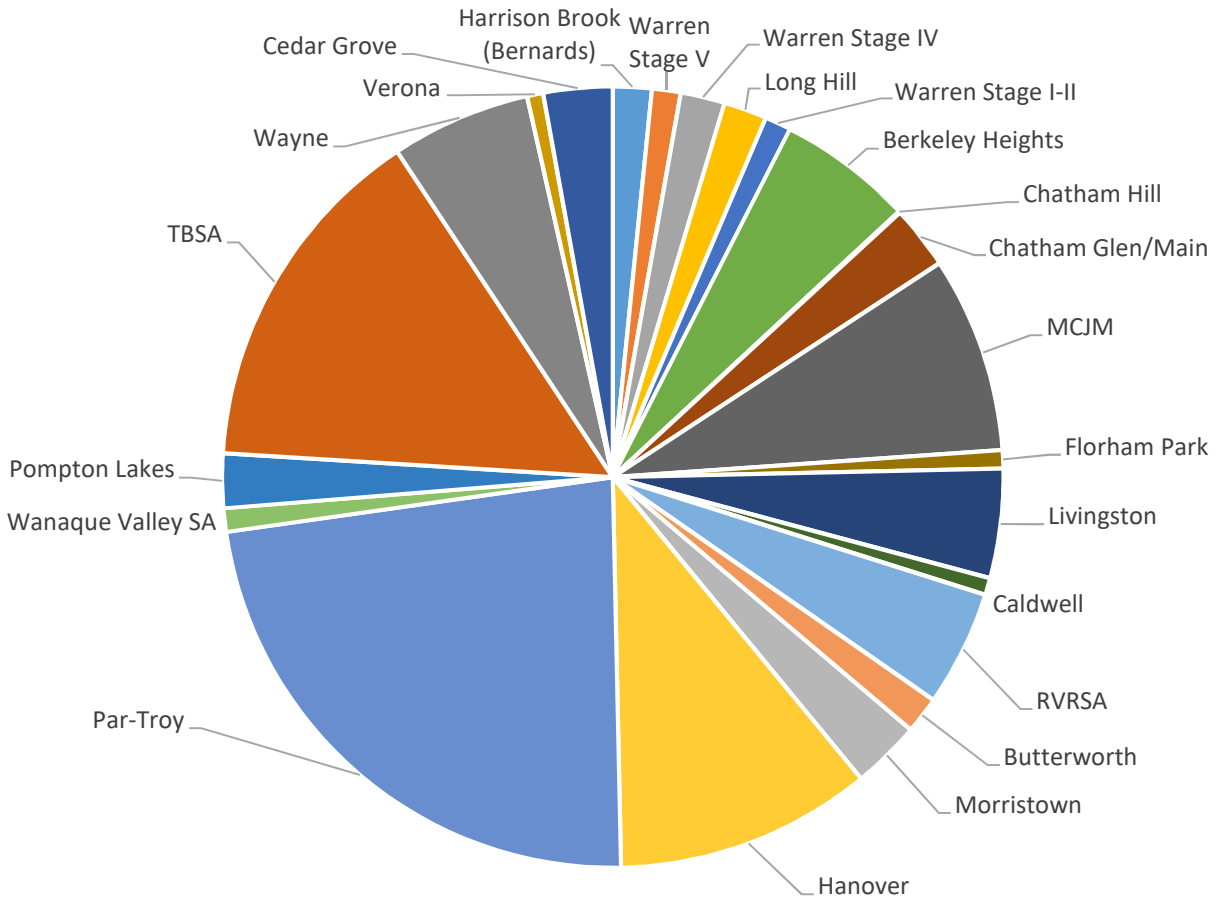
*Right Bank (Passaic River side)

Water Supply Intake Evaluation

- Scenarios:
  - "Buildout Loads"
    - Current Concentrations + **Permitted** Flows
  - "Current Loads"
    - Upper 95th CL of actual monthly average loads
  - Upgrade Scenario 1: "Uniform Concentration"
    - All WWTPs set equal to 8.7 mg/L (an upgrade at ~14 of the 23 WWTPs)
  - Upgrade Scenario 2: "Upgrade 8"
    - 4 Upper Passaic WWTPs set to 4 mg/L
      - Harrison Brook, Long Hill, Berkeley Heights, Chatham Main/Glen
    - TBSA, Par-Troy, Hanover & Livingston set to 6.5 mg/L
  - Upgrade Scenario 3: "Upgrade 6"
    - 4 Upper Passaic WWTPs set to 4 mg/L
      - Harrison Brook, Long Hill, Berkeley Heights, Chatham Main/Glen
    - TBSA & Par-Troy set to 3 mg/L

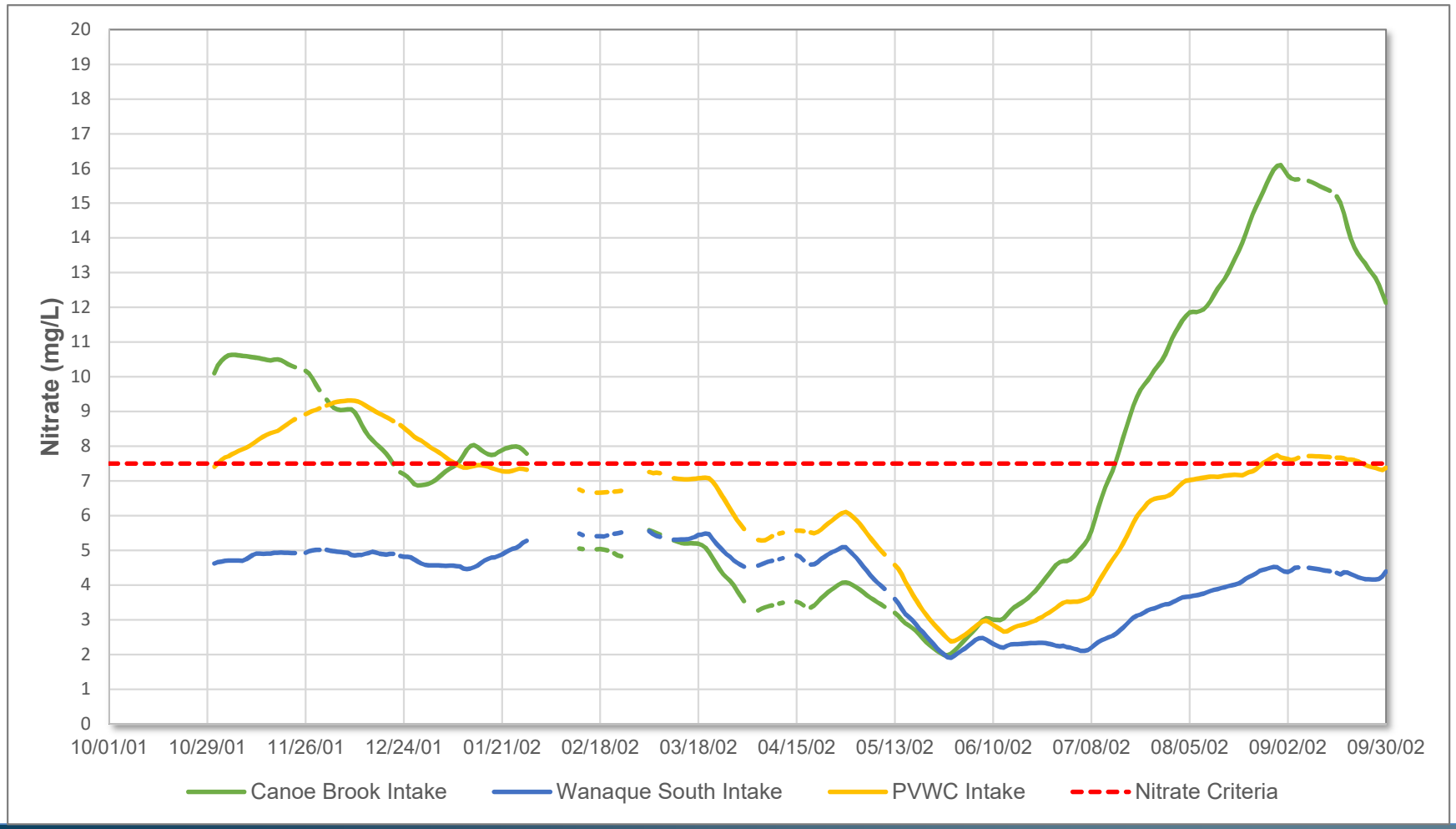


“Buildout Loads” Scenario
(current concentrations + permitted WWTP flow)

