Department of Health

Research Review & Advisory Committee (RRAC) Meeting

Onsite Sewage Program

Environmental Health Staff

Florida Department of Health
Disease Control and Health Protection
Bureau of Environmental Health
Onsite Sewage Programs

October 30, 2019

Agenda

2:00 – 2:10	Introductions and housekeeping
2:10 – 2:20	Review of minutes from April 29, 2019 meeting
2:20 – 2:30	Old business & research program news
2:30 – 3:30	Discussion on how RRAC can be a resource for legislature
3:30 – 3:45	DOH staff updates on proposed revisions to Chapter 64E-6, F. A.C.

Agenda – DOH Staff Provides Updates on Several Research Projects

3:45 – 4:05	Florida Water Management Inventory project
4:05 – 4:20	Continued monitoring on existing nitrogen-reducing systems
4:20 – 4:35	Estimation of failure or non-conformance rates of septic systems
4:35 – 4:45	Inground nitrogen-reducing biofilter (INRB) monitoring project
4:45 – 5:00	Public comments
5:00	Adjourn

Introductions & Housekeeping

- Committee roll call
- Identification of audience
- Will overall mute when presentation starts
- Unmute phone line = *2
- Do not put phone on hold
- Download meeting material:

  http://www.floridahealth.gov/environmental-health/onsite-sewage/research/rrac.html

Onsite Sewage Program

Review of Meeting Minutes from April 29, 2019 Meeting

Onsite Sewage Program

Old Business & Research Program News

High Priority Research Projects

Project Title	Total Project Score	Project Ranking
Continuation of Florida Water Management Inventory	28	1
Continued Monitoring on Passive Nitrogen-Reducing Onsite Systems	28	2
Development of Funding Mechanisms for OSTDS Remediation and Upgrades	26	3
Correlations between water quality, OSTDS, and health effects	14	4
Estimation of failure or non-conformance rates of OSTDS	10	5

Old Business – Action Items from RRAC Meeting on April 29, 2019

1. Check into the feasibility of using the State Term Contract to support RRAC research projects.

A list of active State Term Contracts
https://www.dms.myflorida.com/content/view/full/22065/(contractType)/4110

1) No active term contracts provide the service we need.
2) Exploring the feasibility of university support.

Old Business – Action Items from RRAC Meeting on April 29, 2019 - Continued

2. Check with Wakulla County to find out their Request for Proposal (RFP) to study the onsite system failure frequency in the county.

   1) The original RFP was withdrawn and was reissued in June of 2019 as a Request for Qualification (RFQ) for Professional Engineering Services.
   2) Document can be found at https://www.mywakulla.com/RFQ%202019-06.pdf.
   3) The RFQ is for a Wastewater Treatment Feasibility Analysis.
   4) Notice of Award Issued on July 16, 2019 to Dewberry Engineers, Inc.

Wakulla County Wastewater Feasibility Study

1. Inventory and describing existing septic system and wastewater infrastructure
2. Document the wastewater infrastructure needed to meet the Basin Management Action Plan (BMAP) requirements.
3. Identify septic systems within the priority focus area that require remediation per BMAP requirements.
4. Document a cost comparison of alternative strategies to achieve BMAP goals.
5. Recommend project areas and implementation plans.

Old Business – Action Items from RRAC Meeting on April 29, 2019 - Continued

3. Check the web statistics to evaluate how many people access the Florida Water Management Inventory.

   Ms. Ursin will discuss the web statistics when giving an update on the Florida Water Management Inventory (FLWMI) project.

Old Business – Action Items from RRAC Meeting on April 29, 2019 - Continued

4. Prepare a draft report summarizing the findings from the Investigation on the Funding Mechanism for Onsite Sewage Treatment and Disposal System (OSTDS) remediation and upgrades.

    1) A draft report prepared.
    2) Currently under internal review.

Old Business – Action Items from RRAC Meeting on April 29, 2019 - Continued

5. Update Dr. Mark Tumeo's contact information on the RRAC member list .
6. Post meeting materials used for April 29, 2019 meeting onto DOH's RRAC web page.

Both have been completed.

Program News

1. RRAC membership from the following group will expire at the end of January 2020:
   1) Consumer Group
   2) State University Systems
   3) Local Government
2. Emails were sent to these groups for membership renewal applications and resume.
3. Mayor Surrency (Local Government) and Mr. Washam (Consumer) will retire from RRAC.
4. An email was sent to Mr. Scott Dudley, the Executive Director of Florida League of Cities, for a candidate to replace Mayor Surrency.

Onsite Sewage Rule Proposals

- Incorporate by Reference Spring Basin Management Action Plan OSTDS Remediation Plan Requirements for Repair or Modification of existing Systems
- Revision of In-ground Nitrogen Reducing Biofilter (allow sand/fine sand for denitrification media; add lined configurations)
- Rewrite innovative system permitting language
- Update aerobic treatment unit standards

Updates on the Florida Water Management Inventory

Florida Water Management Inventory

Updates to Cycle 3

1. Updating from the 2016 to the 2018 parcel data
   - All counties have been completed.
   - Parcels match about 98%
   - Unmatched parcels could be because parcel is new, was split, or got a new number
   - Reviewing orphan data

Florida Water Management Inventory

Updates to Cycle 3 (continued)

2. Re-geocoding EHD Data with drinking water and wastewater data

3. Adding DEP facility permit numbers to data

Onsite Sewage Program

Updates on the Continued Monitoring Project

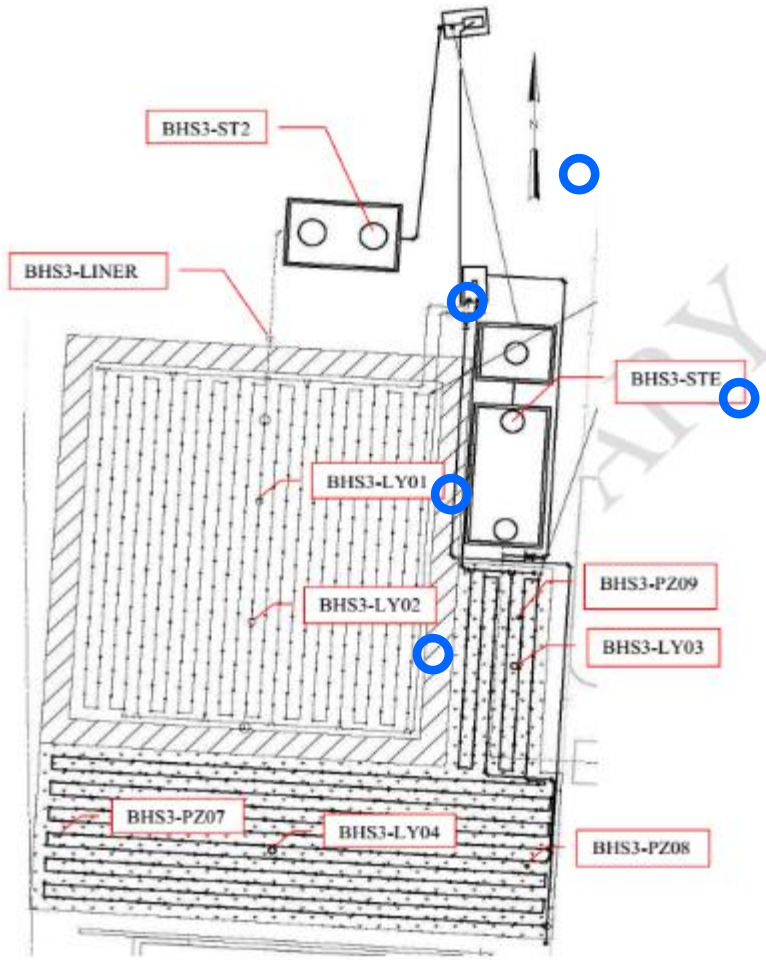
Continued Monitoring Project

1. Project funded with $72,000 319 Grant fund and $48,000 DOH match.
2. Eight sampling events originally planned.
3. Seven sampling events have been conducted.
4. Wastewater diversion and reconnection at System B-HS4; Treatment media maintenance at System B-HS5; Disconnection of water softener at System B-HS7. No water samples were obtained from System B-HS7 for September sampling.
5. Applied for United States Environmental Protection Agency (EPA) Multipurpose Grant to include two more quarterly sampling events.
6. Sampling will be completed by the end of June 2020.

Seminole County System B-HS3

System B-HS3 Drainfield

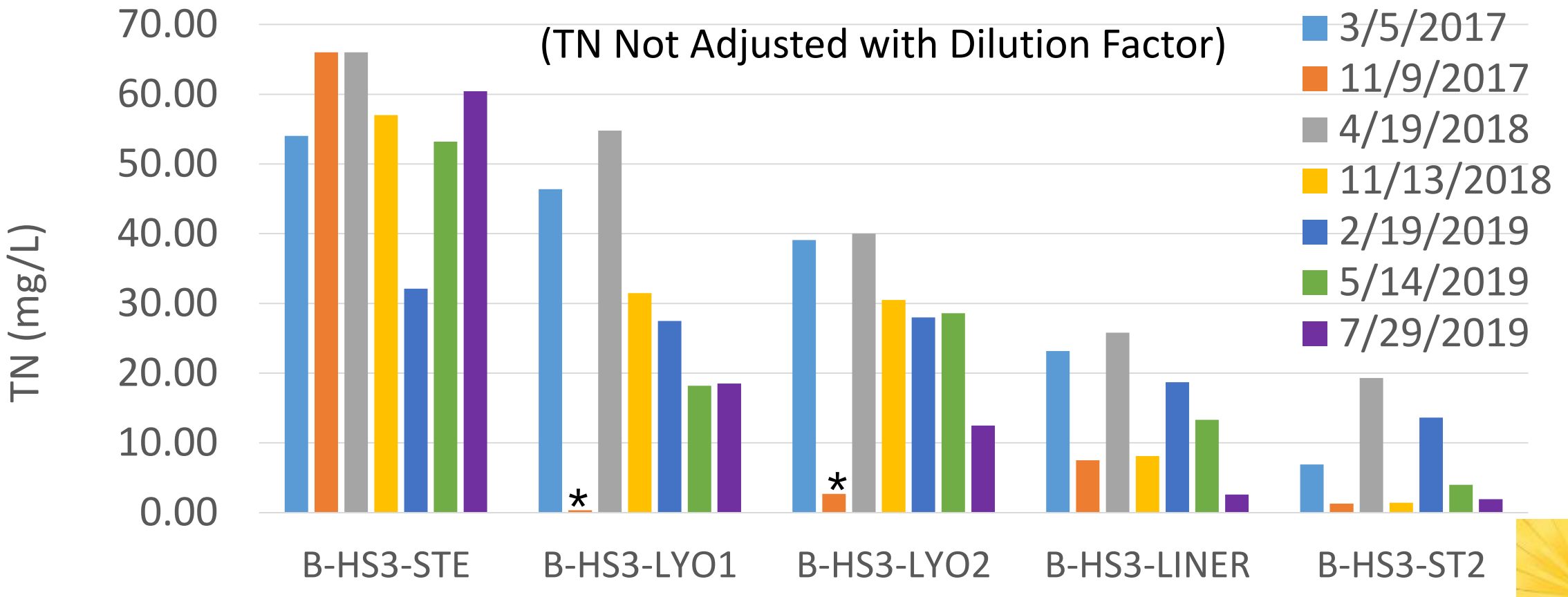
Seminole County System B-HS3 Components and Sampling Locations



Samples were collected on 3/15/2017, 11/09/2017, 4/19/2018, 11/12/2019, 2/18/2019, 5/14/2019, and 7/29/2019 from:

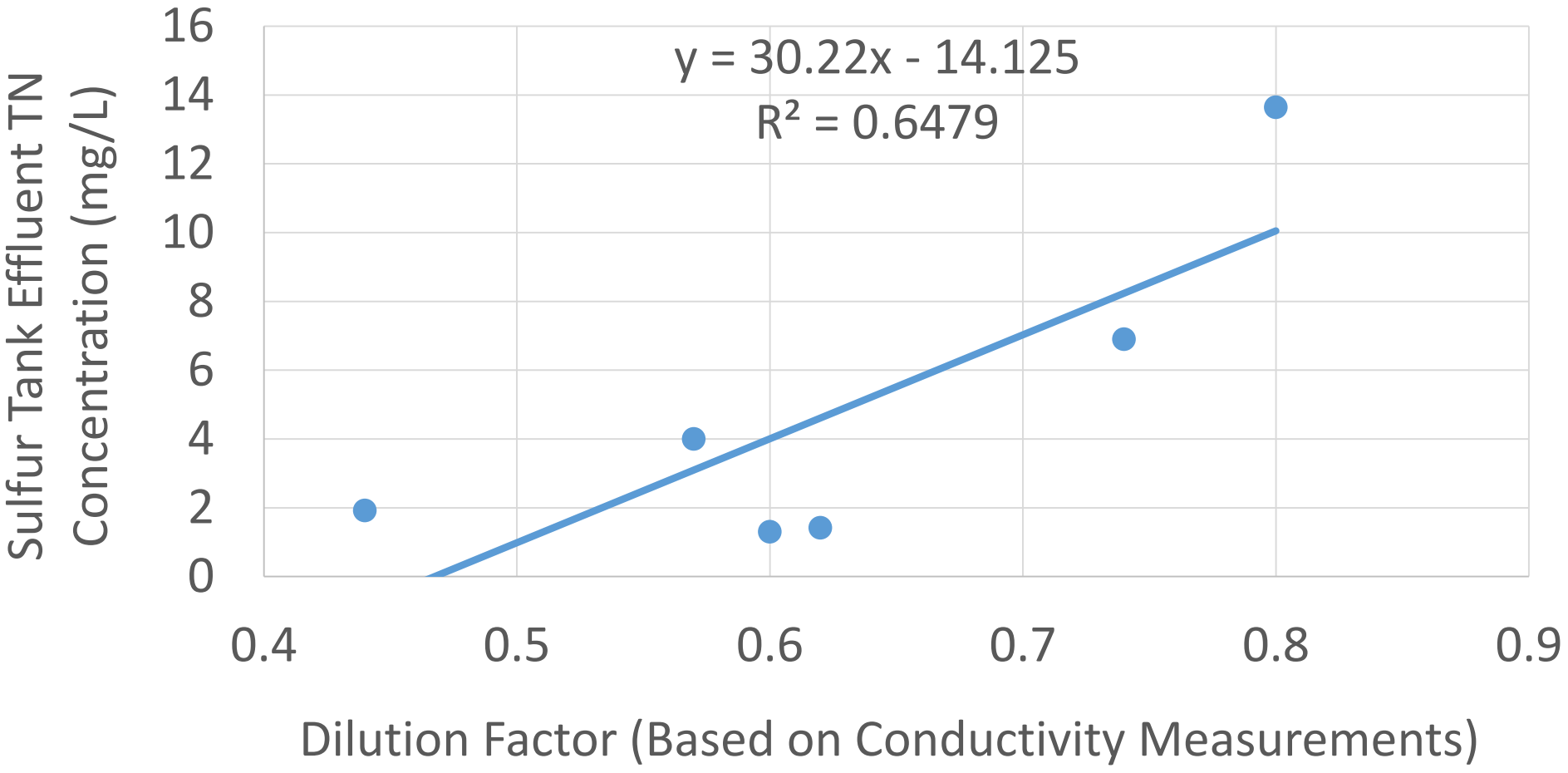
a) BHS3-STE (Septic/Pump tank)
b) BHS3-LY01 (Bottom of stage 1 medium)
c) BHS3-LY01 (Bottom of stage 1 medium)
d) BHS3-LINER (Effluent from stage 2 medium)
e) BHS3-ST2 (Sulfur tank)

