Progress Report of the NEW YORK STATE LEGISLATIVE COMMISSION ON WATER RESOURCE NEEDS OF LONG ISLAND

1991

Caesar Trunzo
Senate Co-Chairman

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ON-SITE SEPTIC SYSTEMS

On June 22 and 23, 1989, the Commission held public hearings regarding the effectiveness of on-site sewage disposal systems. We were seeking to ascertain what data exists to measure the environmental impact these systems may have on our ground and surface waters. The following outline lists our concerns and includes relevant facts and comments gathered by the Commission from many local, state and national organizations.

The 1980 census estimated that there were about 22 million septic systems operating in the U.S., serving nearly one-third of the nation's population. Together, they discharge about 1 trillion gallons of wastewater to our soils and groundwater every year; a sobering thought considering that over 50% of all drinking water used in the U.S. is groundwater. In a report issued by the Environmental Protection Agency (EPA) in July of 1986 entitled, Septic Systems and Groundwater Protection, it was noted that groundwater contamination by septic systems has been responsible for disease outbreaks and chemical contamination of drinking water throughout the country. They also estimated that approximately one-half million new septic systems are installed in the U.S. each year. The current census survey will likely reflect a significant increase in the number of septic systems.

I. Environmental Concerns

A. Biological Concerns

1. Bacteria - The Long Island Groundwater Pollution Study, 1972, found that although passing domestic sewage through several feet of sand greatly reduced the coliform bacteria concentration, "densities exceeding the allowable bacteria concentration for potable water still existed at the final observation well group 80 feet downstream from the disposal system." The report also stated, "The presence of coliform bacteria in the upgradient waste slug leads to the conclusion that coliform organisms persist for significant periods and travel distances under groundwater conditions."

2. Viruses- The Long Island Comprhensive Waste Management Plan (208 Study) of 1978 and subsequent studies conducted at Brookhaven National Laboratory (BNL) have shown that viruses can persist for long periods of time and migrate great distances. For example, a 1982 study at BNL stated that viruses were found in all 11 test wells monitored, up to 200 feet away from the septic systems, and 40 feet into groundwater. This study found

that the concentration of viruses decreased as the distance from the septic system increased, but the study did not determine at what distance viruses stopped traveling. In fact, a small amount of viruses were detected in BNL's own water supply well located 220 feet from their sewage treatment plant and 60 feet into the groundwater.

It should be noted that no study has been undertaken to determine whether or not viral contamination of private wells is responsible for human illnesses on Long Island.

B. Chemical Contamination Concerns

1. Inorganic Compounds - Ammonia, phosphorus and nitrogen are the primary chemicals of concern.

   a) Ammonia, a toxic compound found in urine, is the primary source of nitrogen. In the septic tank, aerobic bacteria convert the ammonia to nitrite, then nitrate. As the nitrate passes through the unsaturated zone, some of the nitrate is converted by bio-chemical oxidation back to free ammonia for several feet, then remains unchanged as it continues to travel beyond the cesspool. Nitrate levels are generally found to increase as effluent travels through the unsaturated zone.

   b) Phosphates, derived from detergents and dishwashing compounds, have become less of a problem over the years as the formulation of the active ingredient has changed to biodegradable forms. Phosphorous is a nutrient of concern primarily in freshwater systems and should be considered when disposal systems are being proposed adjacent to lakes, ponds, or streams.

   c) Nitrogen is historically the compound of main concern in sewage. Anaerobic bacteria within a septic tank convert the nitrogen to free nitrogen. Since the level of nitrate is dependant upon the oxidation of free ammonia, and oxygen is not present in large quantities in a septic system, much of this material probably remains unchanged as it travels into the nearby ground and surface waters. This is probable especially when you consider the fact that biological activity decreases significantly in the deeper, sandy soils of Long Island. One illustration to prove this hypothesis was made in a study conducted by the Marine Sciences Research Center at the State University at Stony Brook. Samples of sub-surface groundwater were collected from under the Great South Bay and found to contain very high nitrogen levels, higher than the bay waters above. This sub-surface flow was rich in nitrogen from the leaching of nearby septic systems and fertilization.

