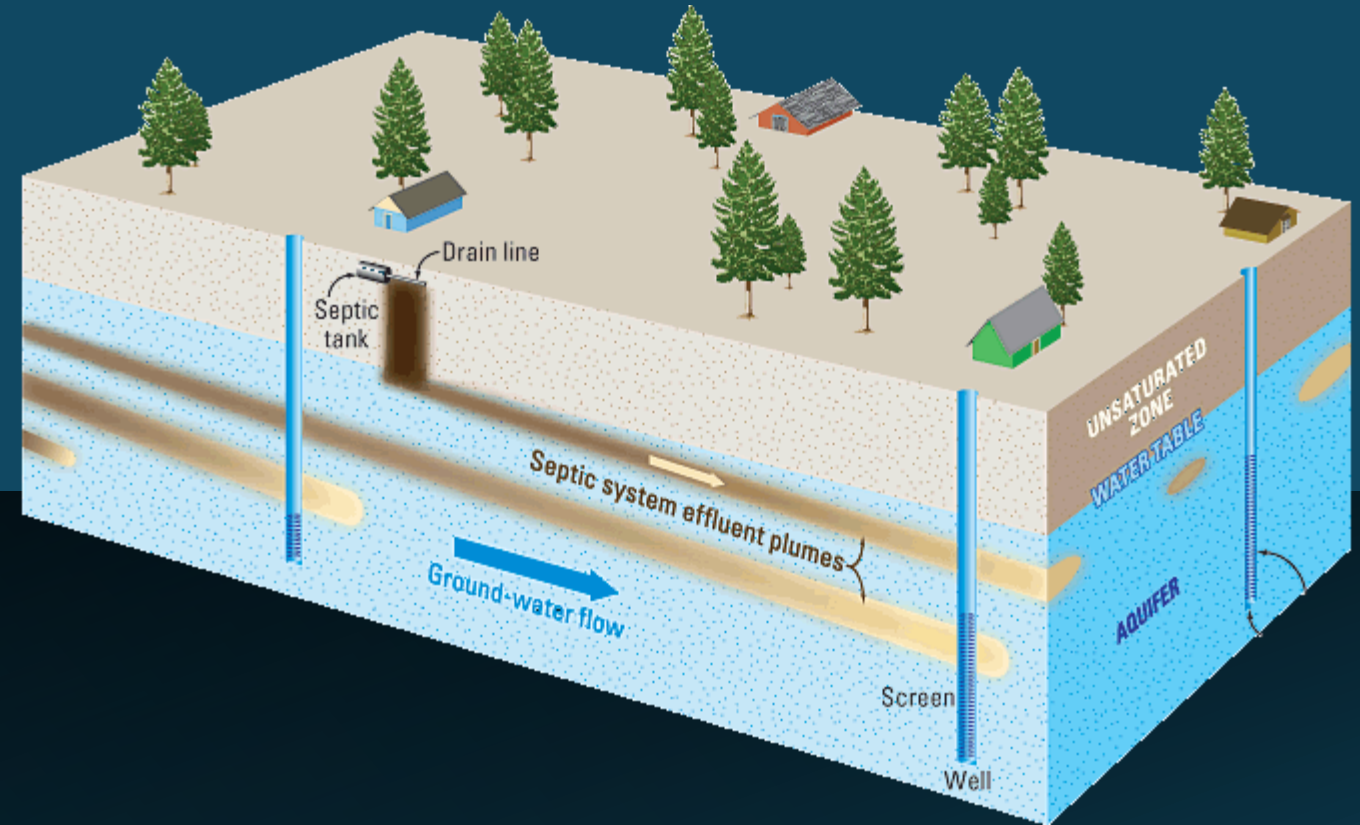


NJ PINELANDS COMMISSION ALTERNATE DESIGN SEPTIC SYSTEMS PILOT PROGRAM



PINELANDS COMMISSION MEETING
IMPLEMENTATION REPORT AND PROGRAM RECOMMENDATIONS
NOVEMBER 14, 2025

Presentation Overview

- Introduction to the Pilot Program
- Technologies in the Pilot Program
- Evaluation of the pilot technologies based on the 6 CMP Criteria
- Recommendations, Updates and next steps