Total Nitrogen (TN) from Different Treatment Components

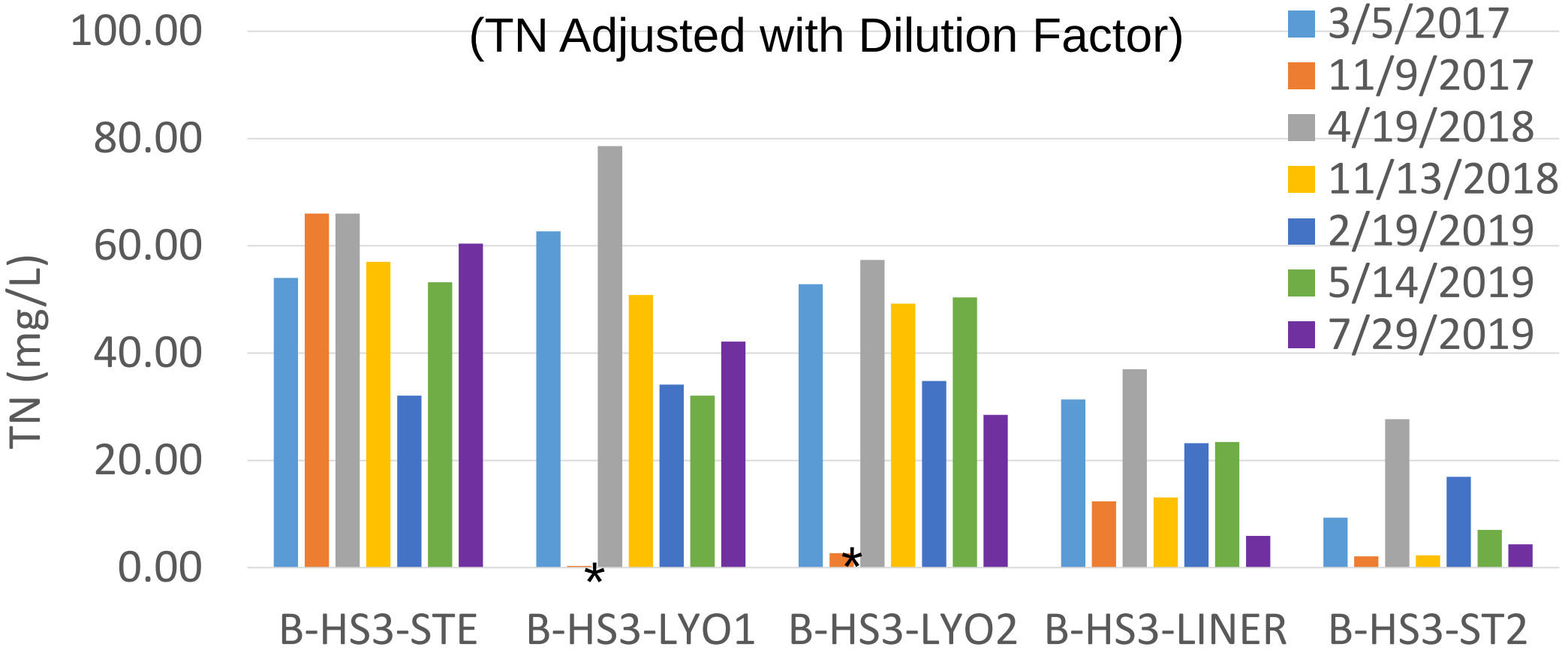


TN: Total Nitrogen. * Insufficient data to calculate TN.

Sulfur Media Effluent TN vs. Dilution Factor



Total Nitrogen Concentration from Different Treatment Components

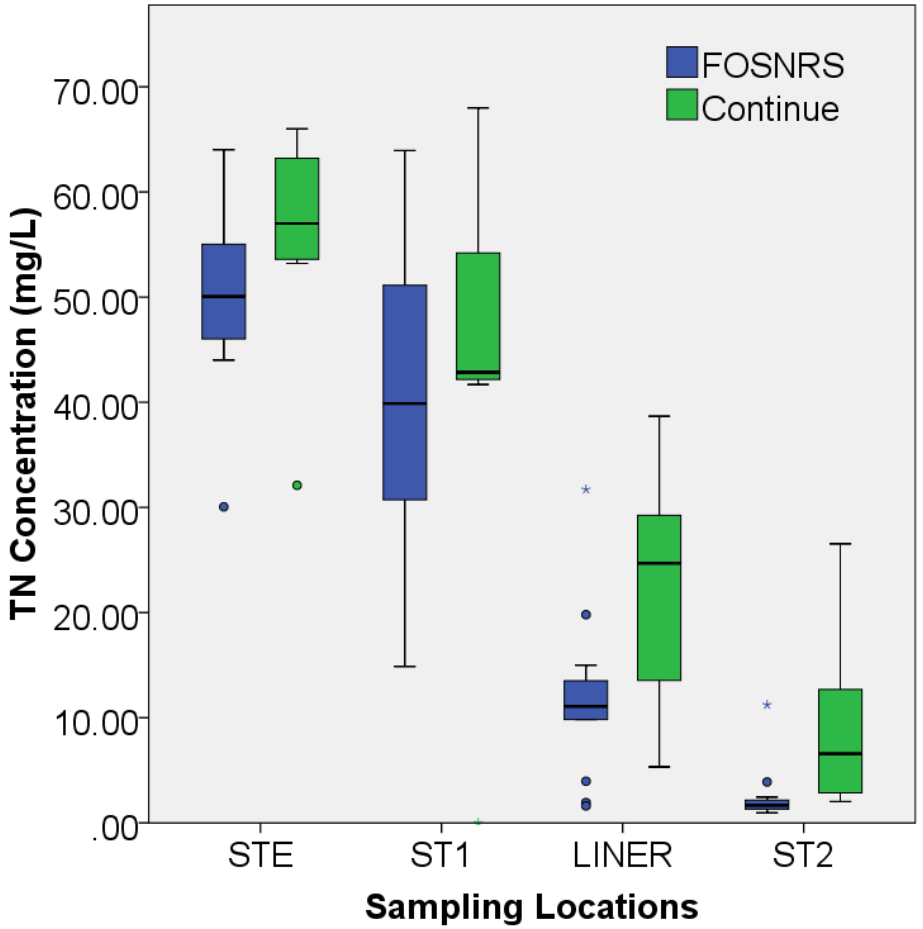


Seminole County System B-HS3
Sampling Points from Lignocellulose and Sulfur Media

Sulfur Media Effluent Sampling Point

Lignocellulose Media Effluent Sampling Point

Seminole County System B-HS3
TN during FOSNRS and Continued Monitoring Periods



Nitrogen-Reducing Effectiveness

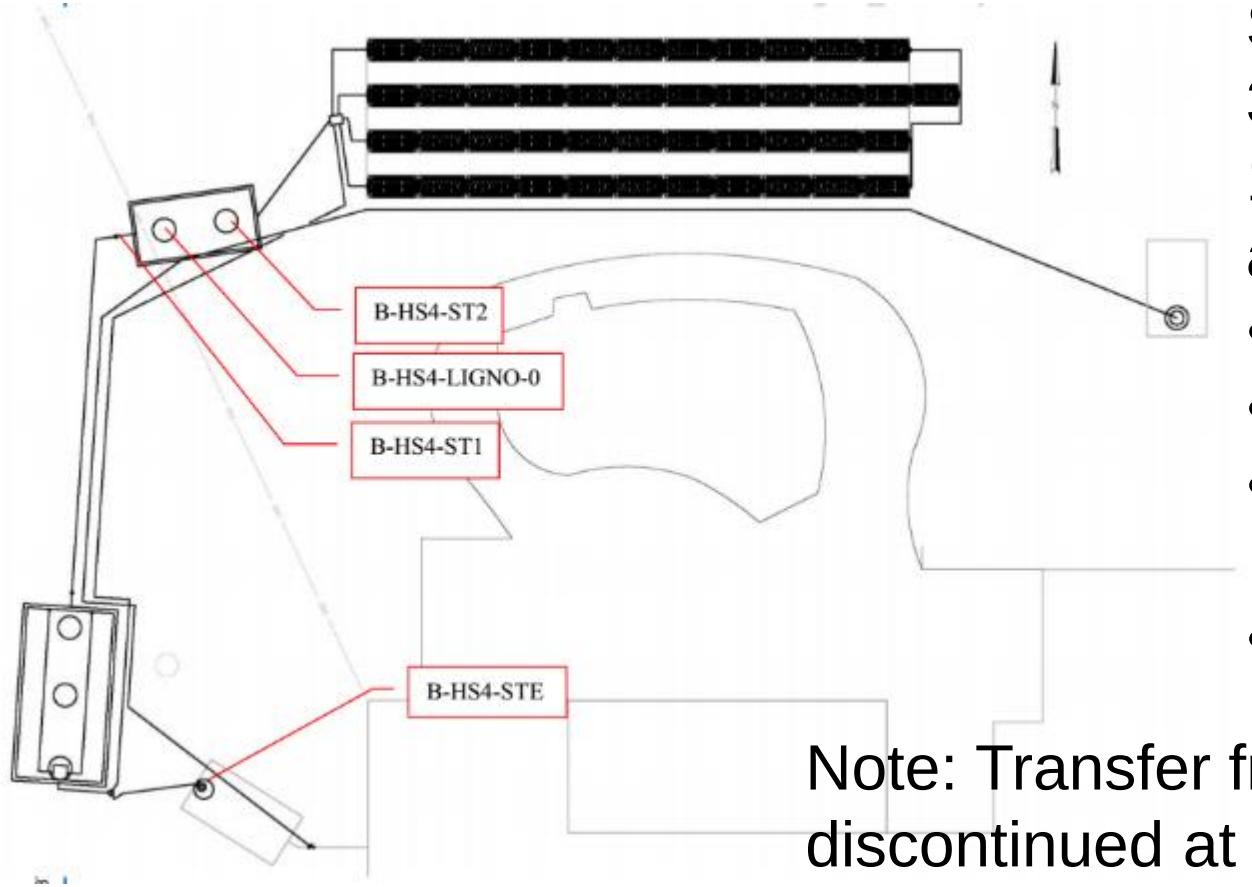
FOSNRS Period: 95%

Continued Monitoring: 88%

Seminole County System B-HS4

Seminole County System B-HS4 - Continued

Seminole County System B-HS4 - Continued



Samples were collected on 3/16/2017, 11/08/2017, 4/18/2018, 11/14/2018, 2/20/2019, 5/15/2019, and 9/17/2019 from:

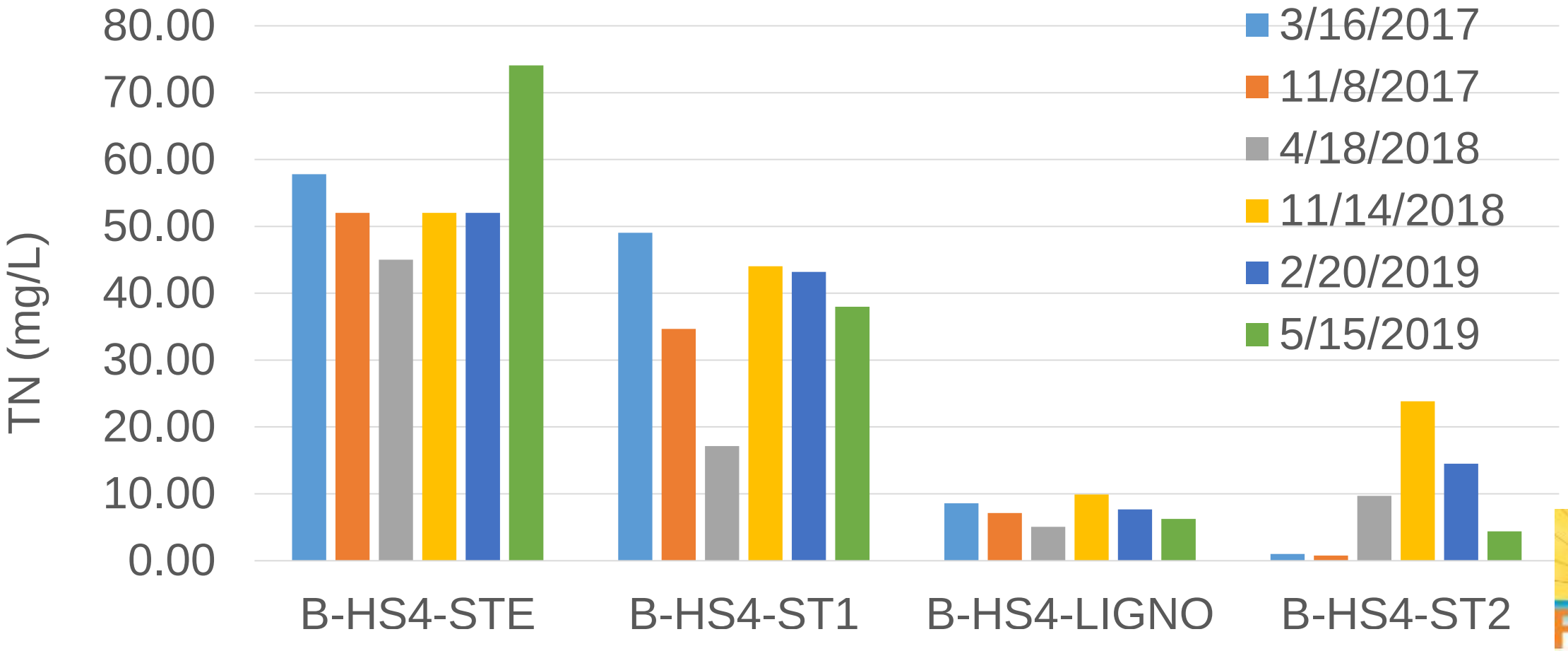
- BHS4-STE (Septic tank)
- BHS4-ST1 (Sampling port)
- BHS4-LIGNO-0 (Bottom of ligno layer)
- BHS4-ST2 (Sulfur tank)

Note: Transfer from second tank discontinued at the end of FOSNRS but resumed in early November 2018.