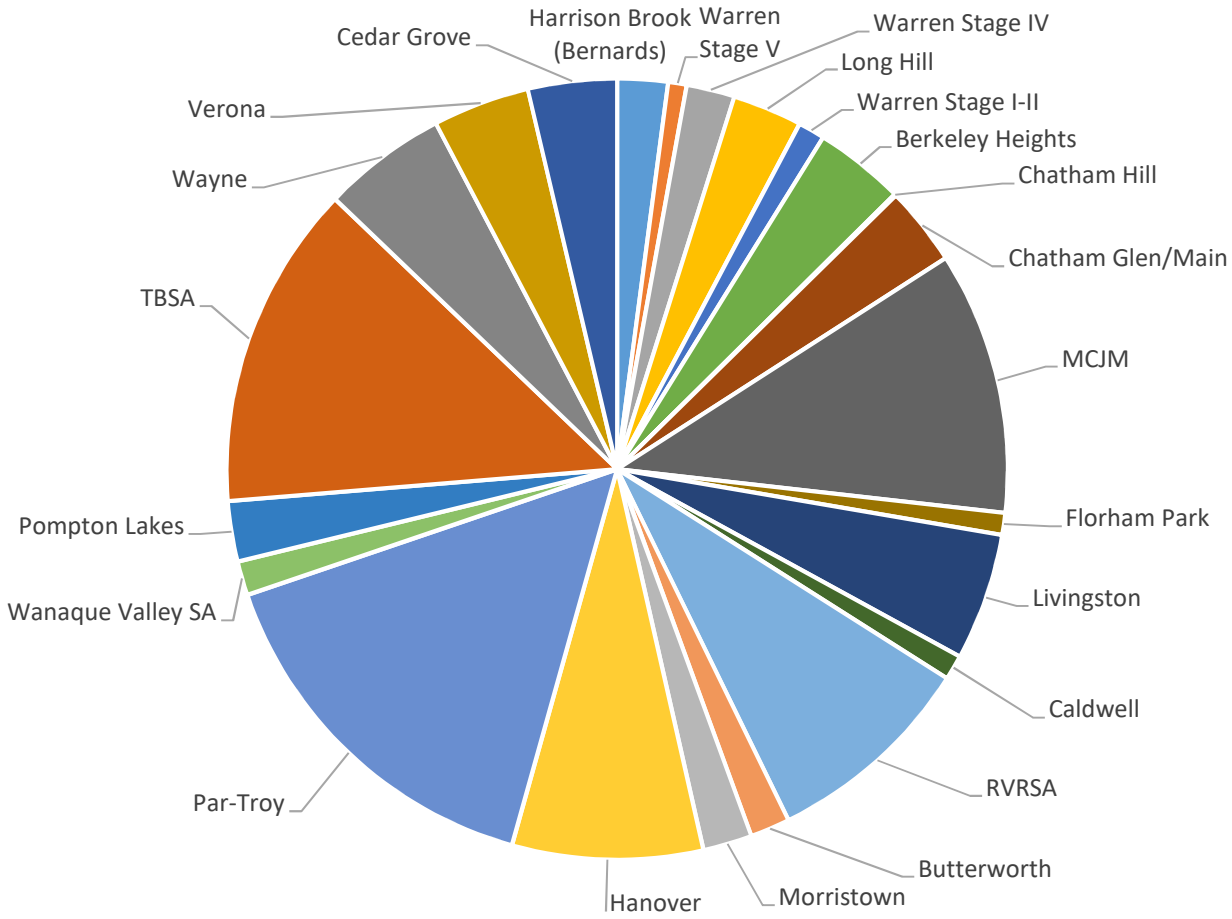


“Buildout Loads” Scenario

(current concentrations + permitted WWTP flow & 2002 stream flows)

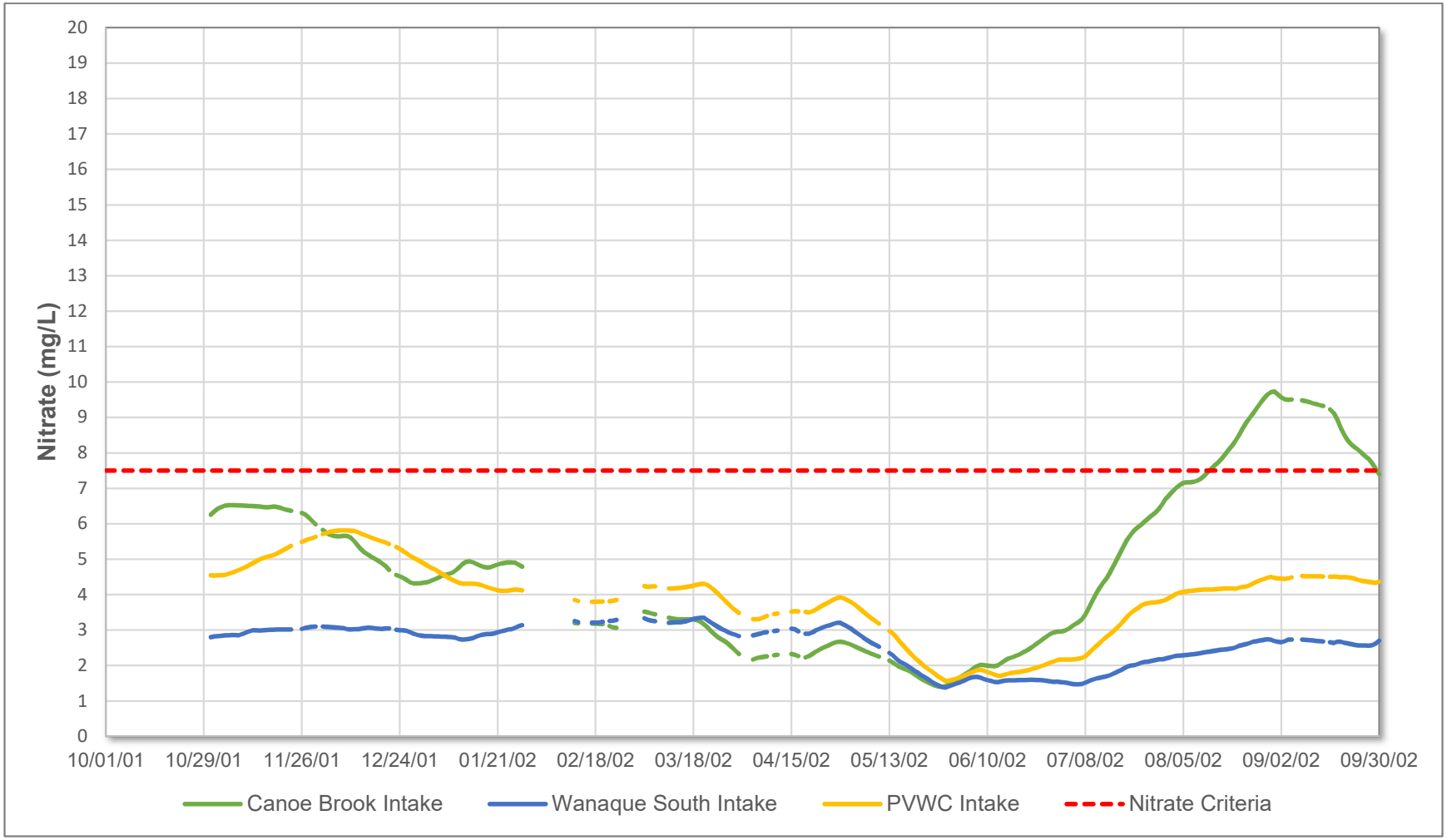


“Current Load” Scenario
(current concentrations + actual WWTP flows)