2. Organic Compounds- Although it is well known how readily certain synthetic organic compounds can migrate through soils and groundwater, little research has been done to identify how organics interact with various soil types, chemicals in the soil, bacteria, and groundwater. As a result, regulations (aside from a few cases of notoriety, ie. Suffolk County ban on Drainz) virtually ignore the threat of organic compounds released through septic systems.

C. Physical Concerns

1. Many septic tanks and cesspool rings are placed in areas of high groundwater elevations. Current local regulations only require that the bottom of the leaching ring be 2 feet above the groundwater table, determined when a test hole is drilled. There is no requirement that they be located above the highest recorded groundwater levels. As a result, many areas of the Island such as Lake Ronkonkoma, experience cesspool failures whenever groundwater levels rise. This was the case last year when Long Island experienced record high amounts of rainfall.

2. Another major concern is the proximity of leaching rings to surface or coastal waters. Setback requirements do not account for spring or neap tides or storm surges. These systems often fail during such common events. Current regulations do not consider such events.

Summary of Environmental Concerns:

1. The required distance of the leaching rings above groundwater provides very little protection to the groundwater from nitrogen concentrations, and probably little or no protection from viruses and organic compounds.

2. The required setback of the leaching pool to surface waters is not based on scientific studies. Once released from the cesspools, very little nitrogen reduction can take place, thus current setbacks provide little protection to our bay waters.

We need to evaluate the extent of water contamination posed by on-site systems and review the various alternatives available to minimize further degradation. Since on-site systems are the only economically viable option in many rural areas, special efforts need to be made to ensure that they provide the maximum protection possible.

II. Current Issues

A. Septic Problems

EPA estimates that up to one-half of the current systems may not work. In a report prepared by the Illinois Department of Natural Resources in 1989 entitled, Septic Systems and Groundwater Contamination, it was found that problems with septic systems are widespread. The most common problem cited was the failure of the system, reported by 87.5% of the counties surveyed in that state. Failures led to other more severe problems, including contamination of ground and surface waters.

The most common reason for failure was poor soil conditions. Some were too tightly packed, causing backups; others were highly permeable soils resulting in contamination of surrounding waters. Age of the system was cited as the second most common reason for failure. Although most systems should last 15-20 years, many were failing long before their lifetime expectancy due to a lack of maintenance. Illinois recommends having the septic tank pumped every 3-5 years to prevent sludge from building up. On Long Island, no comprehensive program exists which educates the public regarding proper septic tank maintenance.

Improper design, and placement of disposal systems in areas of high water table elevations, wet soils or floodplains were also identified as major reasons for failures. Although no scientific study of on-site systems has been conducted in either Nassau or Suffolk County, it is apparent that the same causes for systems failing in Illinois are also responsible for failure on Long Island.

According to the Liquid Waste Haulers Association, a trade group representing the individual truckers who pump cesspools, approximately 750,000 gallons of septage is collected each day in Suffolk County. The following locations have the capacity to collect the following amounts of septic waste.

Table 1

Location	Gallons/day
Bergen Point	500,000
Huntington	100,000
Riverhead	35,000
E. Hampton	21,000

1. Bergen Point

A close analysis of the largest sludge disposal system facility, Bergen Point, reveals the following information:

The average volume of sludge received per day in 1989 was 372,000 gallons. On 22 separate days, however, more than 450,000 gallons were collected. Several times during the summer, in fact, the plant's capacity was reached early in the day, resulting in the closing of the facility to other dumpers by noon.

The following table indicates the volume of scavenger waste collected over the past several years.

1987 = 122 million gallons

1988 = 118 million gallons

1989 = 154 million gallons

Of the 500,000 gallon capacity, more than half is set aside for contractual agreements. These include:

a) Landfill leachate from Islip & Brookhaven Towns	80-100,000/day
b) Sludge from Suffolk County's own STPs	80-90,000/day
c) Village of Kings Park Village septage	15,000/day
d) Southampton Town Landfill leachate	21,000/day
e) Special industries, ie. Estee Lauder	40-50,000/day

These commitments leave less than 200,000 gallon capacity available for the private hauler to dispose of septage.