Seminole County System B-HS4 - Continued

Transfer pump from second septic tank

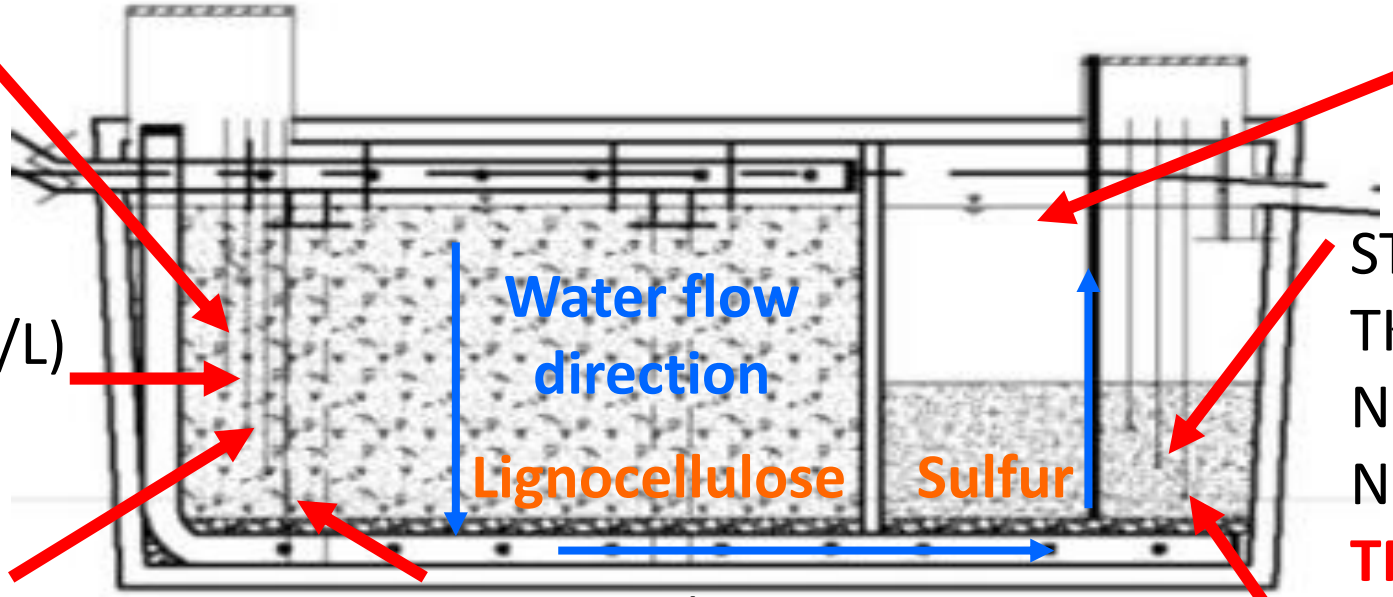
Total Nitrogen Concentration from Different Treatment Components



Depth Profile Sampling TN Concentrations 2/20/2019

LIGNO-36 (mg/L)
TKN: 7.9
NH4: 8.1
NOX: 31.2
TN: 39.1

LIGNO-24 (mg/L)
TKN: 0.49
NH4: 0.11
NOX: 9.5
TN: 9.99



ST2 (mg/L)
TKN: 2.5
NH4: 0.93
NOX: 12.00
TN: 14.5

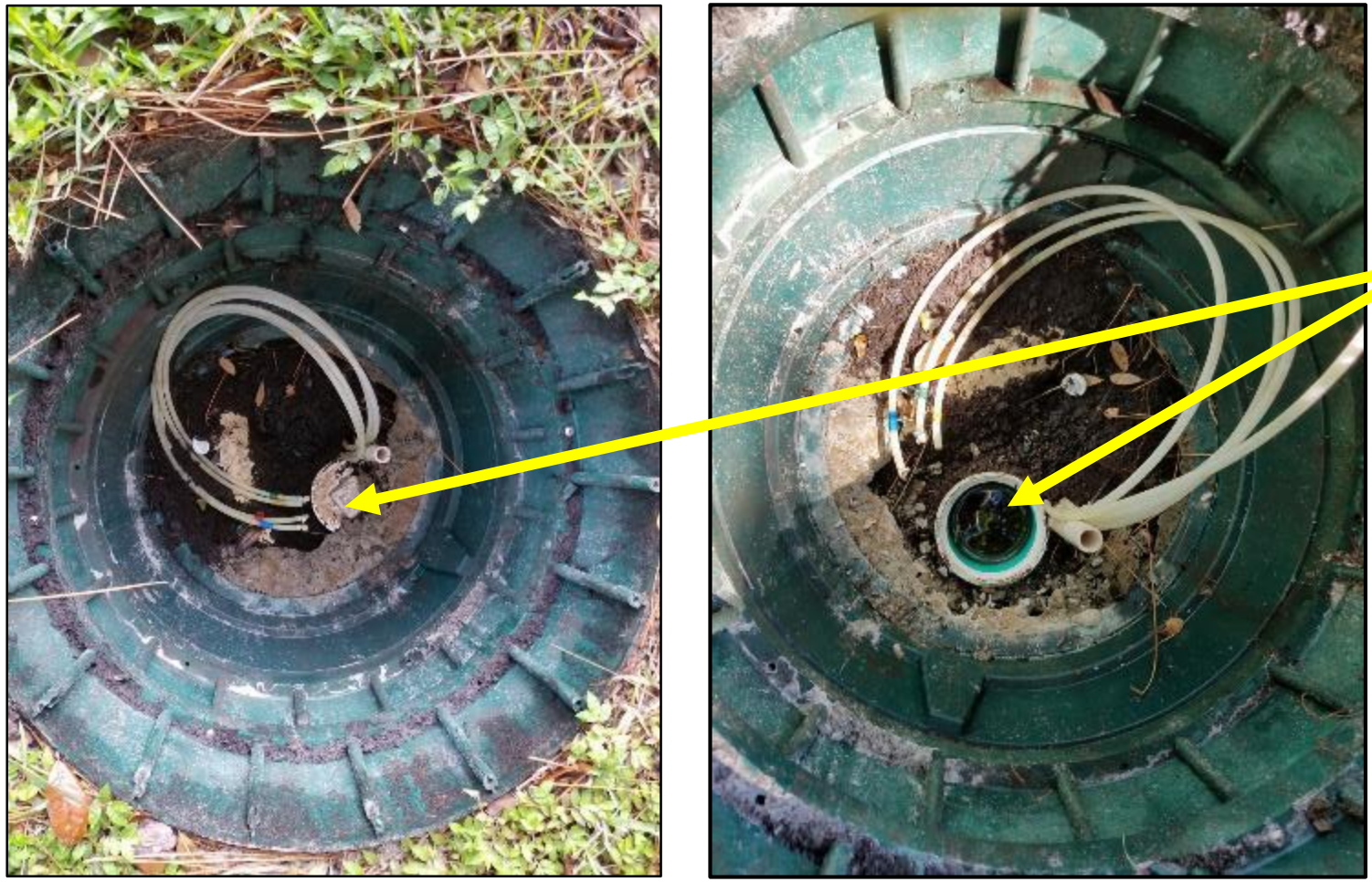
ST2-12 (mg/L)
TKN: 0.55
NH4: 1.6
NOX: 0.10
TN: 0.65

LIGNO-12 (mg/L)
TKN: 0.51
NH4: 0.04
NOX: 6.2
TN: 6.71

LIGNO-0 (mg/L)
TKN: 0.37
NH4: 0.03
NOX: 7.3
TN: 7.67

ST2-6 (mg/L)
TKN: 0.89
NH4: 0.80
NOX: 0.10
TN: 0.99

Seminole County System B-HS4 - Continued

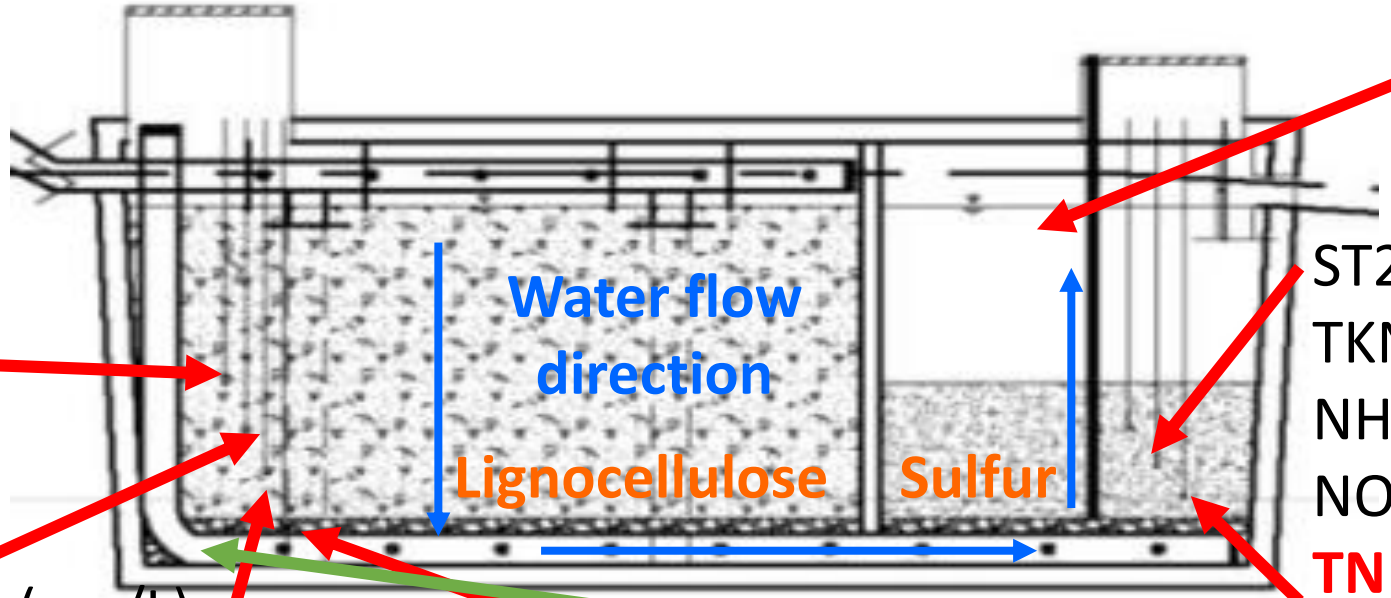


Cleanout pipe connected to the perforated pipe at the bottom of the lignocellulose chamber connecting lignocellulose compartment with sulfur compartment

Depth Profile Sampling TN Concentrations 9/17/2019

ST1 (mg/L)
TKN: 0.65
NH4: 0.28
NOX: 45.0
TN: 45.65

LIGNO-36 (mg/L)
TKN: 0.59
NH4: 0.04
NOX: 35.0
TN: 35.59



ST2 (mg/L)
TKN: 3.4
NH4: 0.06
NOX: 0.02
TN: 3.42

ST2-12 (mg/L)
TKN: 0.84
NH4: 0.27
NOX: 0.02
TN: 0.86

LIGNO-24 (mg/L)
TKN: 0.83
NH4: 0.34
NOX: 0.13
TN: 0.96

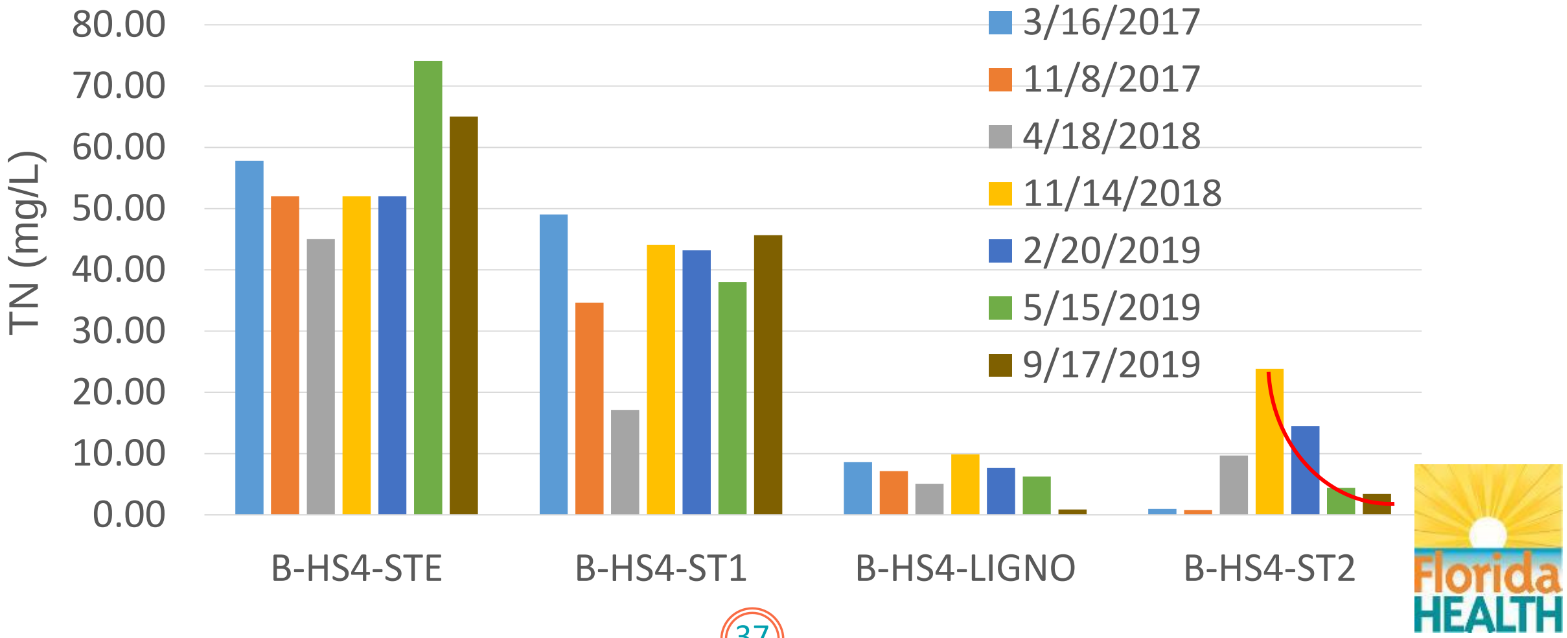
LIGNO-12
TKN: 0.71
NH4: 0.29
NOX: 0.05
TN: 0.76

