



# *Pinelands Alternate Design Wastewater Treatment System Pilot Program*

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**New Jersey Pinelands Commission**  
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## **Background:**

On August 5, 2002, new rules took effect that amended the Pinelands Comprehensive Management Plan to establish a Pilot Program for Alternative Design Wastewater Treatment Systems. The new rules significantly reduce groundwater pollution from residential septic systems.

The Pilot Program is the culmination of a two-year effort which involved the formation of an Ad Hoc Committee on Alternative Septic Systems comprised of representatives from the Commission, the Pinelands Municipal Council, the New Jersey Builders Association and the Pinelands Preservation Alliance. The Ad Hoc Committee undertook extensive research to identify emerging onsite treatment technologies with the ability to remove nitrate-nitrogen from domestic wastewater prior to its release to groundwater aquifers. The Committee was assisted in these efforts by Commission staff, the New Jersey Department of Environmental Protection, Professional consultants and other state and national experts in the field of advanced onsite wastewater treatment technologies.

Under the new program, residential development on lots smaller than 3.2 acres in size may no longer use pressure dosing septic systems as a means of nitrate attenuation. Pressure dosing has been shown to be ineffective at removing nitrate-nitrogen from wastewater and an inability to meet the two-milligrams-per-liter nitrogen requirement of the Pinelands Comprehensive Management Plan for lots less than 3.2 acres in size. The new rules will result in residential septic systems that are two- to three-times more effective than conventional and pressure-dosing systems in reducing nitrate pollution.

After extensive evaluation, five advanced treatment technologies were selected for participation in the Pilot Program based upon their demonstrated effectiveness at removing nitrates from domestic wastewater. The Commission has approved amendments to the Pilot Program to eliminate one of the technologies due to the lack of participation by one vendor. The Commission will require the use of these technologies for all new residences on lots smaller than 3.2 acres to provide enhanced nitrate-nitrogen removal prior to discharge of treated wastewater to the high quality aquifers which underlie the Pinelands. The Commission is closely monitoring the systems during the five-year pilot program to confirm satisfactory system performance. Currently, one technology, the Cromaglass system is under a temporary suspension pending modification to address treatment levels.

The technologies utilize innovative microbiological treatment processes to remove nitrates from wastewater without the addition of chemical additives. Removal of nitrate nitrogen is important, particularly in the Pinelands, for several reasons. Excess nitrates in shallow aquifers used for drinking water pose a public health concern and are responsible for causing methemoglobinemia or "Blue-Baby Disease."

Ecologically, nitrate-nitrogen contributes to eutrophication of surface water bodies resulting in poor water clarity, algal blooms and low dissolved oxygen levels. The invasion of non-native plant species in Pinelands aquatic and wetland habitats may also result from excess nitrate discharges to the Pinelands environment.

Key Aspects & Requirements of the Program:

- As with all septic systems, the engineering plans for these systems will need to be prepared (signed & sealed) by a NJ licensed professional engineer (NJPE). The plans will then need to be certified by the technology vendor's in-house engineer(s) as being consistent with the manufacturers specifications for achieving the degree of nitrate nitrogen attenuation required under the Pinelands nitrate dilution model;
- Both the NJPE and the technology vendor's engineer will need to conduct a final construction inspection and certify that as-built conditions are in conformance with the approved design. As-built plans will be required.
- The systems will be covered under a five year warranty to assure homeowners that equipment failures will be covered during the warranty period without additional cost to the homeowner;
- The systems will be covered under a renewable, non-cancelable operation and maintenance contract which requires the service provider (vendors indicate these will be licensed wastewater treatment system operators) to periodically visit the site to monitor system operation, make necessary process adjustments, and pump solids as required;
- The effluent from the systems will be sampled on a quarterly basis for a minimum of three years and analyzed by a NJ certified laboratory for nitrogen parameters. The results of the effluent monitoring will be provided to the Pinelands Commission which will maintain a database on each of the systems. In the event that a technology is determined to consistently fail to meet nitrate nitrogen removal expectations, the technology would no longer be considered for new installations;
- The Pinelands Commission will conduct homeowner, engineer, installer, and registered environmental health specialist outreach and training efforts to facilitate proper use, design, installation and maintenance of the systems;
- No more than ten of the same manufacturer's alternate design wastewater treatment system may be installed in the same subdivided development, except by special approval of the Executive Director; and
- The property owner upon which an alternate design wastewater treatment system is installed needs to record with the deed to the property a notice that identifies the technology, acknowledges the owner's responsibility to operate and maintain it, and grants access to the property for the purpose of system monitoring.

For more information on the Alternate Wastewater Treatment Technology Pilot program, visit the Pinelands Commission website at [www.nj.gov/pinelands/](http://www.nj.gov/pinelands/).