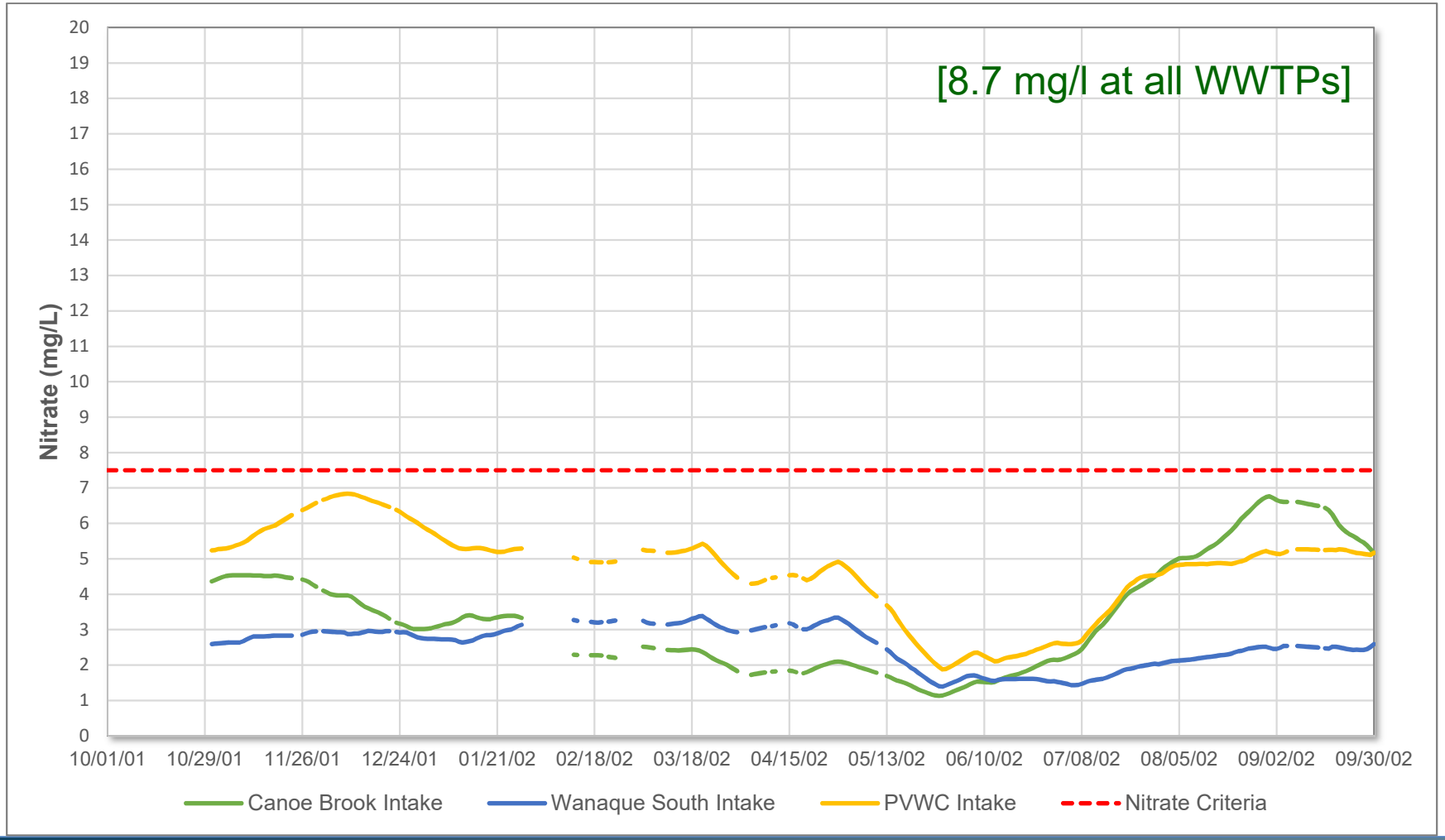
“Current Loads” Scenario

(current concentrations + actual WWTP flows + 2002 stream flows)