LIGNO-0 (mg/L)
TKN: 0.86
NH4: 0.26
NOX: 0.03
TN: 0.89

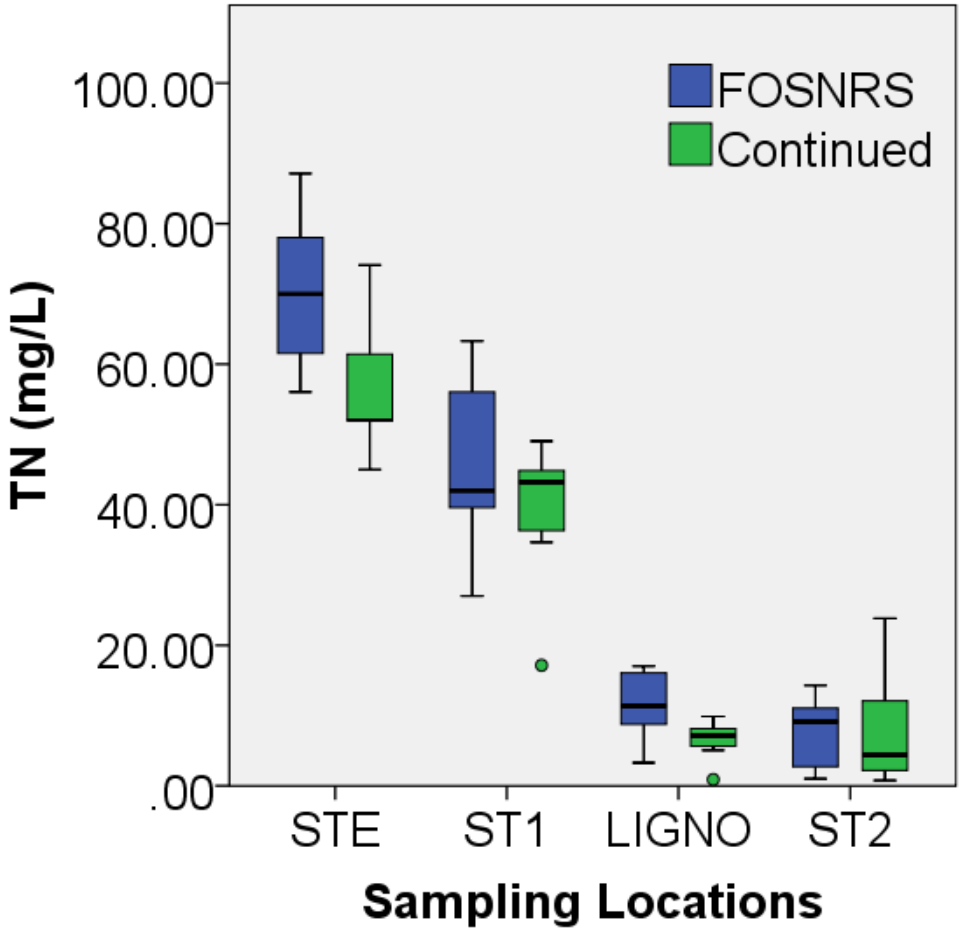
Pipe (mg/L)
TKN: 0.73
NH4: 0.11
NOX: 0.02
TN: 0.75

ST2-6 (mg/L)
TKN: 1.10
NH4: 0.43
NOX: 0.02
TN: 1.12

Total Nitrogen Concentration from Different Treatment Components



Seminole County System B-HS4 - Continued



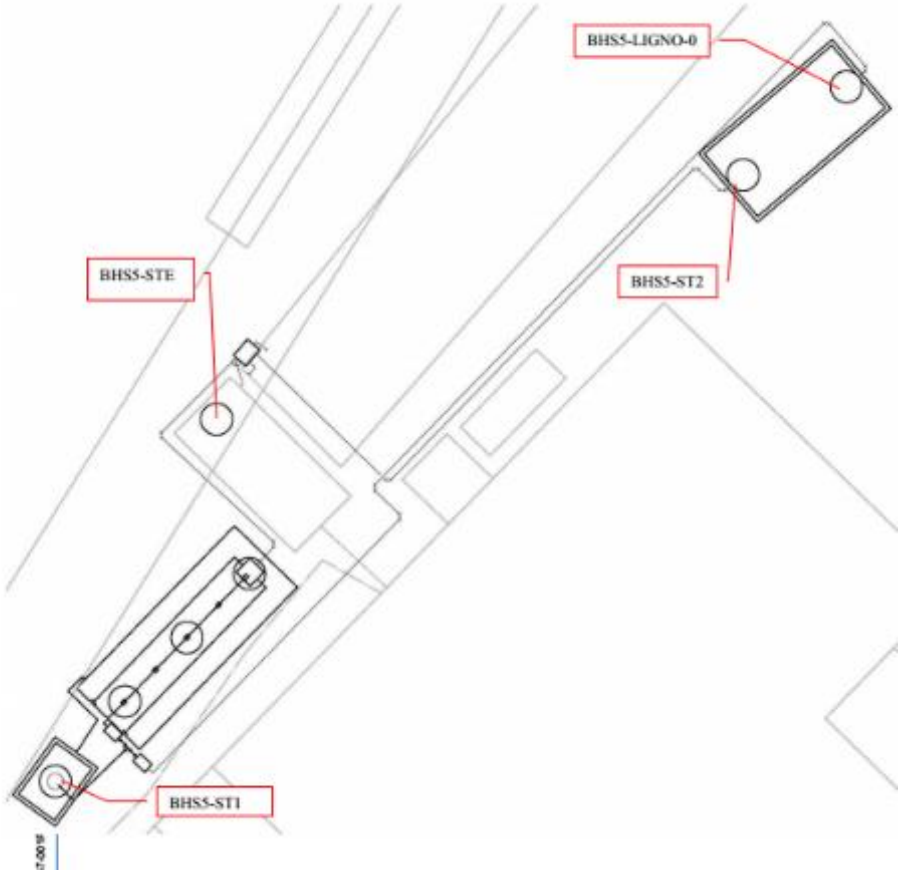
Nitrogen-Reducing Effectiveness

FOSNRS Period: 87%

Continued Monitoring: 92%

Seminole County System B-HS5

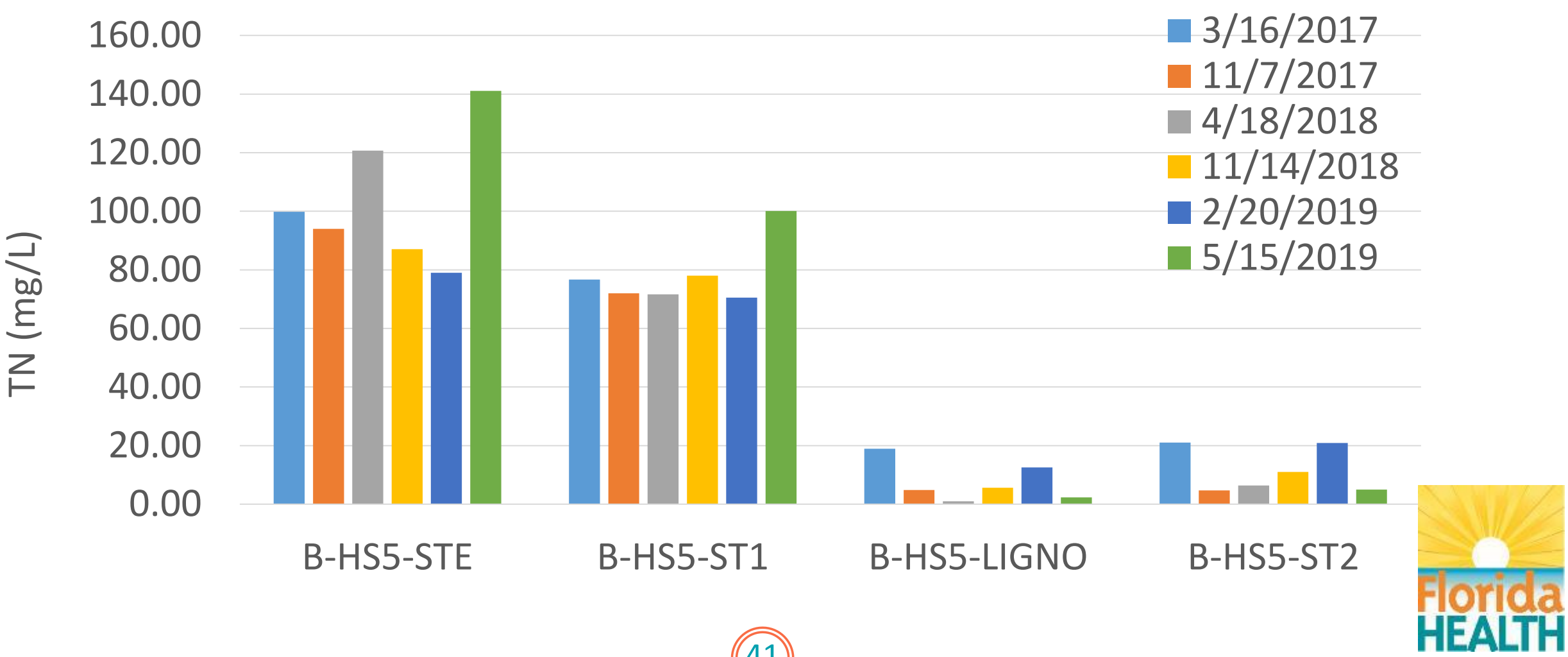
Seminole County System B-HS5 - Continued



Samples were collected on 3/16/2017, 11/07/2017, 4/18/2018, 11/13/2018, 2/20/2019, 5/15/2019, 8/1/2019, and 9/19/2019 from:

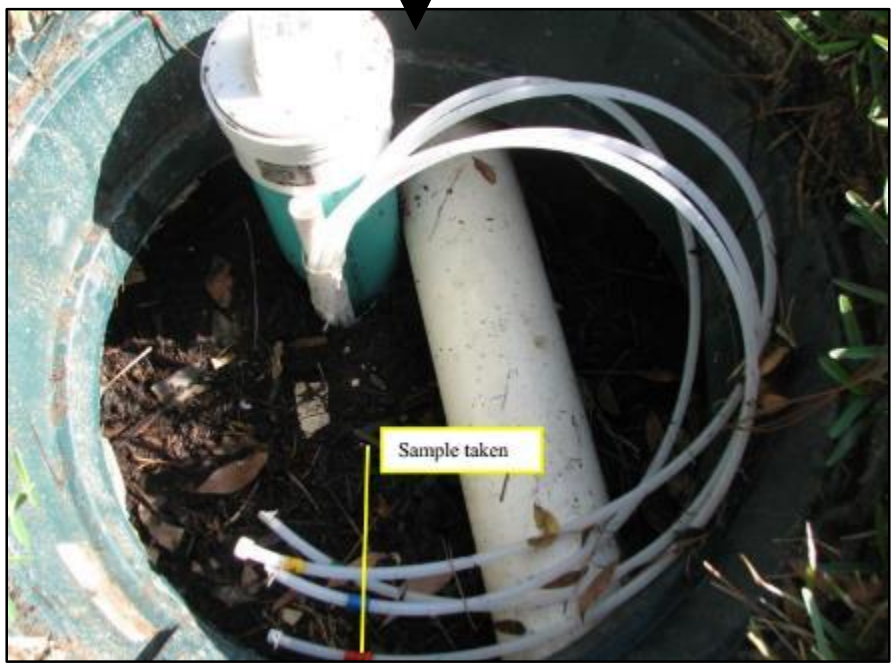
a) BHS4-STE (Septic tank)
b) BHS4-ST1 (Pump tank)
c) BHS4-LIGNO-0 (Bottom of lignocellulose media)
d) BHS4-ST2 (Top water of sulfur media tank)

Total Nitrogen Concentration from Different Treatment Components



Lignocellulose Media in FOSNRS and Continued Monitoring Period.