2. Geographical Problem Areas

No accurate data exists to determine where private septage is collected from by location. Throughout the Island, however, there appears to be certain areas that are serviced on a regular or more frequent basis. According to the Waste Haulers Assocation, areas that are considered chronic problems include the Island's shoreline, Lake Ronkonkoma, the Jericho Turnpike area of Smithtown and many parts of Wyandanch. The age of these systems, overuse and high groundwater levels are probably the main factors contributing to these failures. Surveys should be taken to first obtain an accurate description of these problem areas, followed by a determination of their causes in order to prevent future problems from occurring.

3. Impact of Weather

Based on the experiences of the Waste Haulers, increased rainfall, especially last summer (1989), results in more complaints regarding cesspool failures and thus, more pumping occurs. This probably explains the reason for the dramatic increase in septage collected by Bergen Point in 1989.

B. Aerobic vs. Anaerobic Bacteria

Until recently, little work had been done analyzing the microbiological community in septic systems and trying to determine what affects it and how it affects the treatment or decomposition. We need to know whether anaerobic bacteria, the primary biological organism responsible for breaking down the human waste materials in septic tanks, are as effective as aerobic bacteria. Recent findings made by Professor William Rathje at the University of Arizona with respect to landfills raise some interesting issues. While it has been known that anaerobic bacteria are the major biological organisms in landfills, his work in excavating landfills has found that many organic wastes buried for decades have undergone virtually no decomposition. He even discovered completely different degrees of degradation of similar materials located next to each other in a landfill. The initial conclusion we can reach, based on a simple knowledge of microbiology, is that subtle changes in the surrounding environment (i.e. pH, moisture, chemicals) has a significant impact on the anaerobic bacteria, affecting their ability to break down substances. Considering the wide range of household chemicals homeowners discard down their drains, it may be likely that septic systems are often "malfunctioning" with respect to the biological processes that should be occurring.

Some generalities we do know:

1. Effluent from aerobic systems is of a higher quality.
2. Aerobic effluent is less likely to clog soils.
3. Aerobic bacteria may rehabilitate a failing system by oxidizing organic matter (without chemicals).
4. Aerobic bacteria can extend the life of a leaching field.

C. State vs. Local Health Department Regulations

When sanitary codes were first written, their primary purpose, if not only purpose, was to protect the public health, not the environment. On Long Island, due to the abundance of sandy soils, it was easier to dispose of septage by placing it in a deep hole. The philosophy of, "out of sight-out of mind", predominated for many years and only now some people are questioning the impact this disposal method may be having on the environment.

The New York State Sanitary Code allows local health codes to be more restrictive. Therefore, on Long Island, Nassau and Suffolk Counties are the sole authority for approving on-site septic

systems. Only one (1) system, however, is commonly approved, regardless of environmental conditions or constraints, specifically, the septic tank-cesspool. Chapter 760 of the Suffolk Sanitary Code requires the construction of a sewage treatment plant when subsoil or groundwater conditions are not conducive to the proper functioning of individual sewerage systems. No mention is made regarding the potential adverse impact to the environment. However, STP's have not been built in areas where chronic problems exist.

Test holes are required for soil data, but they can be placed up to six feet into groundwater. No percolation tests are required, although they are under the State Sanitary Code.

The Suffolk County Code also states that, "In areas subject to tidal action, groundwater elevation shall be measured at mean high tide." Spring tides, storm surges, or the highest recorded tides are not taken into consideration in these regulations. The regulations further state, "if groundwater elevation is less than six feet, a grading plan is required." This seems to indicate that the intent of the regulations is to allow construction, rather than prohibiting it.

Leaching pools must only be 100 feet from surface waters. In a study conducted by Waler at Cornell University, it was found that samples exceeded the 10 mg/l nitrate standard 100 feet from cesspools in well drained soils similar to what we have on Long Island. In a study performed by Childs, nitrogen was found 300 feet from its source. Additional studies in Portland, Oregon indicated that a population density of 5 people/acre gave an average nitrogen concentration in the shallow aquifer of 8 mg/l, with some wells exceeding 10 mg/l.

One other interesting fact uncovered relates to the differences in the state and local sanitary codes with respect to the retention time of waste materials. State regulations note that if the percolation of sewage effluent is greater than one inch per minute, a material to retard this movement must be placed in the leaching fields to allow bacteria more time to break down the sewage. County regulations require that if the sewage does not readily pass through the soils, whatever material is preventing this movement (usually clay) must be removed and backfilled with course grained sands, thus allowing for virtually no contact time between the sewage and any bacteria that may be found at the bottom of the cesspool.