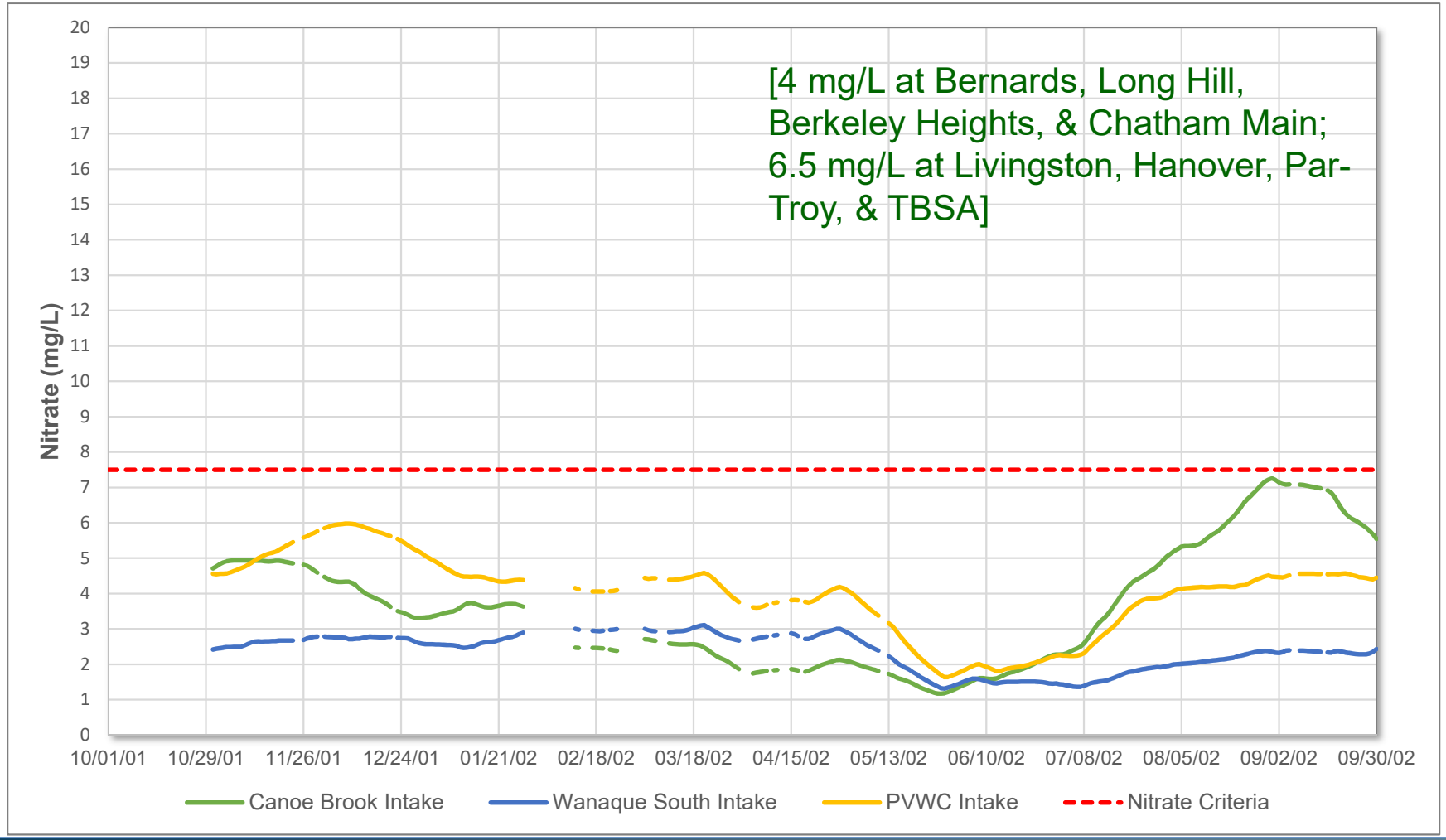
“Uniform Concentration” Scenario

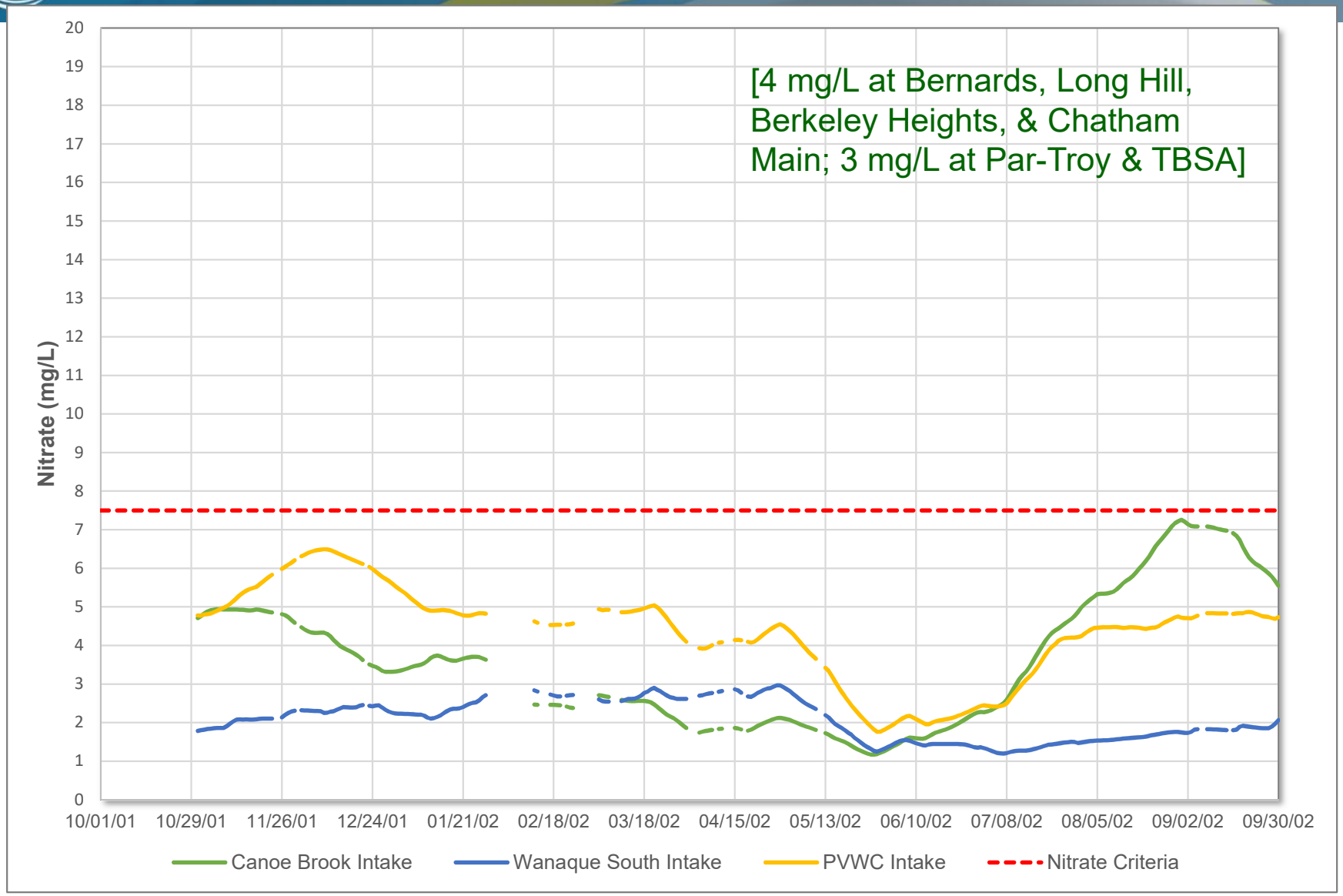
(uniform concentrations + permitted WWTP flows + 2002 stream flows)



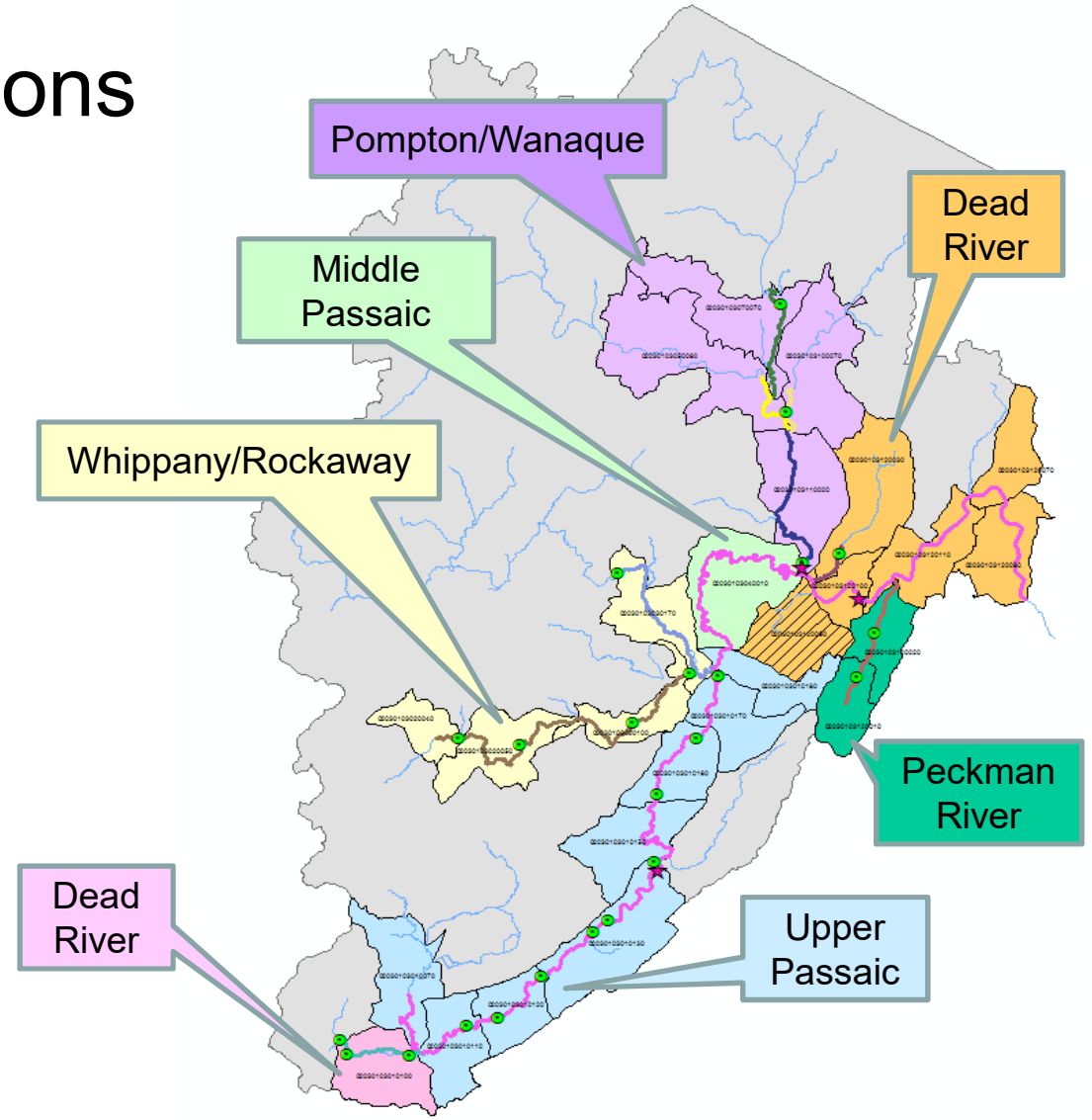
"Upgrade 8 WWTPs" Scenario

(upgraded concentrations + permitted flows + 2002 stream flows)