Lignocellulose Compartment during FOSNRS Period



Lignocellulose Compartment during Continued Monitoring

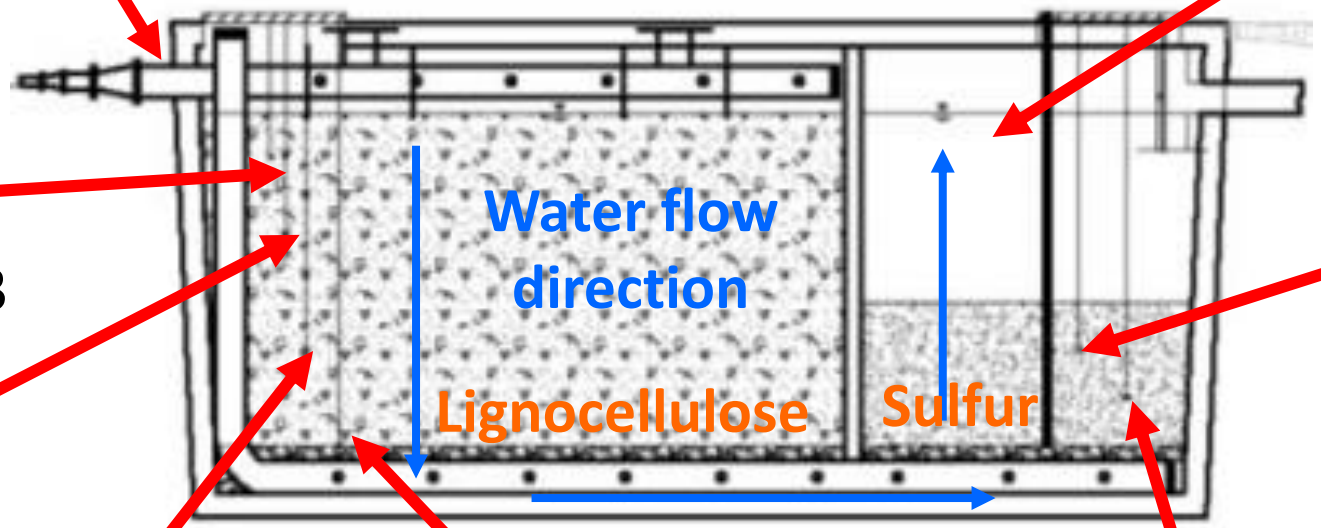
Depth Profile Sampling TN Concentrations 2/20/2019

ST1 (Stage 1 media) (mg/L)
TKN: 4.50 NH4: 5.20
NOX: 66.00
TN: 70.50

LIGNO-36 (mg/L)
TKN: 0.39 NH4: 0.03
NOX: 46.00
TN: 46.39

LIGNO-24 (mg/L)
TKN: 3.80 NH4: 3.3
NOX: 23.00
TN: 26.80

LIGNO-12 (mg/L)
TKN: 1.20 NH4: 0.64
NOX: 2.90
TN: 4.10



LIGNO-0 (mg/L)
TKN: 0.51 NH4: 0.04
NOX: 12
TN: 7.67

ST2 (mg/L)
TKN: 5.90 NH4: 5.30
NOX: 15.00
TN: 20.90

ST2-12 (mg/L)
TKN: 3.60 NH4: 2.30
NOX: 0.10
TN: 3.70

ST2-6 (mg/L)
TKN: 2.70 NH4: 2.20
NOX: 0.10
TN: 2.80

Seminole County System B-HS5 - Continued

Re-Distribute the Sulfur Media
Using a Pressure Washer
8/1/2019

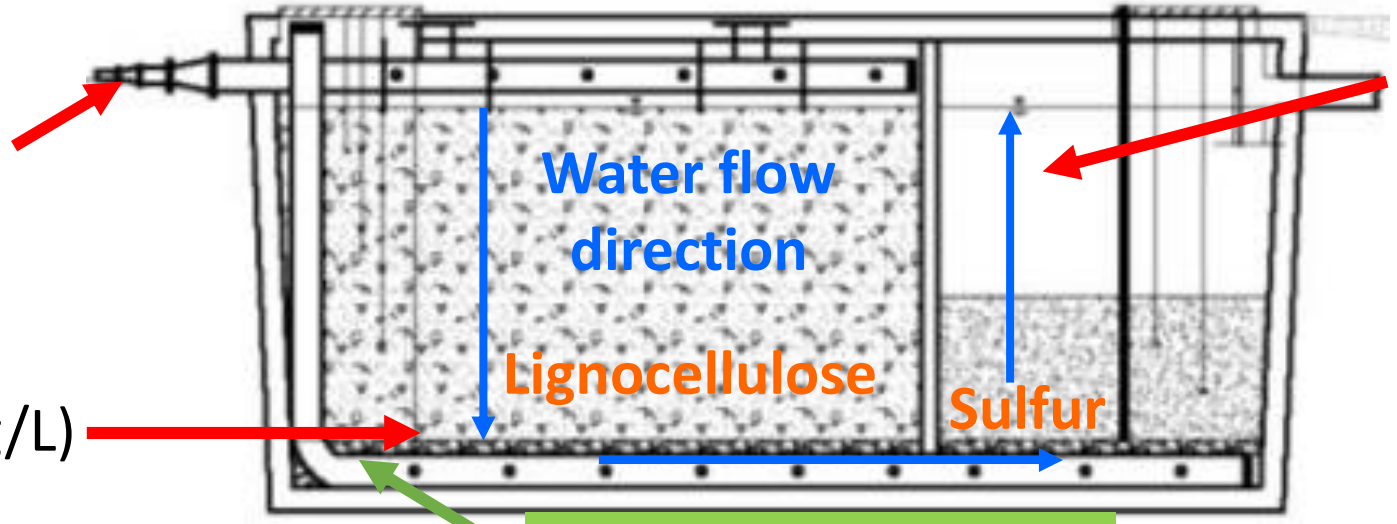
Effect of Sulfur Media Re-Distribution on Sulfur Media Effluent TN

Unit: mg/L

Sampling Points	TKN	NH4	NO3/NO2	TN
B-HS5-STE	170	110	1.2	171.2
B-HS5-ST1	16	14	70	86
B-HS5-LIGNO-0	2.2	1.5	1.2	3.4
B-HS5-ST2-Before	3.4	2.6	1.1	4.5
B-HS5-ST2-After	6.1	1.5	7.2	13.3

Nitrogen Concentrations at Different Locations of the Lignocellulose and Sulfur Media (9/19/2019)

ST1 (Stage 1 media) (mg/L)
TKN: 2.20
NH4: 3.30
NOX: 31.00
TN: 33.20



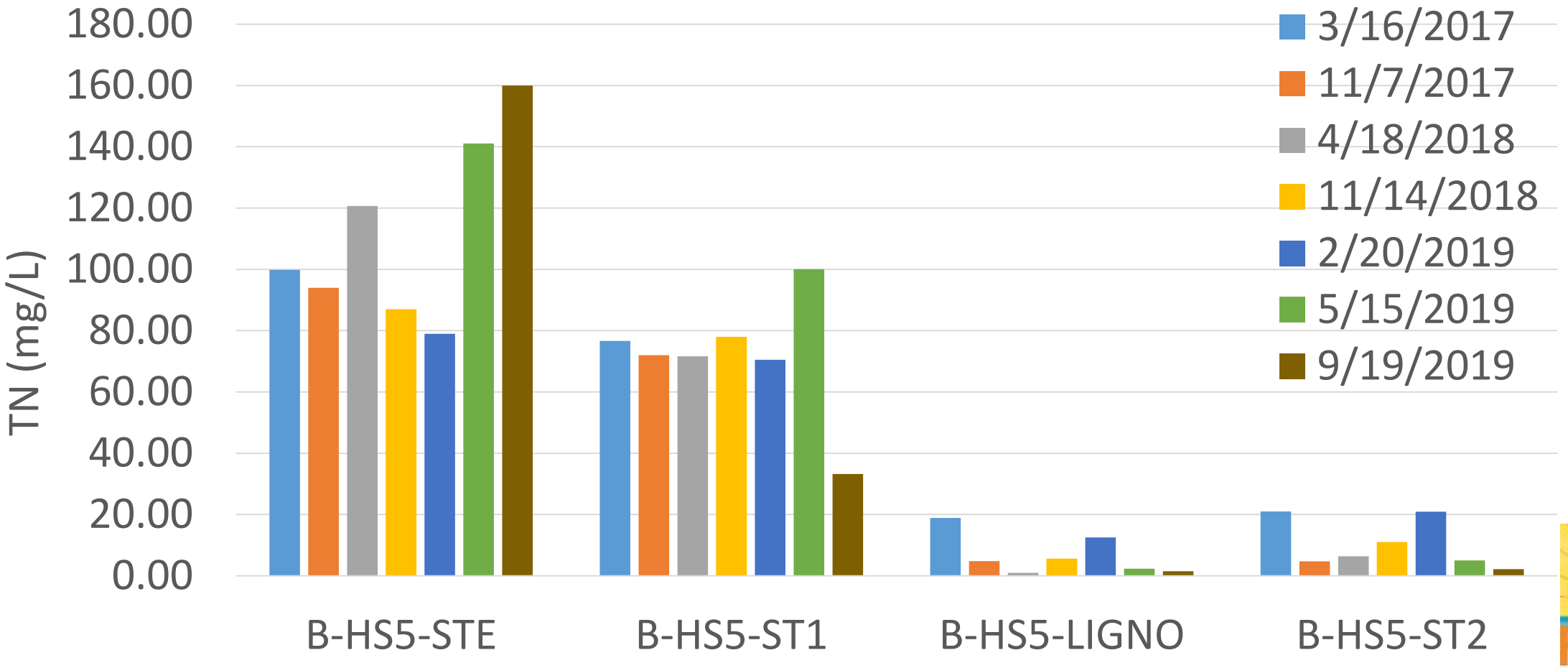
ST2 (mg/L)
TKN: 2.2
NH4: 1.1
NOX: 0.01
TN: 2.30

LIGNO-0 (mg/L)
TKN: 1.5
NH4: 0.58
NOX: 0.010
TN: 1.51

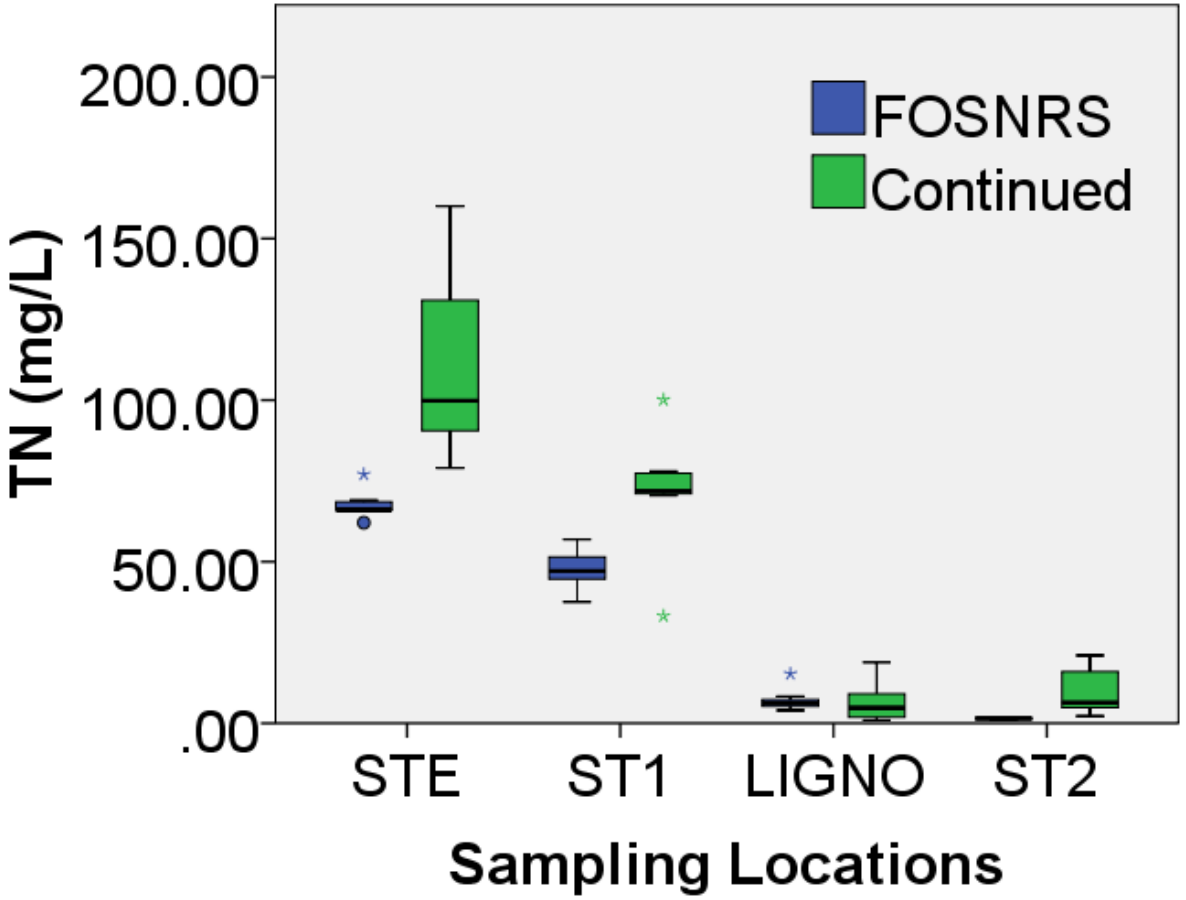
Pipe (mg/L)
TKN: 0.99 NH4: 0.35
NOX: 0.010
TN: 1.00

System B-HS5 – Baffle Does Not Completely Separate Lignocellulose from Sulfur Compartment