The following excerpts from testimony presented to the Commission by the New York State Department of Health are also quite relevant to this discussion.

In response to the Commission's question, "Are any on-site disposal systems banned in New York,?" we were told, "The septic tank-absorption trench is the conventional system of choice statewide,

and is considered an "alternative" system only on Long Island. "It is the State Health Departments's position that the absorption trench system provides better treatment than leaching pools. Shallow trench systems allow better nitrogen utilization by surface vegetation."

When we asked, "Do septic tanks with tile fields offer more nitrogen removal than conventional cesspools?," they answered, "Yes. The State Health Department considers the absorption trench system to be the conventional system and this system provides far better overall treatment than leaching pools." They further indicated that there were no health reasons why trenching systems or tile fields could not be used in coastal areas on Long Island or where groundwater elevations are high. "It is our position that it is better to use trench systems in these situations because they will provide greater vertical separation to groundwater and allow more complete treatment."

III. Alternative Septic Systems

A. There are over 21 variations of on-site systems that are currently in use in the United States. Additionally, recent advances in septic system technology has provided us with additional alternatives for those situations where conventional systems are inappropriate. These include the Mound Fill System, Buried and Recirculating Sand Filter, Evapotranspiration Systems and Pressure Distribution Systems.

B. Waterless or composting toilets are another alternative that have too often been ignored by conventional programs. These systems have a long history of success, and are sometimes the only alternative for handling domestic wastes. The New York State Department of Environmental Conservation has been successfully utilizing and monitoring several of these systems for the past 5 years at remote wooded sites. Several units were installed on Prospect Mountain and have successfully disposed of wastes from 90,000 visitors annually. Additionally, since the location is remote, it is run entirely by photovoltaic cells. New York City has also installed units in one of its parks.

C. Research and Data Needs

There is a critical need for more research and information regarding the functioning of on-site systems and their impact on the environment. A timely evaluation is being hindered by a lack of available data. We need to avoid, however, "paraylysis by analysis". Information is already available to begin to make certain changes in regulatory programs and increase public education. For example, the Department of Environmental Conservation has already produced an excellent handbook on composting toilets. This document should be made available to all counties throughout the state.

A partial listing of the type of information that should be available follows:

1. Areas experiencing problems need to be identified accurately and a determination must be made as to why septic systems are failing.

2. The impact of rain and tides in high groundwater table areas needs to be assessed.

3. Studies need to be performed to determine how much wastewater is black vs. gray.

4. What, if any, are the health impacts of gray water?

5. How do conventional septic systems compare to alternative systems in reducing:
   a) Viruses
   b) Nitrogen
   c) Organics

6. Localities need to prepare a Generic Environmental Impact Statement (GEIS) to attempt to measure the cumulative impact of both existing and proposed on-site systems.

IV. Conclusion and Recommendations

A. There is a need for better regulatory programs. Zoning, which has been the most recent approach used to address this issue, cannot adequately protect the environment. Zoning is a kind of "blanket" land use control that does not address the most common causes of poor septic system performances, including:

1. Poorly designed systems.

2. Systems installed in inappropriate locations.

3. Neglectful or improper maintenance procedures.

B. Comprehensive Approach

What is needed to address this complex problem is a multi-faceted approach rather than a one dimensional, structural approach. Such a program should include the following items:

1. Maintain low density, or acquire lands that are sensitive to the rapid movement of nutrients and contaminants.

2. Make regulations more comprehensive to accommodate the wide range of conditions under which septic systems are installed.

3. Encourage the use of alternative systems and restrict the use of conventional systems where inappropriate.

4. Individual septic system designs and installations need to be based on "site-specific information", not general guidelines.

5. Septic system management cannot rely exclusively on regulations, especially if the problems arise out of a lack of proper operation, maintenance, or simple neglect. Sanitary codes do little to change behavior, therefore, we need an active education program. For example:

   a) Information needs to be given to residents when a home is purchased.

   b) Maintenance information should be inserted into a homeowner's yearly tax bill.

   c) In areas with high groundwater, an informational notice should be required on all surveys and deeds that warn the prospective buyer that septic systems may not work in these areas.