Introduction to the Pilot Program

- The CMP controls the amount of nitrogen that enters the environment because nitrogen is a significant pollutant
- The CMP limits nitrate-nitrogen concentration in wastewater to 2 mg/L at the property line
- In 2000, the Ad Hoc Septic System Committee was formed to research alternate septic system technologies
- **Purpose of the Pilot Program**
 - To provide a means to test whether certain treatment technologies can be maintained and operated to meet the CMP's water quality standards in a manner that a homeowner can be reasonably expected to follow
 - The Pilot Program is for residential developments only

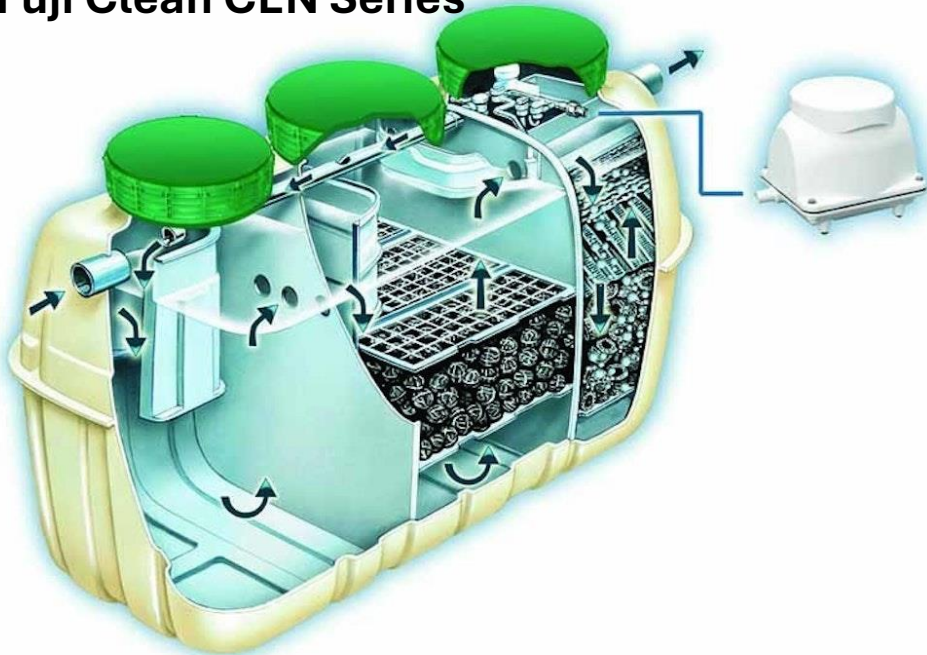


Previously Piloted Technologies

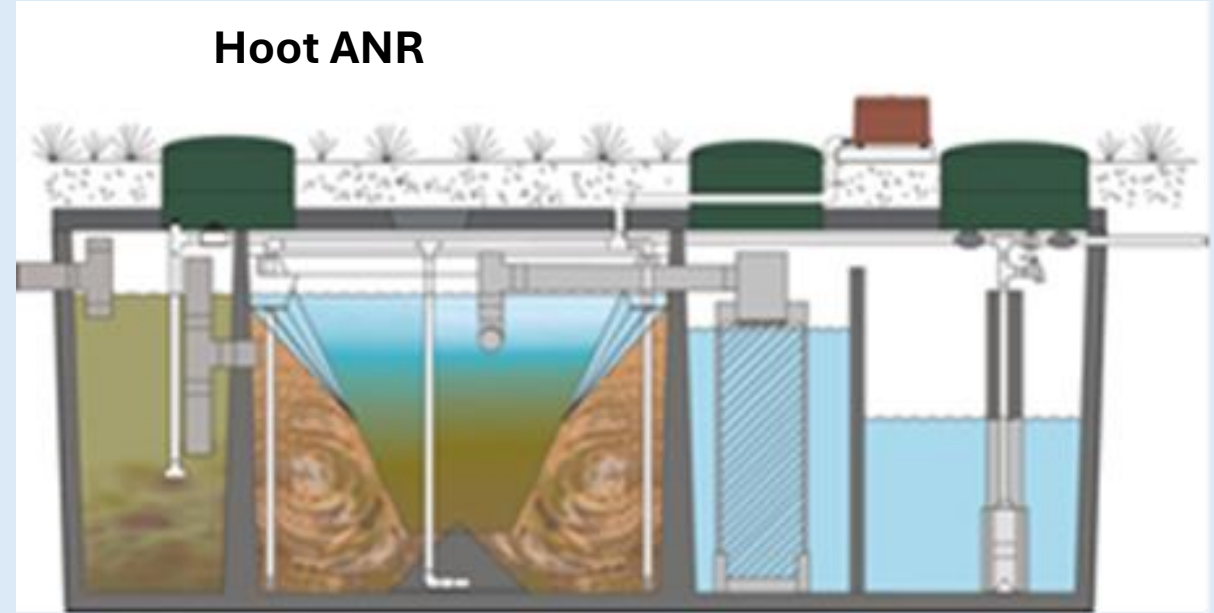
Technology	Minimum Acres	Status	Reason
Amphidrome	1.0	Graduated from Pilot Program	Meets Pinelands water quality standards
Bioclere	1.0	Graduated from Pilot Program	Meets Pinelands water quality standards
FAST	1.4	Graduated from Pilot Program	Meets Pinelands water quality standards
SeptiTech	1.0	Graduated from Pilot Program	Meets Pinelands water quality standards
Ashco A RFS III	3.2	Removed from Pilot Program	No units sold in the Pinelands
BioBarrier	2.2	Removed from Pilot Program	Failed to meet Pinelands water quality standards
Busse GT	3.2	Removed from Pilot Program	No units sold in the Pinelands
Cromaglass	3.2	Removed from Pilot Program	Failed to meet Pinelands water quality standards