Total Nitrogen Concentration from Different Treatment Components



Seminole County System B-HS5 - Continued

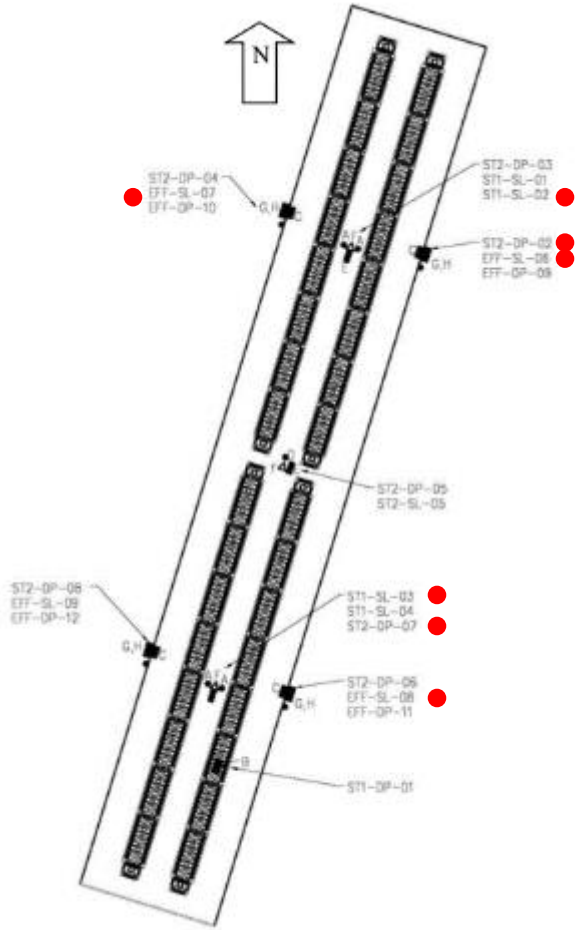


Nitrogen-Reducing Effectiveness

FOSNRS Period: 98%

Continued Monitoring: 95%

Marion County System B-HS7



Samples were collected on 4/26/2017, 12/05/2017, 4/26/2018 from, 11/15/2018, 1/24/2019, 2/21/2019, 5/16/2019, 9/18/2019:

a) BHS7-Pump (Pump tank)
b) BHS7-ST1-SL-02 (Stage 1 media)
c) BHS7-ST1-SL-03 (Stage 1 media)
d) BHS7-ST2-DP-02 (Stage 2 media)
e) BHS7-ST2-DP-07 (Stage 2 media)
f) BHS7-EFF-SL-06 (Peripheral soil)
g) BHS7-EFF-SL-07 (Peripheral soil)
h) BHS7-EFF-SL-08 (Peripheral soil)

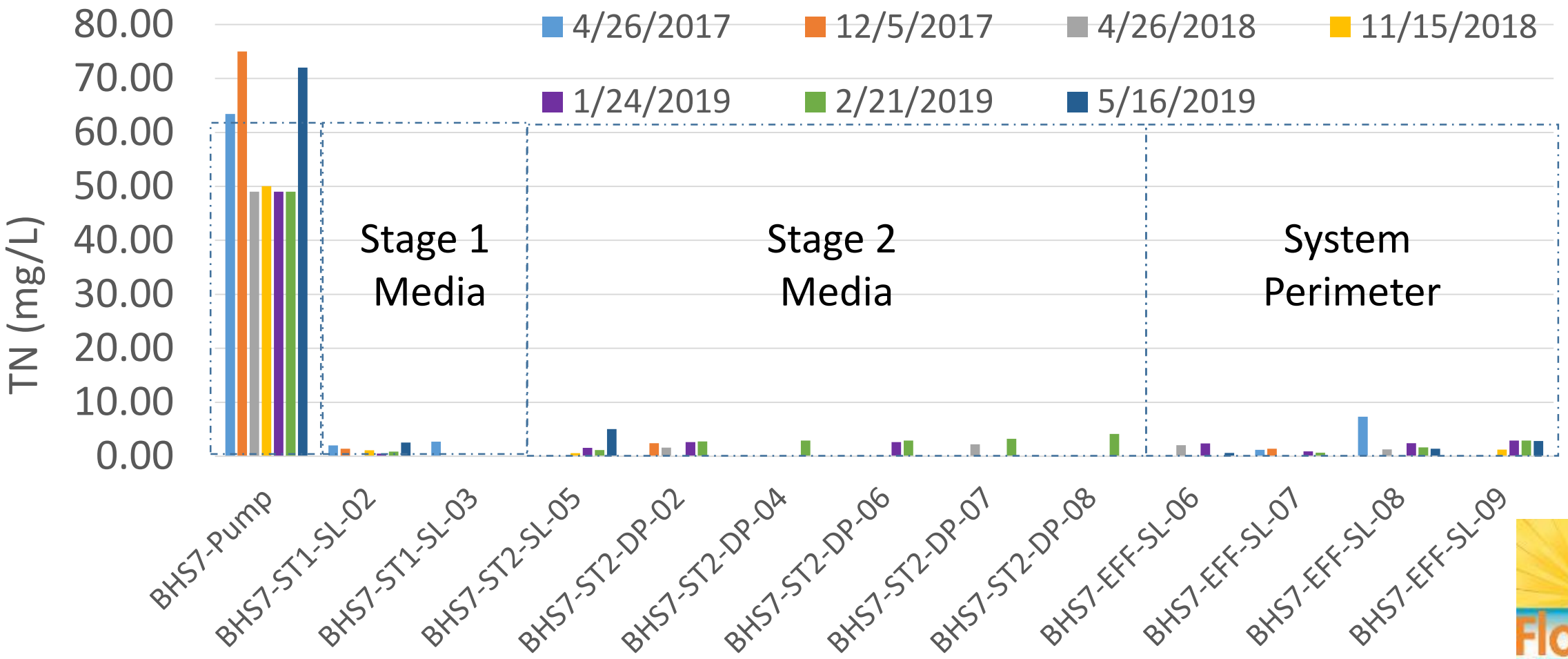
Marion County System B-HS7 - Continued

Drainfield

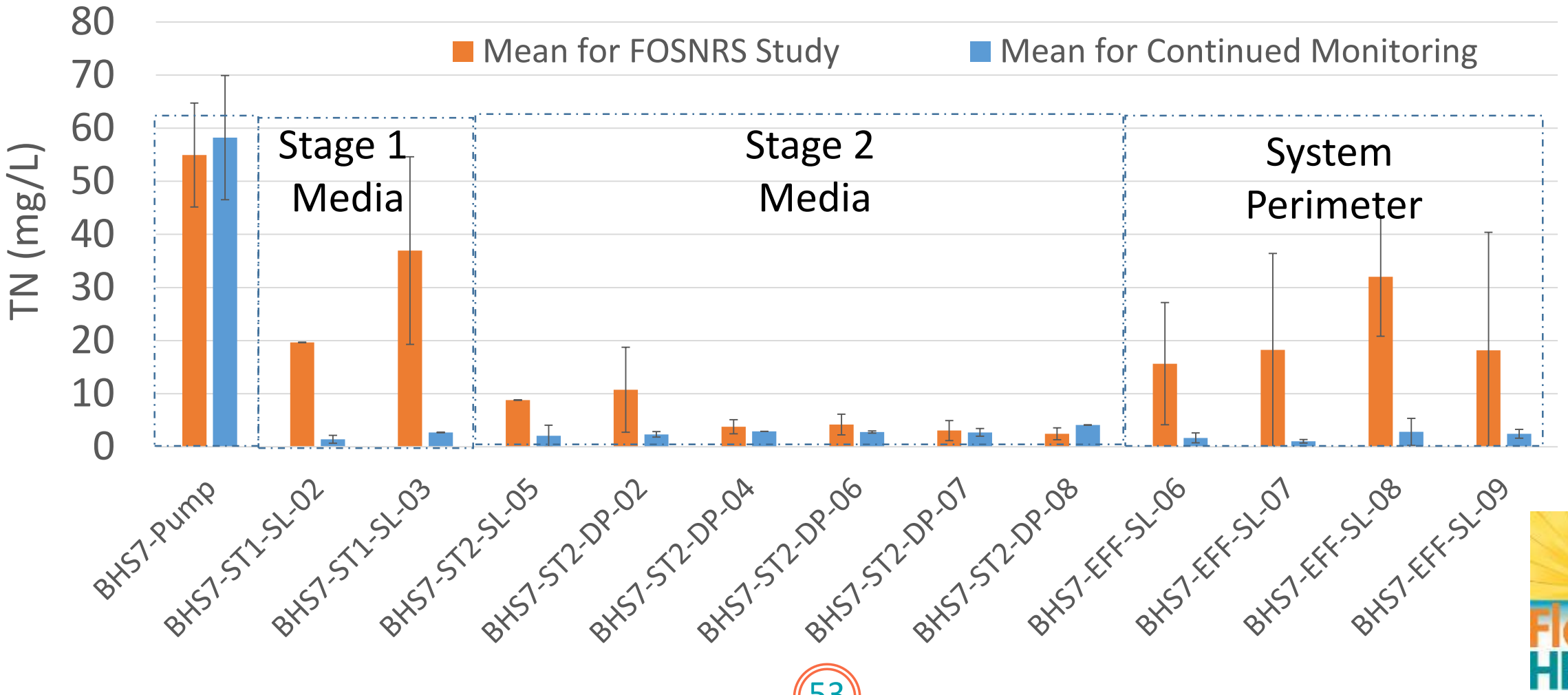
Pump Tank

Septic Tank

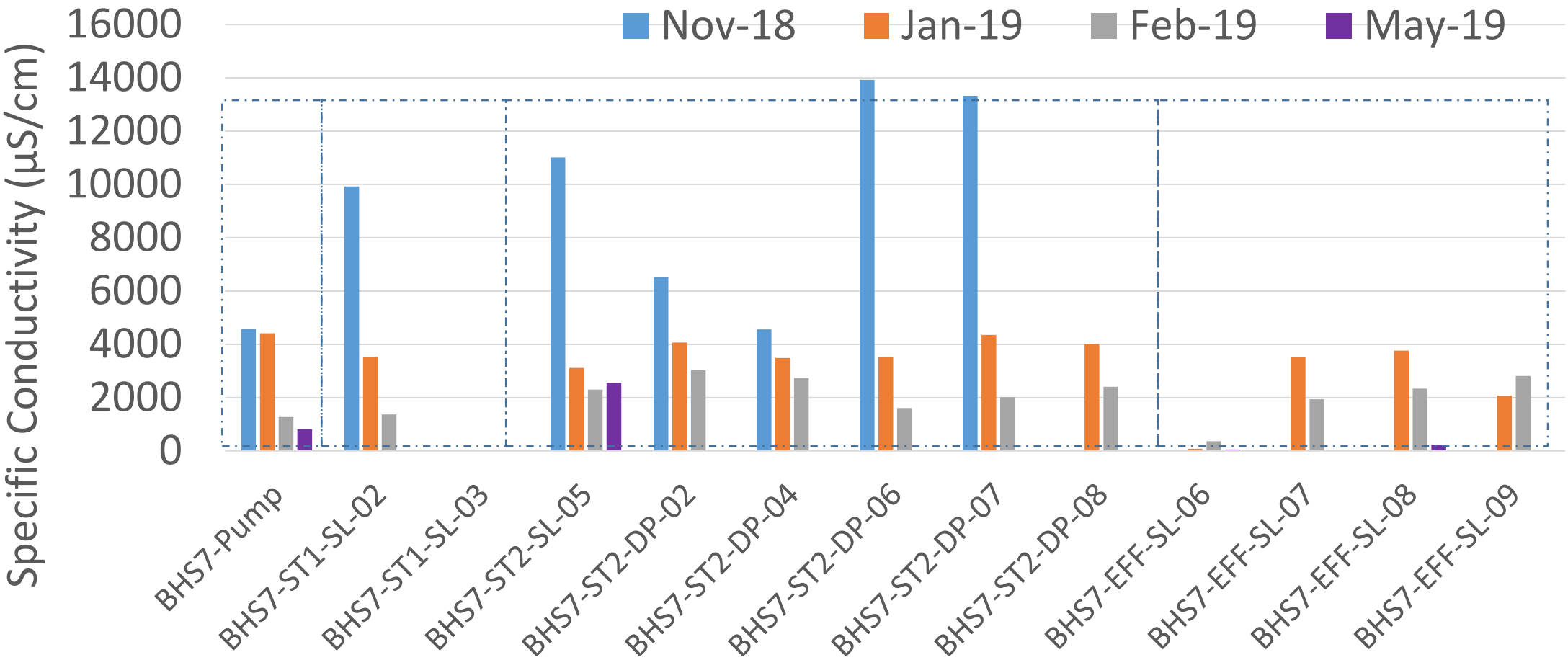
TN Concentrations at Different Parts of the Drainfield



TN Concentrations at Different Parts of the Drainfield during FOSNRS and Continued Monitoring



Specific Conductivity at Different Parts of the Drainfield



No water samples obtained from the drainfield during September 18 and 20 sampling

- Site specific rainfall from 8/18 through 9/18 was 3.9 inches. The seven-day antecedent rainfall was 0.26 inches.
- Average daily high temperature from 8/18 through 9/18 was $92.7^{0}F$
- Average daily water use was 168 gallon/day, dosing over 792 square feet drainfield was about 0.34 inches/day.
- A study in Rainbow and Silver Spring area showed that daily evapotranspiration rate in September can be as high as 0.45 inches/day (Knowles, 1996).

Onsite Sewage Program

Search for Data Sets to Estimate Failure or Non-Conformance Frequency of Septic Systems

Background of the Project

1. Project proposed by Dr. Eb Roeder.
2. One approach to evaluate OSTDS environmental impact is to determine the frequency of OSTDS not functioning properly.
3. Frequency of OSTDS “failure” is frequently used and determined by multiplying the frequency of repair permits by a number of years before the “failure” is identified.
4. But “failure” may range from continuous sewage overflow to systems not meeting current code.

Goal of the Project

1. Define types of “failure” or system non-conformance to the OSTDS rule.
2. Estimate frequency of different types of non-conformance.

Potential Sources of Data

1. St. Johns River Septic Enforcement Project – **Duval County**.
2. Suwannee River Floodplain Onsite Sewage Disposal System Inventory study – **Alachua, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Levy, Madison, Union, Suwannee**.
3. Point-of-sale septic inspection – **Escambia and Santa Rosa Counties**.
4. Mandatory septic inspection required by **Charlotte County** ordinance.
5. Mandatory septic inspection required by Lake and Polk County ordinances for systems in the Area of Critical State Concern (ACSC) in Green Swamp area – **Lake County and Polk County**.