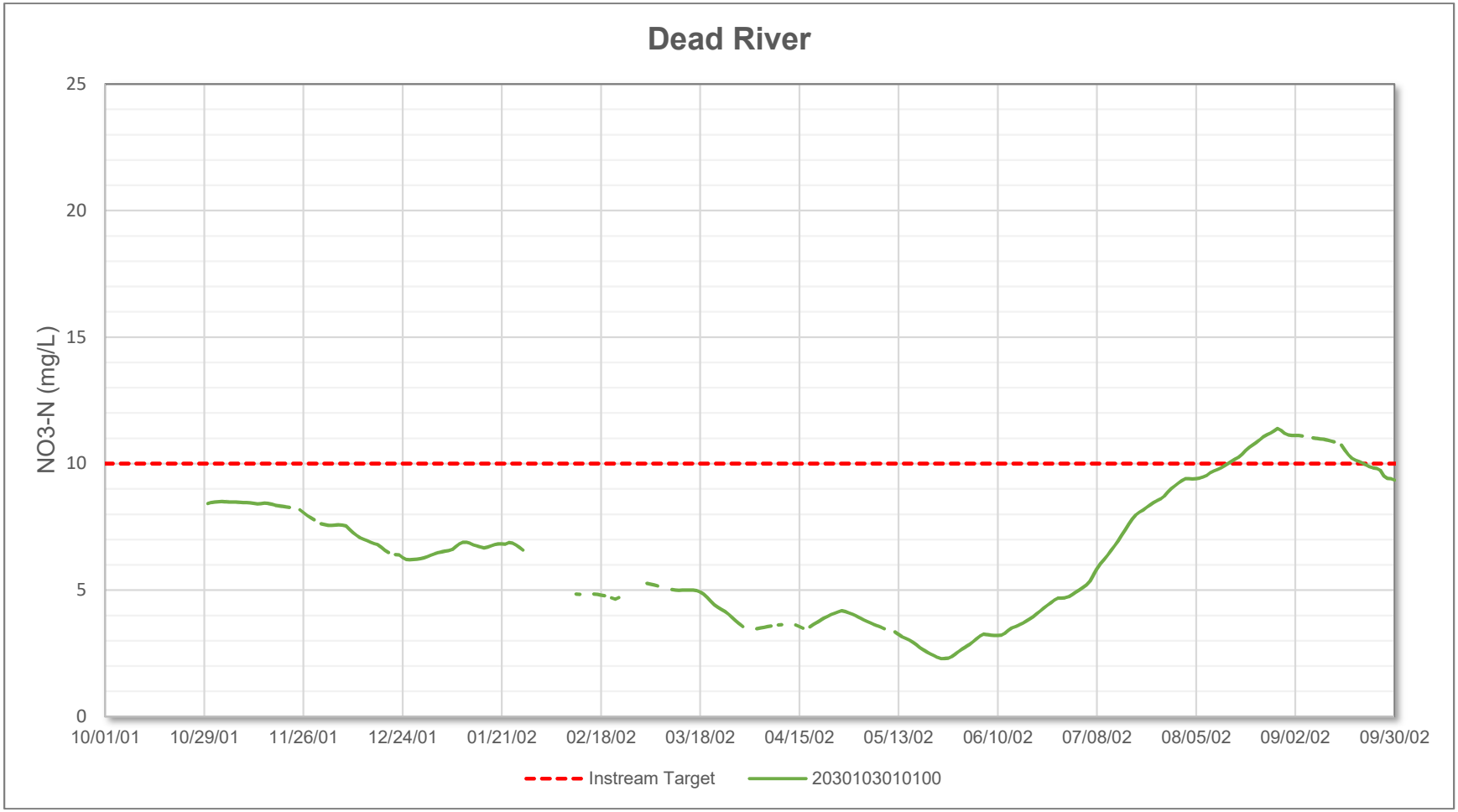



[4 mg/L at Bernards, Long Hill, Berkeley Heights, & Chatham Main; 3 mg/L at Par-Troy & TBSA]
Nitrate (mg/L)
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
10/01/01
10/29/01
11/26/01
12/24/01
01/21/02
02/18/02
03/18/02
04/15/02
05/13/02
06/10/02
07/08/02
08/05/02
09/02/02
09/30/02
Canoe Brook Intake
Wanaque South Intake
PVWC Intake
Nitrate Criteria