Current Pilot Technologies

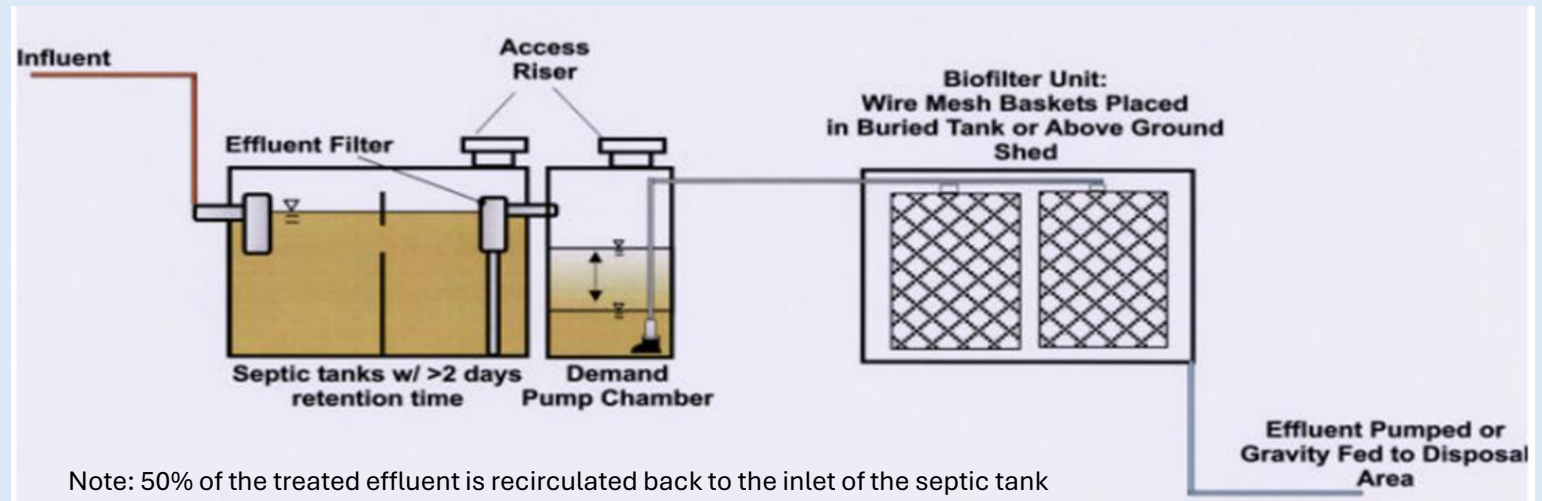
Fuji Clean CEN Series



Hoot ANR



Waterloo Biofilter

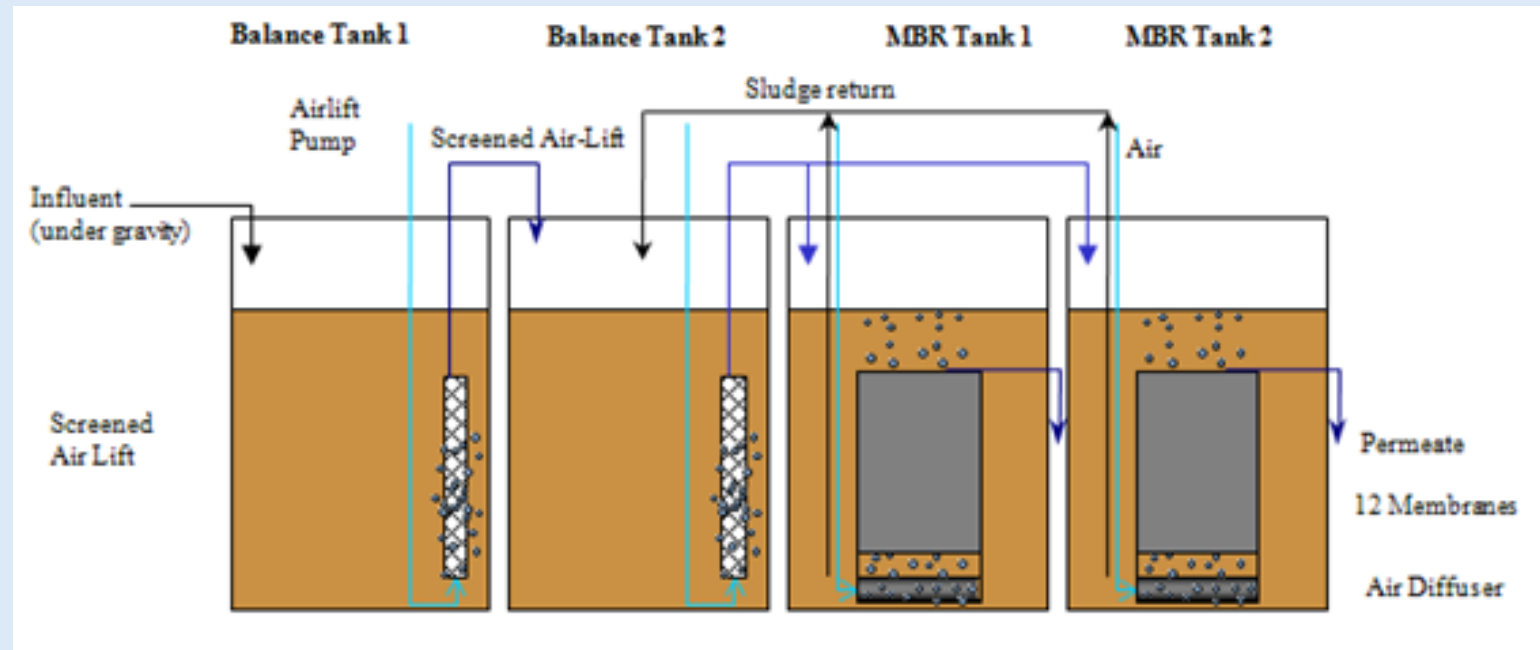


Current Pilot Technologies

Pugo Systems



Busse MF-B-400



CMP Evaluation Criteria

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1. The level of nitrogen in the effluent from each pilot treatment technology
 2. The maintenance required for each technology to meet the effluent requirements
 3. The cost of installing and maintaining each treatment technology
 4. The problems associated with the installation, operation and maintenance of each treatment technology
 5. The number of systems of each technology that have been authorized under the Pilot Program
 6. Whether the Pilot Program, when viewed in its entirety, has served to further the purposes and objectives of the Pinelands Protection Act, the Federal Act and the CMP

CMP Evaluation Criteria 1: The level of Nitrogen in the Effluent for each Pilot Program Technology

Technology	Minimum Acres	Total Nitrogen (TN) Median	No. of Samples	No. of Systems
Hoot ANR	1.0	8.9 mg/L	34	3
Fuji Clean CEN Series	1.0	10.8 mg/L	34	7
Pugo Systems	1.26	Not tested	0	0
Busse MF-B-400	1.0	Not tested	0	0
Waterloo Biofilter	1.0	Not tested	0	0

- Note: effluent TN target for 1-acre parcels is 14 mg/L per the Septic Dilution Model, to achieve the 2 mg/L nitrogen standard required by the CMP
- The TN limit for 1.26 acres is 17 mg/L for the same reason as above
- Hoot ANR has 2 systems that have completed the required 3-year quarterly sampling protocol

CMP Evaluation Criteria 2:

Maintenance Required for Each Pilot Program Technology to Meet Required Nitrogen Targets

- Hoot ANR
 - Chlorine residual of at least 1 mg/L is required
 - Intermittent use is not recommended
 - Pump outs needed every 2-4 years
- Fuji Clean
 - Sludge to be removed every 2 years
 - Can accommodate variable and intermittent use



CMP Evaluation Criteria 3: The Cost of Installing and Maintaining Each Pilot Program Technology