St. Johns River Septic Enforcement Project

1. Triggered by a DEP basin management action plan (BMAP) adopted in 2010 for 15 Lower St. Johns River tributaries impaired for fecal coliform.
2. Funded with $366,000 319 Grant and $254,000 DOH match to:
    1) Conduct door-to-door OSTDS inspection.
    2) Evaluate the condition of existing systems in each tributaries.
    3) Facilitate repairs as necessary.
    4) Track inspection results.
    5) Enhance public awareness of fecal coliform sources and impact.
3. Focused on OSTDSs impacting water quality of the St. Johns River and tributaries.
4. Lasted from 2/1/2017 through 6/30/2019.

Florida HEALTH

St. Johns River Septic Enforcement Project - Continued

1. Inspected 12,211 anticipated OSTDS sites in three years.
2. 441 properties found vacant.
3. 4,898 systems found connected to sewer.
4. 1,341 property owners refused inspectors access.
5. 28 systems discharged laundry wastewater to ground or had sewage on ground, plumbing back-up, or illicit discharge pipes.
6. 32 systems had broken/missing cleanout cap, broken tank lid, or damaged drainfield.
7. 15 systems have other violations.
8. Enforcement actions taken on 75 systems in total (1.3% of the OSTDS inspected).

St. Johns River Septic Enforcement Project - Continued

1. The inspection results are stored in an Access database.
2. GIS maps are available for systems inspected.
3. Onsite Sewage Program staff is requesting the data.

Suwannee River Floodplain Onsite Sewage Disposal System Inventory

1. Triggered by Executive Order #90-14 signed by then Governor Bob Martinez in 1990, requiring Department of Health and Rehabilitative Services (HRS) to inventory all OSTDS in 10 years & 100 years floodplains of Suwannee River and tributaries.
2. Funded by the Department of Regulation (DER)' Stormwater Improvement Management and HRS program funds.
3. Lasted from August 1990 through April 1994.
4. Surveyed over 3000 OSTDS systems in 10 counties.

Suwannee River Floodplain OSTDS Inventory-Continued

Counties	Systems Inventoried	Contiguous to River	In 10-year Floodplain	Above 10-year Floodplain
Total	3115	2858	2150	966

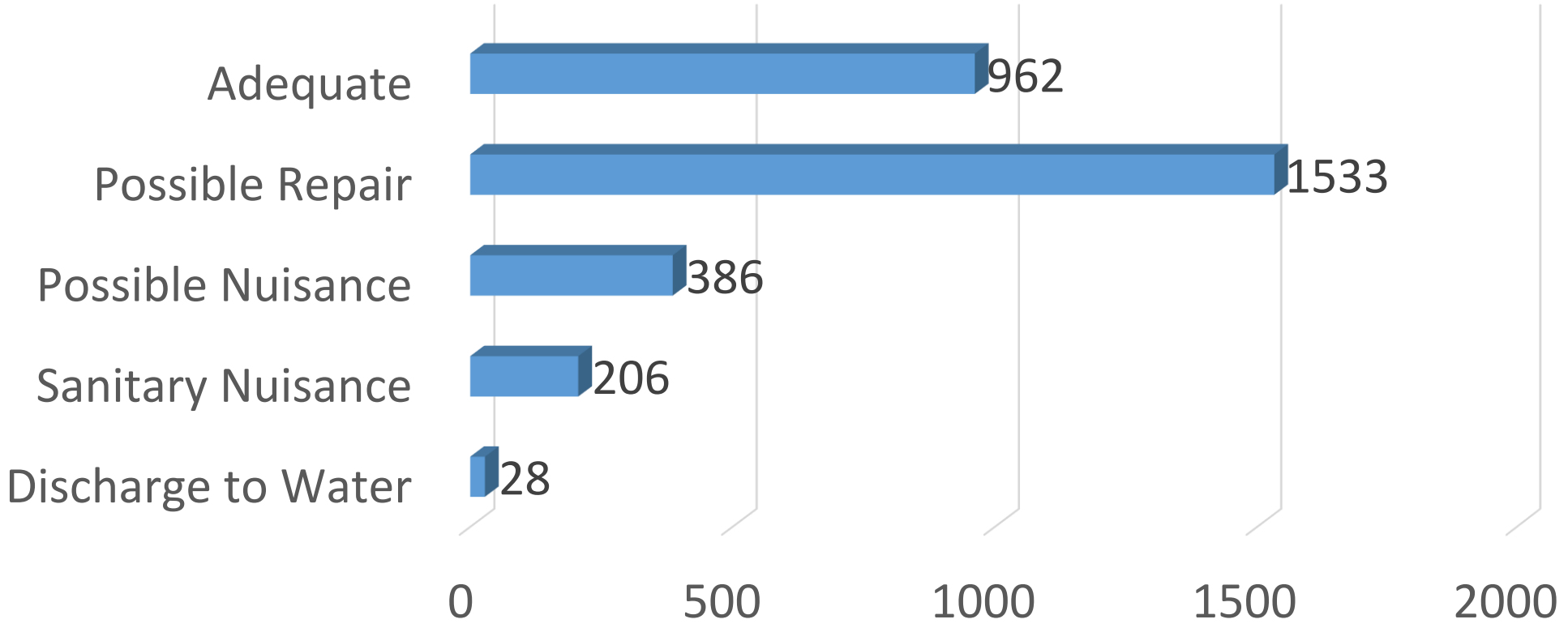
Suwannee River Floodplain OSTDS Inventory – System Rating

1. System adequate
2. Possible Repair
   1) System in water table
   2) System within 24 inches of water table (new system requirement 12/1982)
   3) System improperly sealed
3. Possible Water quality damage or sanitary nuisance exists
   1) Greywater discharging to ground surface
   2) Evidence of erosion on mound or fill system
   3) Evidence of drainfield failure
   4) Illegal system

Suwannee River Floodplain OSTDS Inventory – System Rating

4. System Failure-Water Quality or Sanitary Nuisance Exists Due to Sewage Discharge to Ground Surface
   1) Blackwater discharging to ground surface
   2) System failure
   3) No system installed
   4) Effluent surface to ground
5. Discharge of Sewage to Surface Water – Direct Illegal Piping or Discharge
   1) Greywater direct piping or discharge to river
   2) Blackwater direct piping or discharge to river
   3) Greywater discharge to river via swale, drainage ditch, etc.
   4) Blackwater discharge to river via swale, drainage ditch, etc.

Suwannee River Floodplain OSTDS Inventory – Summary



Suwannee River Floodplain OSTDS Inventory – Data Collection

1. County health department staff could not locate the inspection data. Some project summary reports available.
2. Suwannee River Water Management District (SRWMD) contract manager retired.
3. Onsite Sewage Program staff is contacting other people in SRWMD .

Mandatory Point-of-Sale Septic Inspection

1. Two counties, Escambia and Santa Rosa, required point-of-sale septic tank inspections in some areas.
2. These point-of-sale septic system inspections were stopped in 2012 when House Bill 1263 was adopted into Florida Statute Section 381.00651(4).
3. Onsite Sewage Program contacted the county health department (CHD) staff of these two counties.
4. Santa Rosa County scanned all their inspection reports into Ebridge file depository and provided Onsite Sewage Program staff with access.
5. Over 7000 inspection reports were downloaded from Santa Rosa County Ebridge file depository.

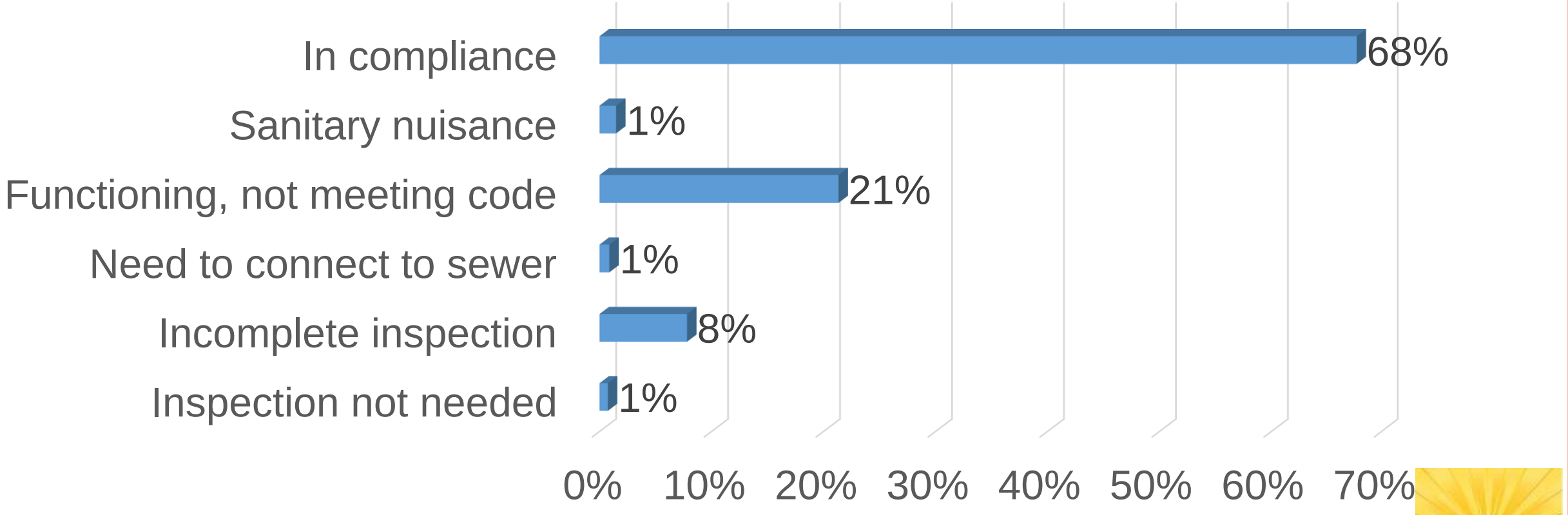
Items Inspected in Santa Rosa County

1. Cracks, leaks, improper fit or other defects in the tank.
2. Missing or damaged component of the system.
3. Indicators of previous failure.
4. Ponding of the drainfield or uneven distribution of effluent.
5. Downspouts, stormwater, or other sources of water directed toward the OSTDS.
6. Seasonal high water table at or above the elevation of the drainfield.
7. Any condition or situation existing on the site at the time of the inspection that, in the opinion of the inspector, would possible interfere with or restrict any future repair or modifications to the existing system.

Preliminary Categorization of Santa Rosa Inspection Reports

1. System in compliance
2. Sanitary nuisance (tank damaged, drainfield ponding, wastewater to ground, etc.)
3. Systems not in failure, but not in compliance with the existing rule (not meeting the seasonal high water table separation, drainfield or septic tanks were smaller than required, septic system components missing or damaged, etc.)
4. Incomplete system inspection either due to code requirement or site condition
5. System needs to connect to available sewer
6. System inspection not needed

Santa Rosa Point-of-Sale Inspection – Summary



Charlotte County Mandatory Septic Inspection

1. Charlotte County septic system ordinance includes a list of properties that require non-aerobic treatment unit mandatory inspection.
2. These properties are located in the Manchester Lock area. New OSTDS in Charlotte County within 150 feet of surface waters will be added onto the list.
3. Mandatory inspection requirement was adopted in Charlotte County's ordinances in 2007 and is still being implemented.
4. The inspection results are stored in the Carmody Data System.
5. Onsite Sewage Program staff are requesting the data.

Mandatory Septic Inspection in Area of Critical State Concern in the Green Swamp Area

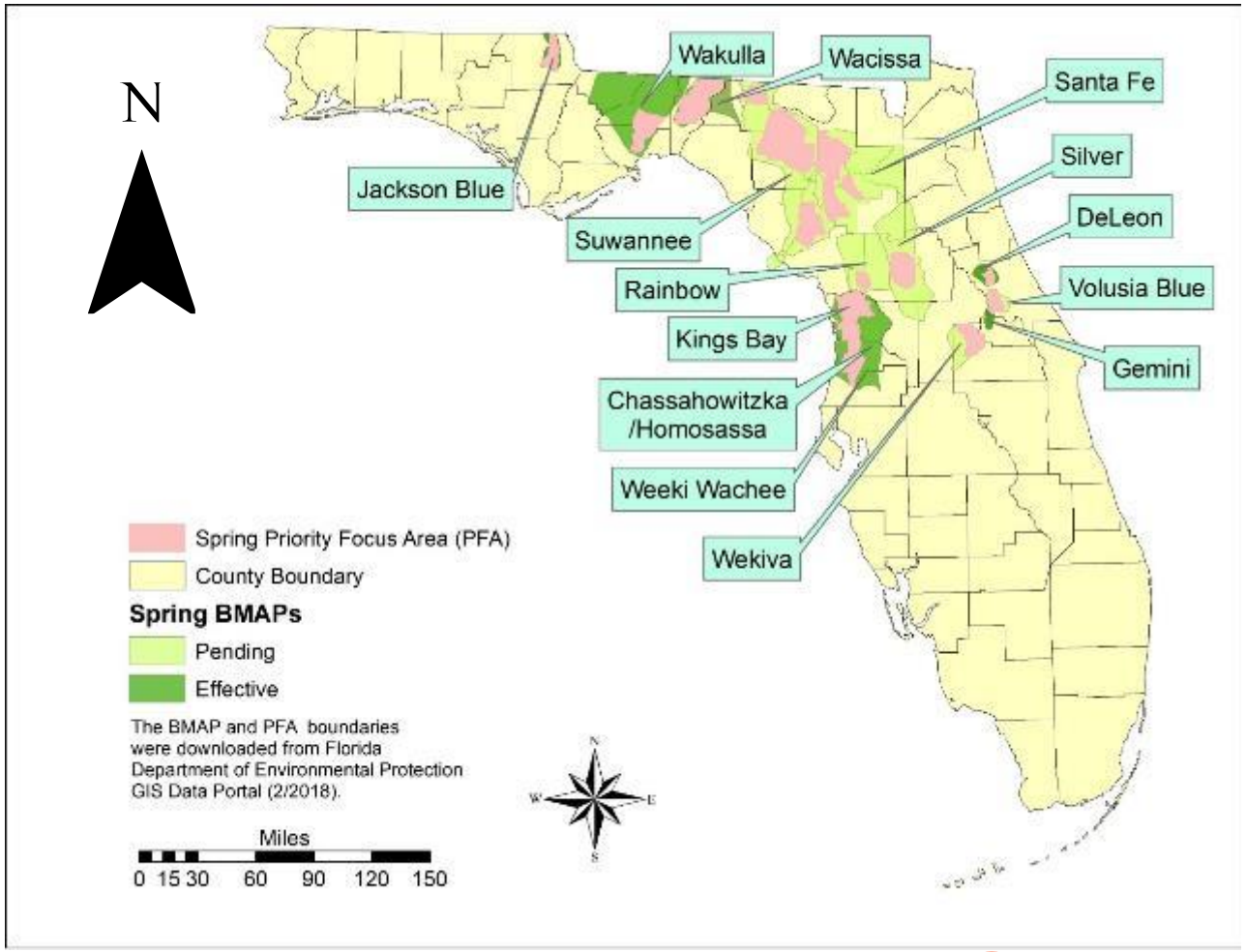
1. Mandatory inspection was incorporated into the Lake and Polk Counties' ordinances per the requirements of then Department of Community Affairs to protect the Green Swamp.
2. The onsite systems located in the Area of Critical State Concern of the Green Swamp area are required to be inspected and cleaned at least once every five years.
3. Both counties still implement the mandatory inspection.
4. Lake County stores some inspection results in an Excel spreadsheet. But inspection reports are in hard copies.
5. Onsite Sewage Program staff are requesting the data.