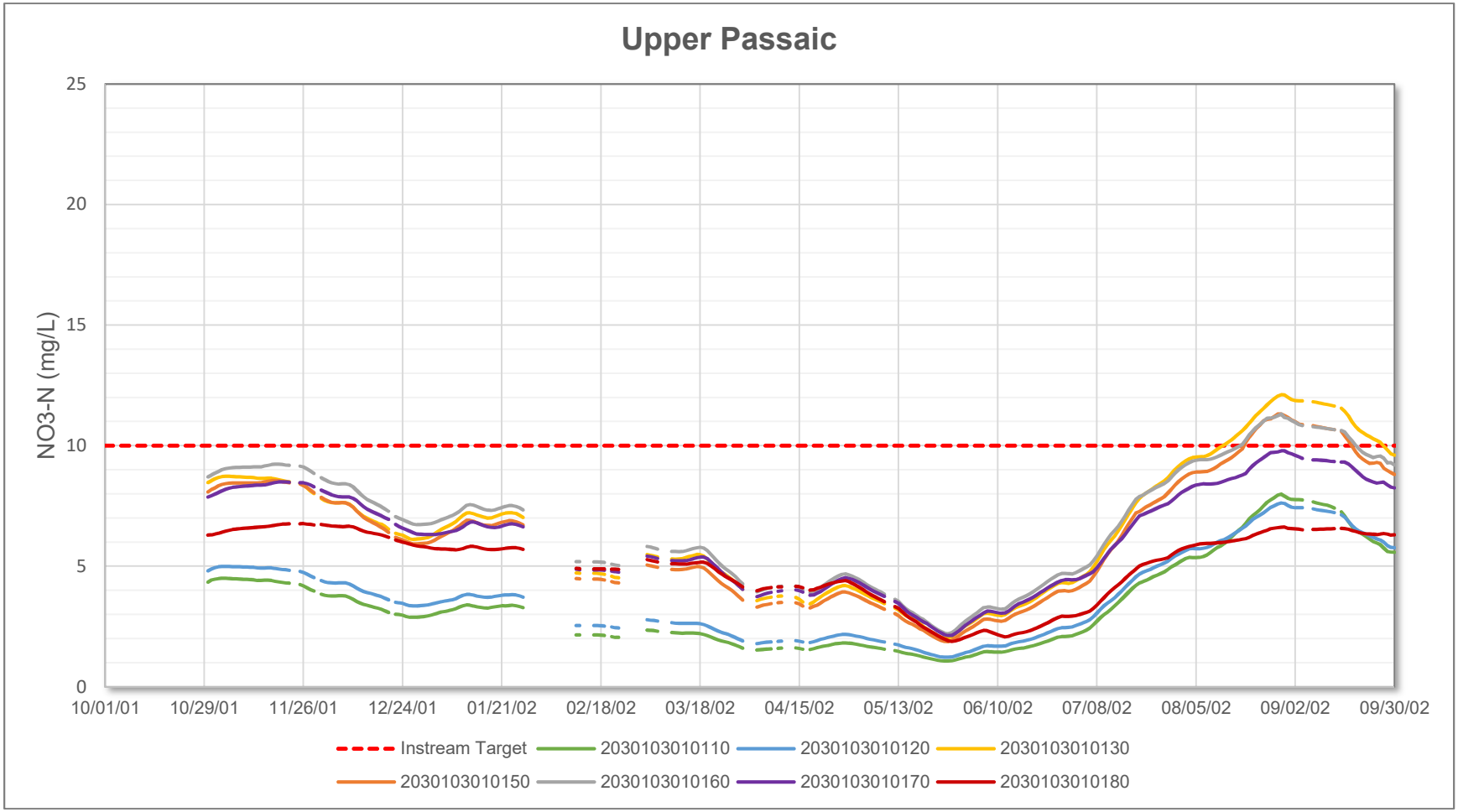
HUC14 Evaluations



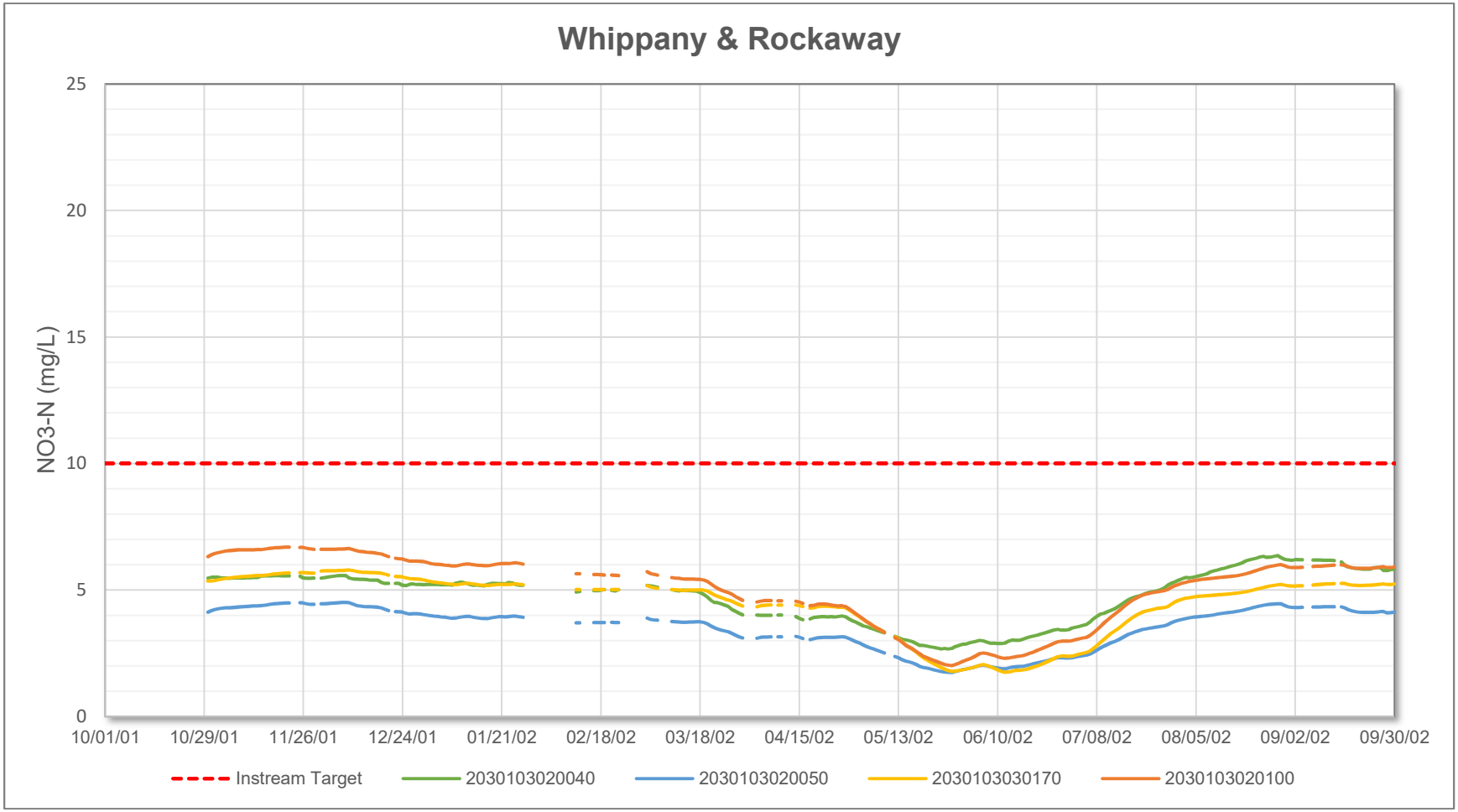
Dead River HUC14
(Scenario: Upgrade 6 WWTPs)



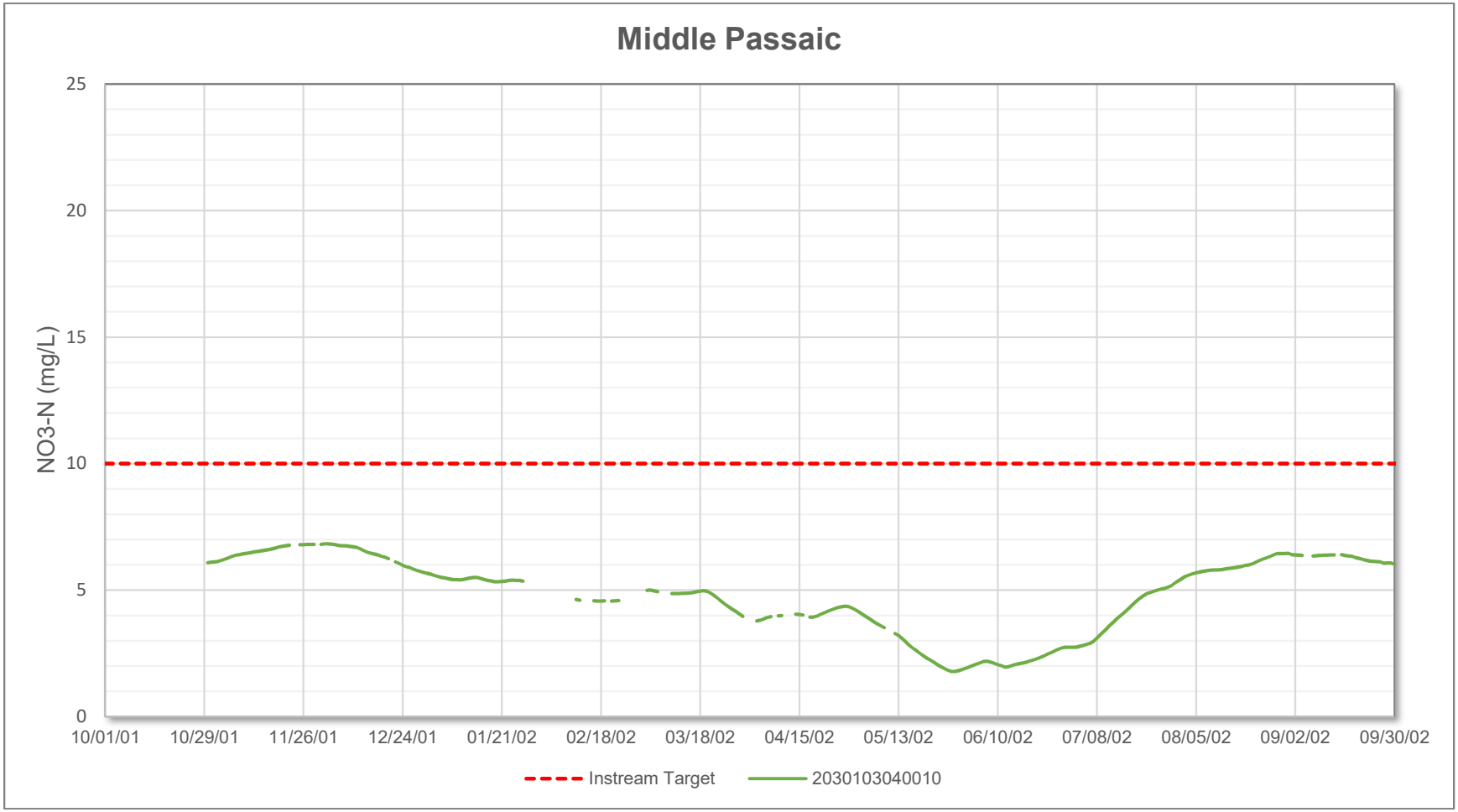
Upper Passaic HUC14s
(Scenario: Upgrade 6 WWTPs)