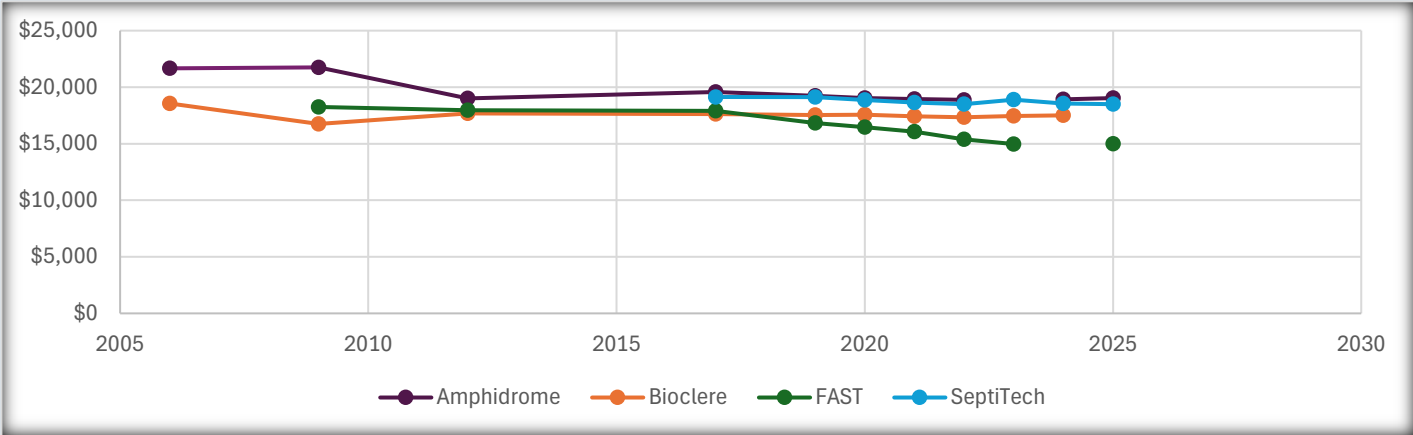


Figure 1: Average system cost of graduated technologies

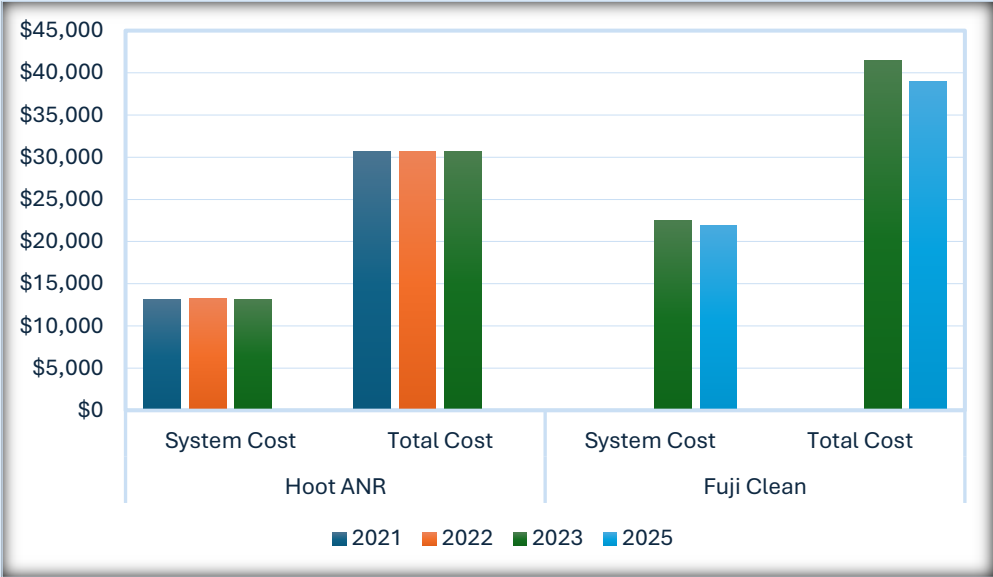


Figure 2: Average system cost of pilot technologies

CMP Evaluation Criteria 4: The Problems With Installation, Operation and Maintenance, and Measures Taken to Resolve Them

Hoot ANR

- Critical component missing for one system which affected the development of necessary microbes
- Issue with the field dosing and recirculation valves at one site

Fuji Clean

- No installation issues or alarm events
- 1 operation/maintenance issue: excessive paint was discovered
 - Most likely because of homeowner and not the system itself

CMP Evaluation Criteria 5: The Number of Systems of Each Technology That Have Been Authorized Under the Pilot Program