6. Promote water conservation to improve septic system performance.

Bibliography

1. Childs, K.E., Sampling of Various Waste Migration Patterns in Groundwater, Groundwater, 1974.

2. Cogger, C., Onsite Septic System - Assessing the Risk of Groundwater Contamination, Journal of American Health, Sept 1988.

3. Illinois Department of Natural Resources, Septic System Density and Groundwater Contamination in Illinois, 1989.

4. New York State Department of Environmental Conservation, The Long Island Groundwater Pollution Study, 1972.

5. New York State Department of Environmental Conservation, State-of-the-Art Assessment of Compost Toilets and Grey Water Treatment Systems, 1981.

6. USEPA ,Septic System and Groundwater Protection - An Executives Guide, 1986.

7. U.S. Environmental Protection Agency, Spetic Systems and Groundwater Protection - A Program Manager's Guide and Reference Book, 1986.

8. Vaughn, J.M., Entrainment of Viruses from Septic Tank Leach Fields Through a Shallow, Sandy Soil Aquifer, App. Environmental Microbiology, 1983.

9. Walker, W.G., Nitrogen Transformations During Subsurface Disposal of Septic Tank Effluent in Sands, Journal of Environmental Quality, 1973.

COMMISSION HEARING

ALTERNATIVE ON-SITE SEPTIC SYSTEMS

June 22 - 23, 1989

The Commission sponsored a hearing to study the feasibility of using alternatives to the standard septic tank/leach ring systems so widely used on Long Island. Senator Owen Johnson, Chairman of the Senate Environmental Conservation Committee, joined the Commission in sponsoring the hearing. As a result of these hearings, legislation has been introduced to encourage greater use of these alternative systems in areas where ground or surface water quality is threatened.

The Commission received information from manufacturers of three types of alternative sewage disposal systems; a composting toilet, an incinerating toilet, and a system which purifies wastewater for reuse in flush toilets. There are many areas where such systems may be desirable alternatives to standard systems. In areas where septic systems do not function properly due to high water table conditions, these systems can eliminate the discharge of septic waste and reduce the need for the construction of elaborate raised bed leach field systems. These systems have also been used successfully where water conservation is a prime concern. They also offer protection in areas where development is near wetland systems, by eliminating discharge of septic wastes. Written and oral testimonies were provided by the manufacturers of the three systems. Their descriptions of these systems are summarized below.

The composting toilet works by using the natural decomposition process to break down toilet waste. A dry toilet is connected by a flue-like stack to the composting unit placed below (usually in the basement). The unit is vented to the outside by a fan which removes odors and helps draw air through the waste to maintain aerobic decomposition. The wastes in the tank are substantially reduced in volume and a small amount of composted material is removed on a yearly basis.

The incinerating toilet is also a dry system which uses a heating element to completely incinerate the wastes at a tempreature of 1,400°F. The result is about one teaspoon of ash which is collected in an ash pan and emptied once or twice per week.

Each of the above systems must be used in conjunction with some type of grey water disposal system. The remainder of the liquid household wastes can be disposed of through evaporation boxes, in raised bed flower boxes or in a standard leach field system. The amount of water is substantially reduced so that a smaller disposal system may be used. Furthermore, the elimination of human wastes

from the system reduces the bacterial and nutrient content of the grey water to be disposed.

The third system has been used only in commercial and industrial applications. This system uses a self-contained wastewater treatment system which can be located in a basement. The wastes from standard flush toilets and sinks are conveyed to the treatment system and the treated and disinfected wastewater is reused to provide the water for the flush toilets. The use of potable water in the building is restricted to sinks and fountains. This system is well suited to offices and institutions where the majority of the water used is for toilets. The system needs to be maintained under a contract with the manufacturer. Accumulated sludge must be pumped out periodically and disposed at a treatment plant.

Hearing testimonies were received from the New York State Department of Health (NYSDOH), the New York State Department of Environmental Conservation (NYSDEC), the Town of East Hampton, and the Long Island Association. Their comments are summarized below.

The DEC chronicled their experience with the use of composting toilets at department facilities. Three facilities have been in use for over three years. The areas that were chosen had extremely limited site conditions that precluded the use of standard septic systems. One facility, at Prospect Mountain overlooking Lake George, receives over 90,000 visitors annually. Despite a high rate of use, the facility has performed well. At the start of the third year of use, compost was removed from the facility. It is expected that yearly removal of approximately eight bushel baskets of composted solids will be necessary. The composted solids are currently being disposed of in a sanitary landfill.