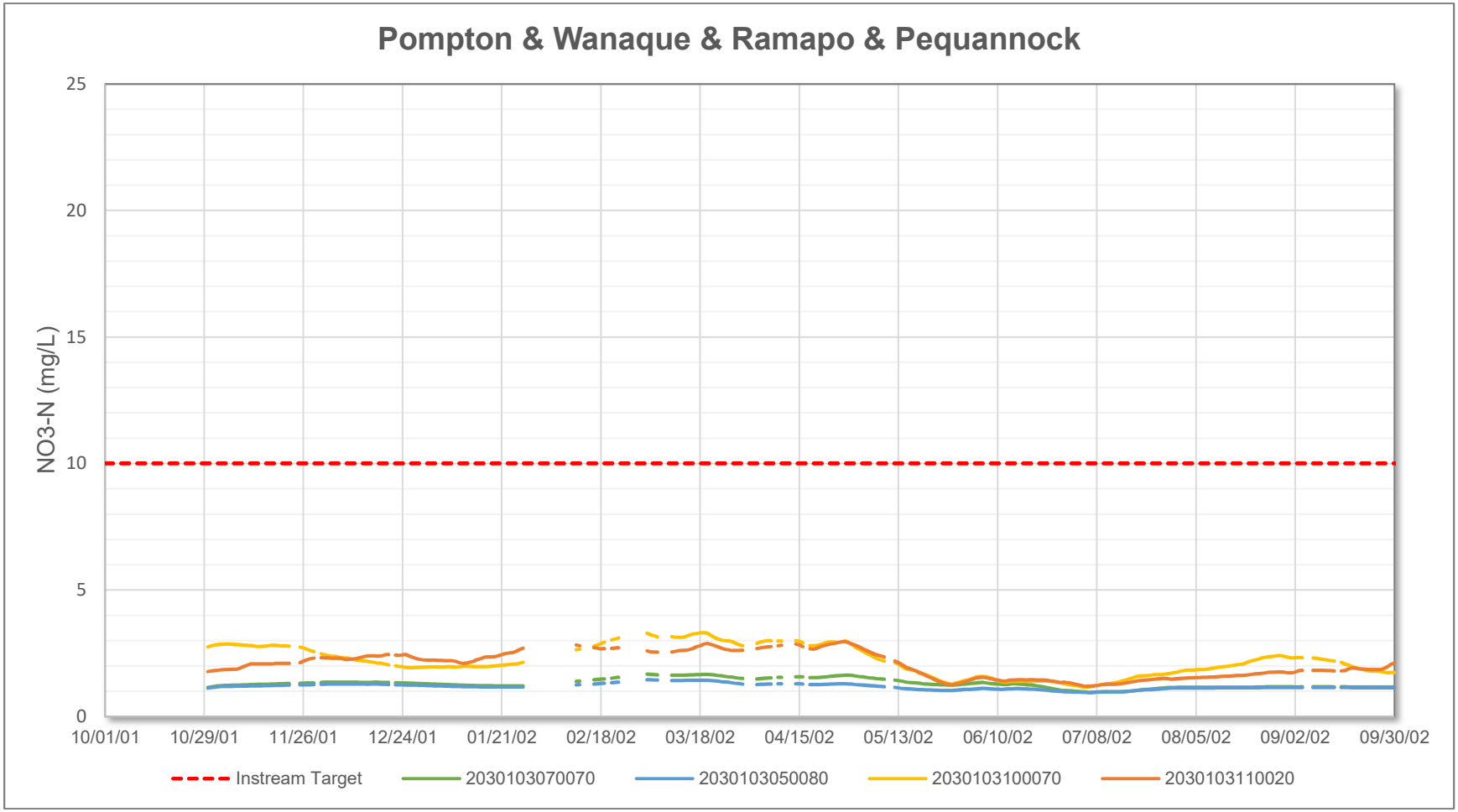
Whippany/Rockaway HUCs
(Scenario: Upgrade 6 WWTPs)



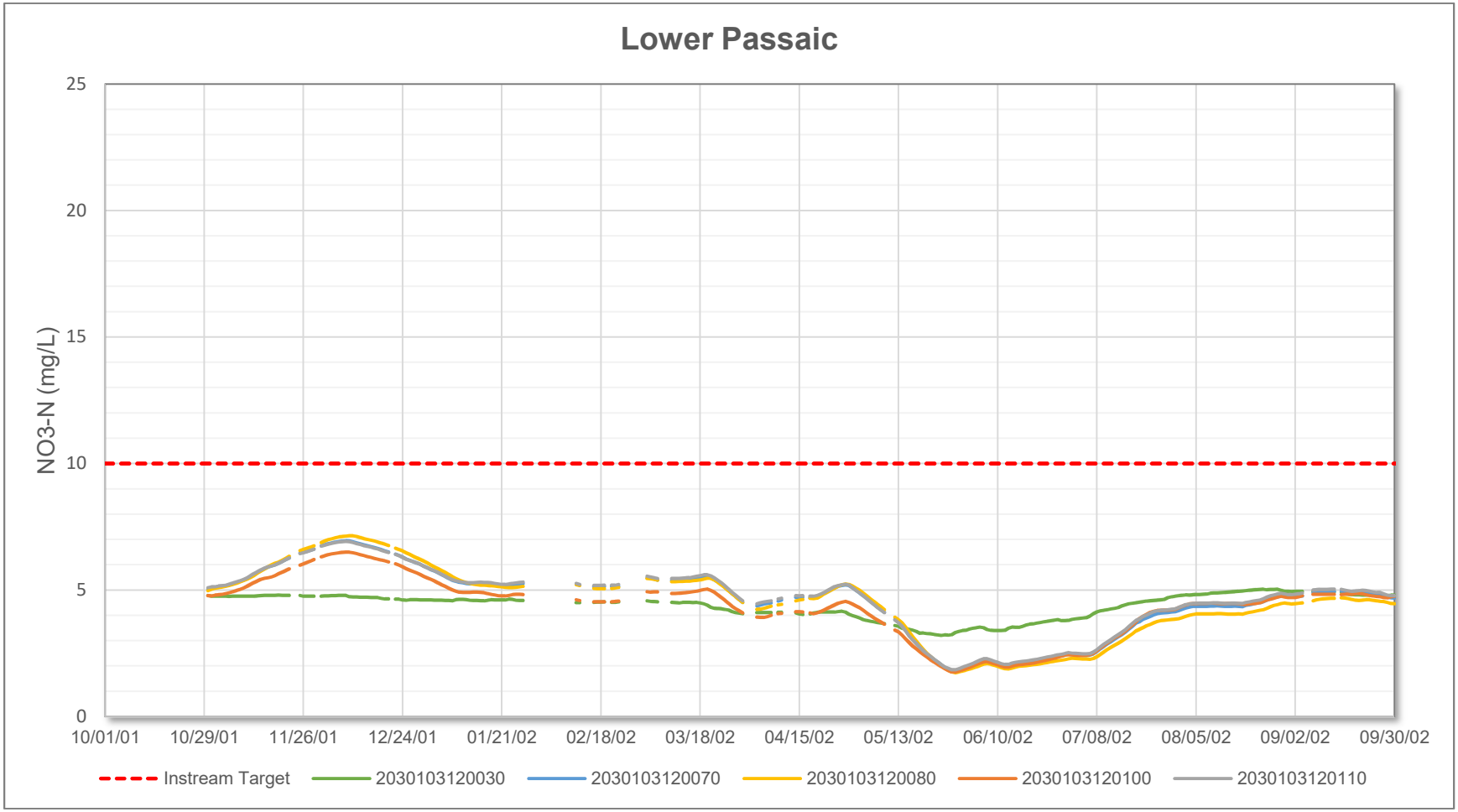
Middle Passaic HUC
(Scenario: Upgrade 6 WWTPs)