Total number of installations for each Technology currently in the Pilot Program

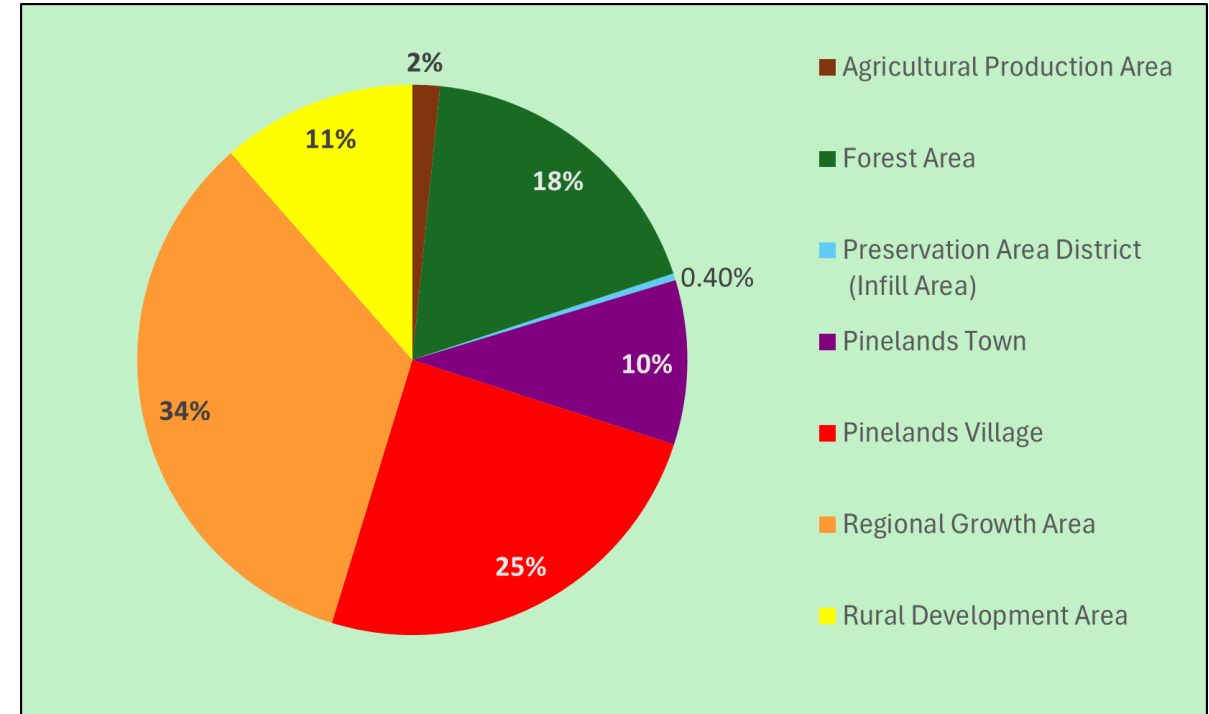
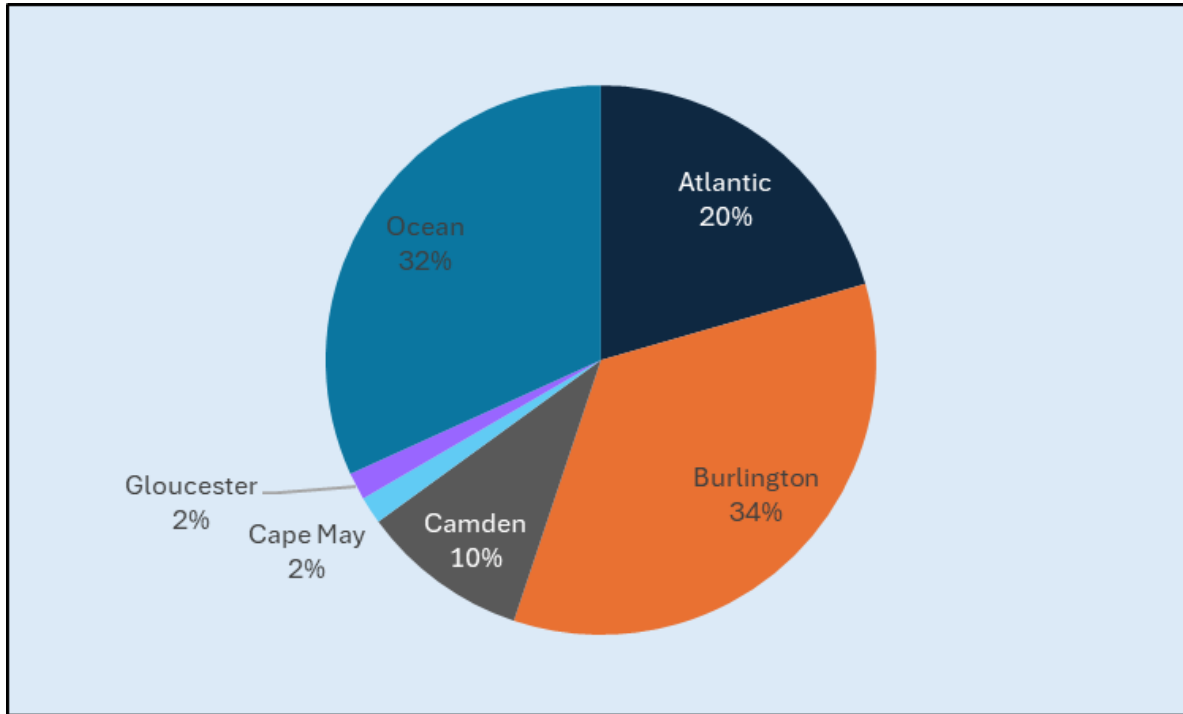
Technology	No. of Installations	Program Status
Busse MF-B-400	0	Pilot Phase
Fuji Clean CEN Series	13	Pilot Phase
Hoot ANR	4	Pilot Phase
Pugo Systems	0	Pilot Phase
Waterloo Biofilter	0	Pilot Phase
Total	17	