Testimony was provided by Richard Svenson of the NYSDOH. The first portion of testimony concerned septic tank/leach ring and septic tank/absorption trench systems used for on-site sewage disposal. The second portion of testimony referred specifically to questions on sewage composting units.

The septic tank/leach ring system used widely on Long Island is not the conventional system for the rest of New York State. These systems are used only on sites where there is a sufficient depth of soil above the groundwater table. In most of New York State the septic tank/absorption trench system is the conventional choice. The Department of Health feels that the absorption trench system is more effective in providing nitrogen removal.

Comments on waterless toilets were confined to composting units. Composting toilets have been used on a limited basis in New York for at least 10 years. The NYSDOH does not consider composting units to be an alternative for use where poor site conditions such as poorly drained soils or high groundwater elevations exist. Composters can only be used where there is little or no water to supply a flush toilet. The department surveyed composting toilet

owners in 1978 and found some problems, however, manufacturers claim to have addressed many of these questions. The NYSDOH recommends using the composted material only on non-food crops. A separate grey water system should be provided, and designed for 50% of the flow for a conventional system. The NYSDOH concluded their comments by stating that composters should be used where all other alternatives have been deemed unacceptable.

The Town of East Hampton provided testimony indicating a great need for alternative systems. The installation of standard septic systems on pre-existing lots close to surface water bodies has created water quality problems. The Town would like the flexibility to require alternative systems in these cases. In the past the Town has been forced to buy lots because alternative septic systems were not approved by the Suffolk County Department of Health Services.

The Long Island Association (LIA) sent a representative who asked that greater emphasis be directed to wastewater reuse systems. The LIA stressed the water conservation benefits and the added benefit of reducing flow into wastewater treatment plants. They indicated that such systems are being used successfully in other states for office, institutional and public buildings. They also noted the use of reclaimed wastewater for non-potable uses, such as irrigation, street cleaning, etc. The LIA asked for legislation modifying building codes so that reclaimed wastewater can be used.

Findings

- Alternative systems such as composters, and incinerators have been allowed in most of NYS. However, new installations approved by the NYSDOH are restricted to areas where water supply is extremely limited.
- According to the NYSDOH absorption trench systems offer greater groundwater protection than the leach ring systems commonly used on Long Island.
- Grey water should be handled by separate systems designed for 50% of the conventional design flow.
- The NYSDOH recommends that material removed from composting units be used only on non-food crops.
- A lack of approved alternatives has resulted in towns having to purchase lots when a standard septic system could not be used.
- Dual plumbing systems are being used successfully in other states, using reclaimed water for non-potable uses.

Recommendations

- Since septic tank/absorption field systems are the conventional choice in the rest of the state, they should be used on Long Island in areas with high water table conditions.

- State and County Department of Health regulations should be modified to allow use of alternative systems when site conditions, not just water supply, are the limiting factor.

- A feasibility study should be undertaken to assess the potential benefits of waterless toilets and other water conservation devices. Legislation has been passed in the legislature (S.4687/A.8073) to direct the DEC to undertake this study.

The Commission appreciates the participation of the following parties who responded to our hearing and contributed testimony:

1. New York State Department of Environmental Conservation
2. New York State Department of Health
3. Town of East Hampton
4. The Long Island Association
5. Bio-Sun Systems Inc.
6. Thetford Systems Inc.
7. Research Products Inc.

Attachment A: Hearing Notice

NEW YORK STATE LEGISLATIVE COMMISSION ON
WATER RESOURCE NEEDS OF LONG ISLAND

SENATOR CAESAR TRUNZO
Co-CHAIRMAN

ASSEMBLYMAN THOMAS DiNAPOLI
Co-CHAIRMAN

THE SENATE ENVIRONMENTAL CONSERVATION COMMITTEE

SENATOR OWEN JOHNSON
CHAIRMAN

NOTICE OF PUBLIC HEARING

ON

ALTERNATIVE ON-SITE SEWAGE DISPOSAL SYSTEMS

SUBJECT: To evaluate the various types of on-site sewage treatment systems.