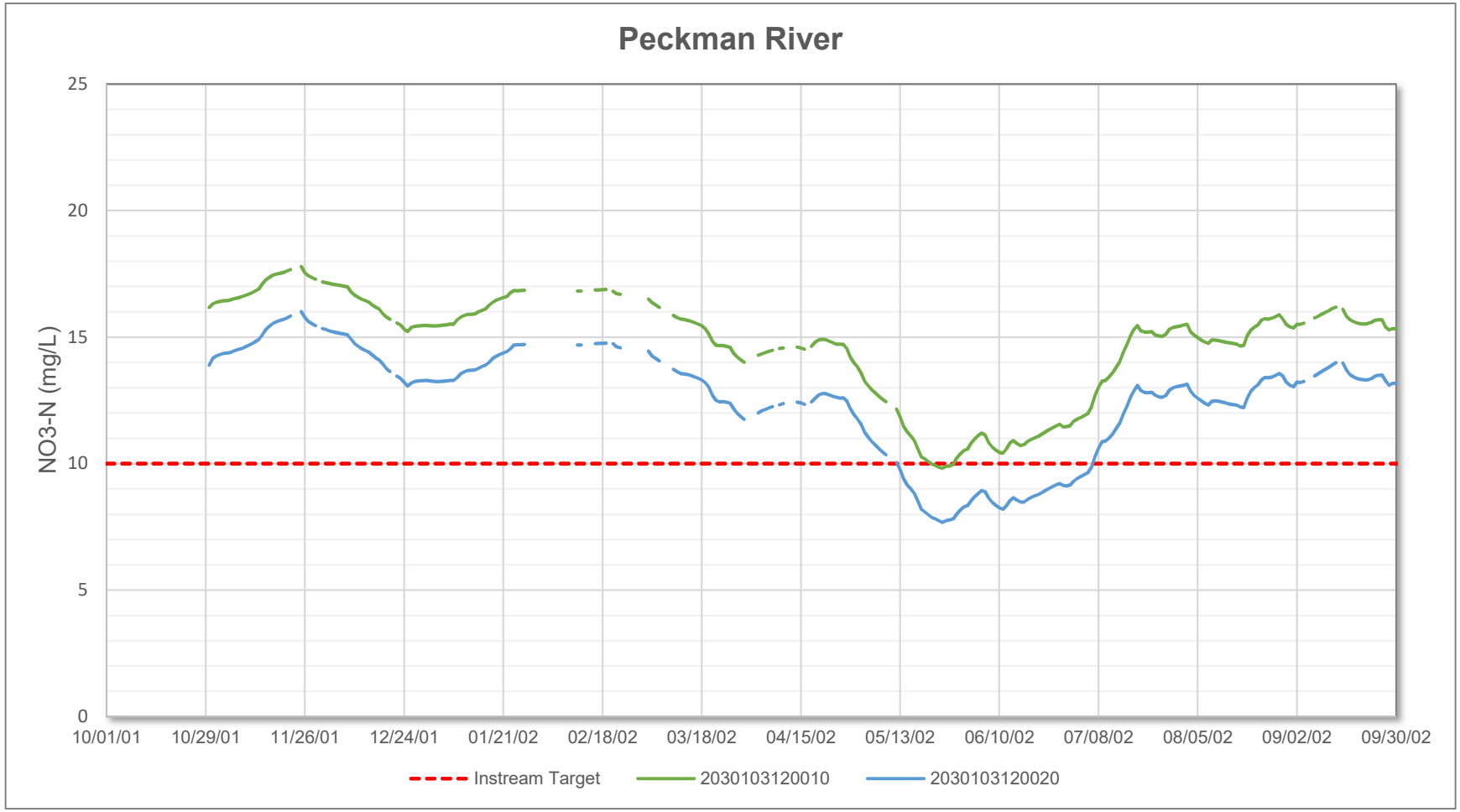
Pompton/Wanaque HUCs
(Scenario: Upgrade 6 WWTPs)



Lower Passaic HUCs
(Scenario: Upgrade 6 WWTPs)

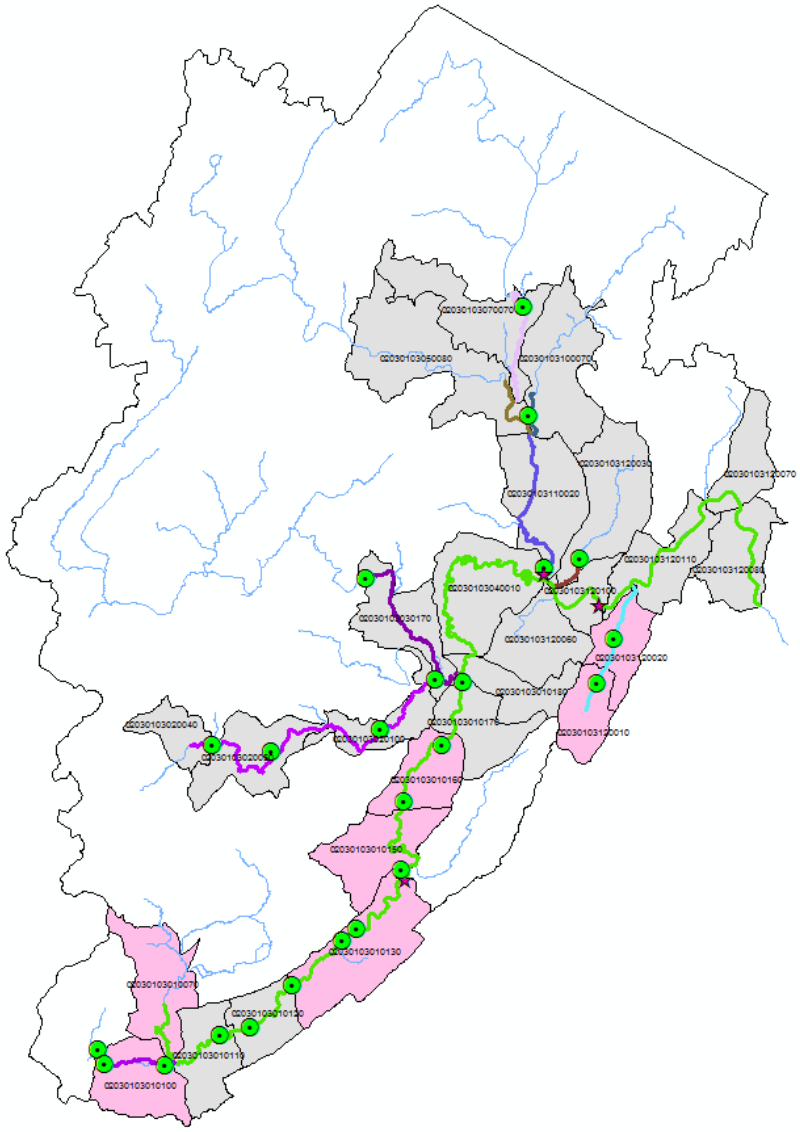


Peckman River HUCs
(Scenario: Upgrade 6 WWTPs)



HUC14 Evaluation

- HUCs Significantly over 10 mg/L
  - Peckman River



Summary of Results

- Options to Meet 7.5 mg/L at Intakes
  - All WWTPs reduce to ~ 9 mg/L
  - 8 WWTPs Upgrade
    - 4 largest upstream WWTPs reduce to 4 mg/L and 4 largest downstream WWTPs reduce to 6.5 mg/L
    - Bernards, Long Hill, Berkeley Heights, Chatham Main, Livingston, Hanover, Par-Troy, TBSA
  - 6 WWTPs Upgrade
    - 4 largest upstream WWTPs reduce to 4 mg/L and 2 largest downstream WWTPs reduce to 3 mg/L
    - Bernards, Long Hill, Berkeley Heights, Chatham Main, Livingston, Par-Troy, TBSA
- Evaluation of Nitrate at HUC Outlets
  - To achieve 10 mg/L everywhere, dischargers in Dead, Upper Passaic, and Peckman Rivers need to upgrade to near 10 mg/l.

Discussion Points

- Can nitrate exceed 10 mg/l at HUC14 boundaries?
- PRBA trading program
  - Trading would be allowed among WWTPs
  - NJDEP would modify permits where necessary
  - Protection for WWTPs that trade
- Next Steps