Inground Nitrogen-Reducing Biofilter (INRB) Monitoring Project

Goals of Monitoring Project

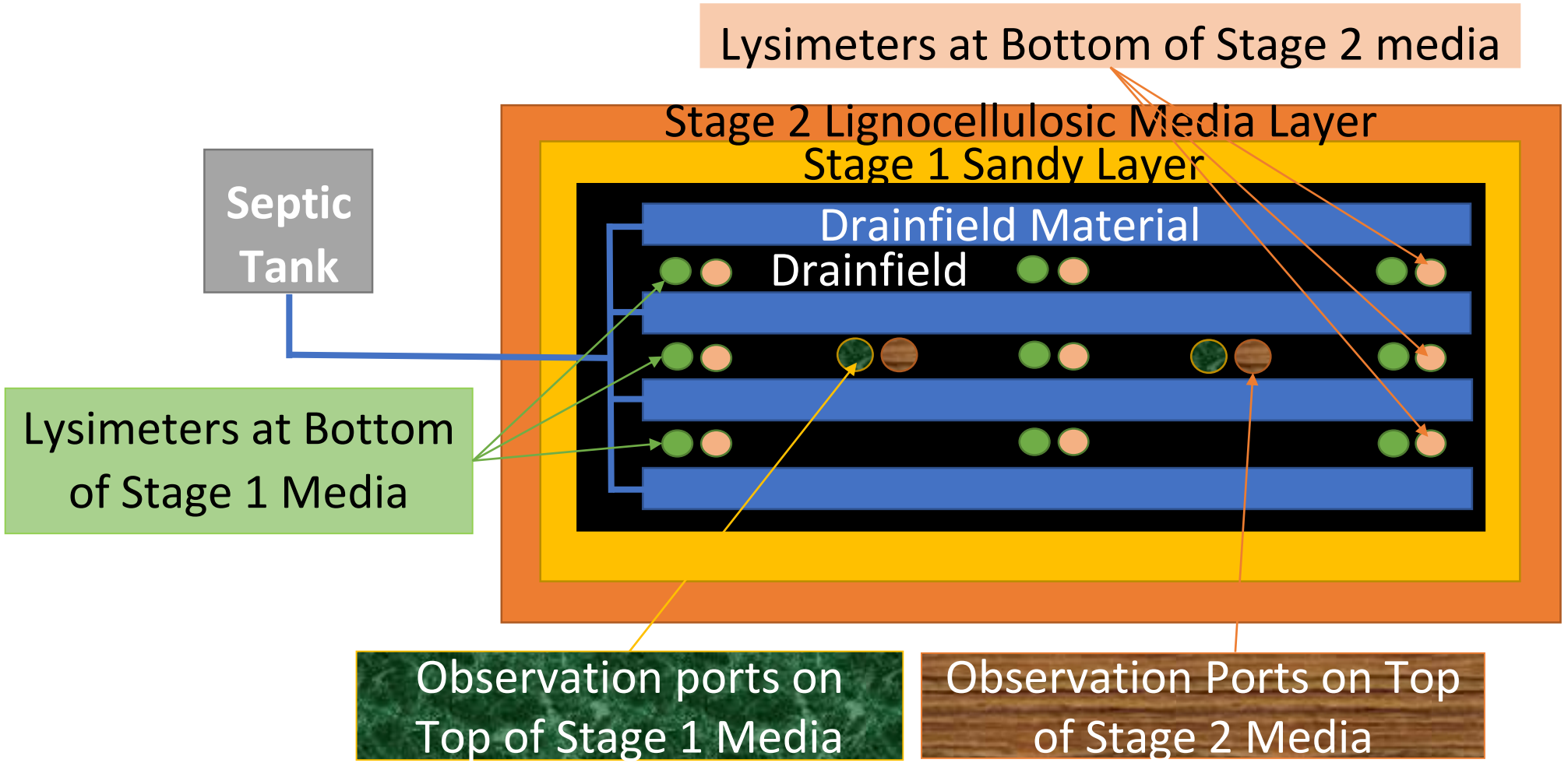
1. What is the INRB nitrogen-removal effectiveness in various installations?
2. Evaluate how reliably INRB can achieve the minimum 65% nitrogen-removal effectiveness goal.
3. Evaluate INRB's phosphorous-removal effectiveness.
4. Evaluate the factors that may influence the nutrient-removal effectiveness.
5. Document system installation and maintenance effort and costs.
6. Possibly evaluate rate of organic carbon decomposition.

Number of INRB Systems to Be Monitored



Select at least eight (8) systems across impaired Outstanding Florida Spring Basins.

Monitoring Equipment Deployment



Monitoring Locations

1. Septic tank effluent

2. Stage 1 media effluent (proximal, middle, and distal portions of the drainfield)

3. Stage 2 media effluent (proximal, middle, and distal portions of the drainfield)

Monitoring Chemical Parameters

1. Total Kjeldahl Nitrogen (TKN)
2. Ammonium
3. Nitrate/Nitrite
4. Total Nitrogen
5. Total Phosphorus
6. Total Organic Carbon
7. Alkalinity (low priority)
8. Chloride (optional)

Monitoring Field Parameters

1. Water Temperature
2. Dissolved Oxygen
3. Specific Conductivity
4. pH
5. Oxidation-Reduction Potential

System Survey

1. Elevation of Finished Grade
2. Elevation of Infiltration Surface/Top of Stage 1 Media
3. Elevation of Bottom of Stage 1 Media/Top of Stage 2 Media

Sampling Frequency and Duration

1. All systems will be sampled quarterly.

2. Each system will be sampled for six to eight consecutive quarters.

Project Cost Estimate

1. Expected Project duration: Four years from late 2019 to late 2024
2. Total project cost is about $300,000, covering:

    1) Monitoring equipment and installation
    2) Supply purchase
    3) Sample collection travel and staff time
    4) Laboratory analyses of collected samples
    5) Reports preparation

Apply for Funding Support

1. Previously applied for $180,000 319 grant support
2. Florida Department of Environmental Protection (DEP) suggested to fund the project using other funding sources. So far no final decision
3. Applied for $56,642 United States Environmental Protection Agency's (USEPA) Multipurpose Grant
   1) Application submitted on September 15, 2019.
   2) Decision to be made in November 2019
   3) If awarded, fund will be available at the end of 2019
   4) Cover two INRBs in North Florida
4. Contacted Southwest Florida Water Management District for cost-share funding support for systems in Spring Coast and Rainbow Spring basins

Proposed System Selection Criteria

1. Homeowners are willing to participate in the monitoring
2. At least two, preferably three, people with a house of reasonable size to provide a ratio of estimated sewage flow to occupants of not more than 150 gpd per occupant
3. Year-around residence, not seasonal
4. Site accessible for sampling (not fenced off)
5. Public water supply or private well with a water meter available. Lawn irrigation, swimming pool, and other water use unrelated to the processes generating household wastewater should not be covered by the water meter

Preparation Made for the First System

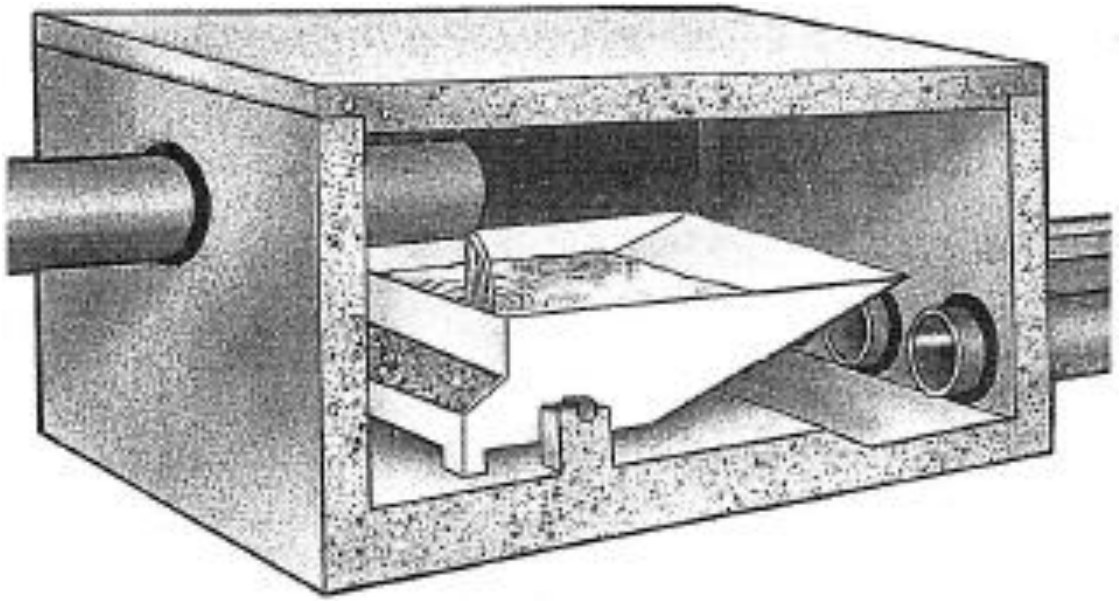
1. Communicated with a septic contractor in Leon and Wakulla County areas
2. Received recommended INRB systems from the contractors
3. Contacted homeowners for voluntary participants in the monitoring
4. Prepared a draft homeowner agreement, currently being reviewed
5. Established a purchase order for getting suction lysimeters. First 12 suction lysimeters ordered
6. Assembled several pan-lysimeters and conducted hydraulic tests
7. Investigating the feasibility of using Polylok Dipper Tray to measure flow

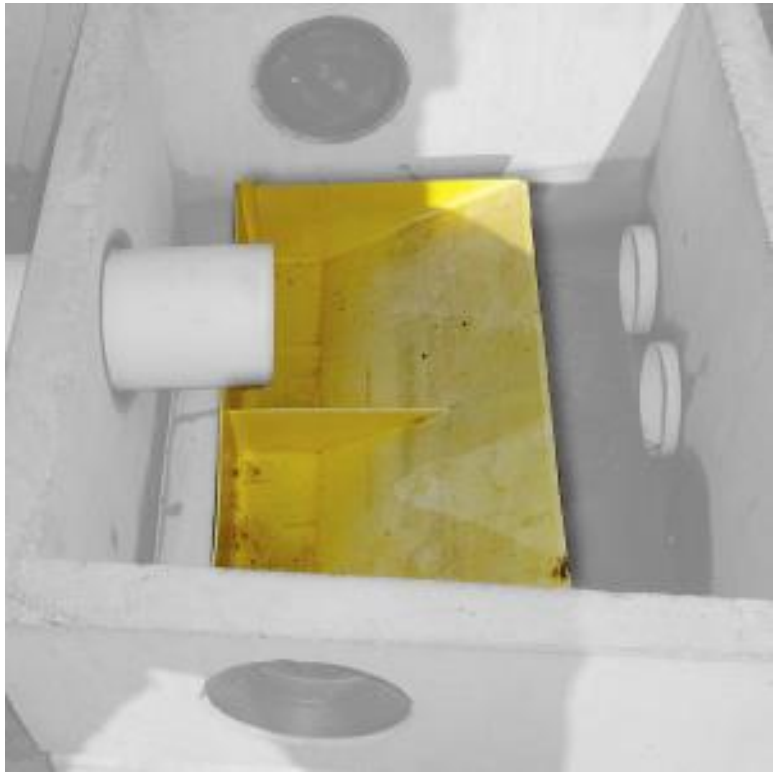
Sampling Equipment Preparation

Suction Lysimeters

Pan Lysimeter Prototype

Flow Measuring Equipment





Polylok Dipper Box

INRB System Installed in Wakulla County

Holes through lignocellulose media to show the media depth

Onsite Sewage Program

Leon County INRB Pilot Project

1. Leon County received $1.5 million from DEP.
2. The county planned to convert 75 conventional OSTDS in Wilkinson Woods subdivision in the Wakulla Spring Priority Focus Area to INRB systems.
3. Three to four INRB systems will be monitored for nitrogen-reducing effectiveness quarterly for one year.
4. DEP will conduct the monitoring and analyze the collected samples.
5. Construction of INRB systems will start at the beginning of 2020.

INRB System Installed in Poe Spring Park, Alachua County

An INRB System Installed in Poe Spring Park, Alachua County

Mixing wood chips and fine aggregate at 50:50 ratio.

Building the Collar of The Denitrification Media

Alachua County Environmental Protection Division Will Monitor the System

1. Alachua County Environmental Protection Division obtained $150,000 funding from the Suwannee River Water Management District.

2. Two systems will be constructed, one with gravity flow (shown in above pictures), other one with low-pressure dosing.

3. The gravity system was constructed in late July to early August 2019. The low-pressure dosing system will be built in December.

4. These systems will be monitored monthly for as long as the funding is available.

Contact Information

Florida Department of Health

Division of Disease Control & Health Protection

Bureau of Environmental Health

Onsite Sewage Programs

850-245-4250