CMP Evaluation Criteria 5: The Number of Systems of Each Technology That Have Been Authorized Under the Pilot Program

Total number of installations of Previously Piloted Technologies

Technology	No. of Installations	Program Status
Amphidrome	126	Graduated from Pilot Program
Ashco A RFS III	0	<i>Removed</i> from Pilot Program
BioBarrier	13	<i>Removed</i> from Pilot Program
Bioclere	89	Graduated from Pilot Program
Cromaglass	59	<i>Removed</i> from Pilot Program
FAST	45	Graduated from Pilot Program
SeptiTech	148	Graduated from Pilot Program
Total	480	
Total No. of Installations (pilot phase and all other technologies)	497	

Total Installations Per County and Pinelands Management Area



CMP Evaluation Criteria 6: Whether the Pilot Program, When Viewed in its Entirety, Has Served to Further the Purposes and Objectives of the Pinelands Protection Act, the Federal Act and the CMP.



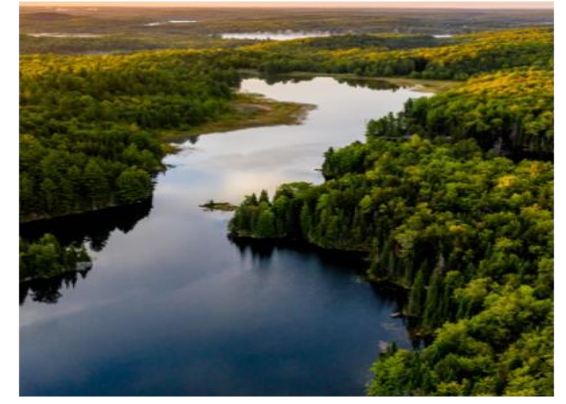
The graduated technologies have demonstrated their efficiency in removing total nitrogen



Residential development at appropriate and permitted densities



Unsewered areas zoned for lots smaller than 3.2 acres are able to meet the CMP's water quality standards



Protection of water resources and the ecology of the Pinelands, thereby fulfilling the purposes of the CMP, Federal Act and Pinelands Protection Act

Pilot Program Implementation Report

Recommendations

- Recommend both Hoot ANR and Fuji Clean remain in the Pilot Program
 - Currently meeting the Pinelands water quality standards with minimal operation/installation issues
- Recommend Pugo Systems, Waterloo Biofilter, and Busse MF-B-400 to stay in the Pilot Program
 - Competition from other successful technologies
 - Length of time needed to secure approvals
 - No other technologies identified to replace these in the Pilot Program at this time

Important Updates

- NJDEP rule amendment that permits pretreatment technologies with certification from other ANSI-accredited organizations, not just NSI
 - Increase options in alternate septic systems and potentially reduce costs

Next Steps

- Continuation of the evaluation of pilot technologies
- Next implementation report Nov 5, 2027
- If there's no sufficient data, then recommendation of CMP amendments for extension
 - Recommendations by Nov 5, 2027
- Rule proposal shortly after

Questions?