PURPOSE: To determine whether alternative on-site systems can meet the same health standards as conventional septic tank/cesspool systems, and whether the alternative systems are environmentally preferable in specific applications.

ALBANY	HAUPPAUGE
Thursday, June 22, 1989	Friday, June 23, 1989
2:00 p.m.	10:00 a.m.
2nd Floor, Hearing Room A	S.C. Legis. Auditorium
Legislative Office Building	Veterans Memorial Hwy.

Persons wishing to present pertinent testimony to the Chairmen at this hearing should complete and return the enclosed reply form as soon as possible.

Oral testimony will be limited to 10 minutes. In preparing the order of witness, the Chairmen will attempt to accommodate individual requests to speak at particular times in view of special circumstances. In the absence of a request, witnesses will be scheduled in the order in which reply forms are postmarked.

Ten copies of any prepared testimony should be submitted at the hearing registration desk.

Public Hearing

Alternative On-Site Sewage Disposal Systems

There are currently two (2) methods for disposing of residential sewage on Long Island. Either the waste is piped to a sewage treatment plant for treatment or they are disposed of on-site through a septic tank/cesspool system. Although a number of different on-site systems have been approved by the New York State Health Department and other local health departments throughout the State, Long Island's health departments currently allow only the installation of cesspool-septic tank systems.

There are, however, at least two major disadvantages of these disposal systems:

1) Nitrate-nitrogen and other pollutants from cesspools, such as synthetic organics, are not adequately treated and contribute to groundwater and nearby surface water contamination.

2) These systems perform unsatisfactorily in areas with high water table elevations.

Please address only those questions to which you have specific data, evidence, or have directly experienced.

1) What alternative on-site disposal systems are currently in use in New York State? Are any specific systems banned?

2) Do cesspools, as currently installed in coastal areas, reduce nitrogen concentrations before entering the shallow groundwater or nearby surface waters?

3) Do wetlands adjacent to coastal residences with cesspools, offer any additional treatment to waste waters?

4) Since septic tanks do offer some nitrogen reduction through the presence of anaerobic bacteria, would a program to regularly pump these tanks result in an increase in nitrogen loadings to the adjoining groundwater or surface waters?

5) Do septic tanks with tile, leaching or absorption fields offer more nitrogen removal, as well as other organic constituents, than conventional cesspools?

6) Are there any compelling health reasons why septic tanks with tile or leaching fields should not be used in coastal areas on Long Island or where groundwater elevations are high?

7) Do any of the additives currently placed in cesspools, such as sulfuric acid or solvents, cause any adverse impact to either the septic system or the groundwater?

8) In order to function properly, a septic tank must be pumped regularly and certain household chemicals such as bleach, should not be used excessively. What educational programs do the county health departments and town planning agencies have to currently advise homeowners as to the proper maintenance required to keep their septic tank/cesspool system working properly?

9) Are current regulations adequate to control or mitigate groundwater contamination by septic tank/cesspools systems? What other measures are needed?

The following questions pertain to "Waterless Toilets" and should only be answered by persons with specific and direct information.

1) How many units are currently in operation in New York State or the United States? Where? For how long?

2) Have regulatory agencies, such as health departments, reviewed the effectiveness of these units?

   a) What degree of maintenance is required to keep such a unit functioning properly?

   b) Can household cleaning products adversely affect the functioning of these units?

3) What is the quality of the compost and wastewater?

   a) How should the homeowner dispose of the residue material?

   b) Can it be applied to food crops, as well as landscaping uses?

4) Should grey water be treated by the system or should it be handled by separate plumbing? Can grey water be used for irrigation?

5) What mechanisms would be used to educate future property owners of special operation and maintenance requirements for their system when a property changes hands?

6) On Long Island, what are the best applications for using a waterless toilet: parks, beaches, residences, cetain businesses, areas of high water table elevations?

7) Is retrofitting existing facilities economical, or should we apply this alternative to new construction only?

a) What are the costs of installation and use of waterless toilets?

b) How much water can be conserved by utilizing the waterless toilet?

8) Should the county or state issue conditional approvals for initiating a pilot project or study, or is there enough data already available?

9) Do these systems incur increased costs to regulatory agencies for reviews and inspections? Can any such increases be offset by permit fees?