ALTERNATIVE METHODS OF REGULATING ONSITE DOMESTIC SEWERAGE SYSTEMS

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(SSWMP #11.7)

Presented at

Third National Conference on
Individual Onsite Wastewater Systems

November 16-18, 1976
Ann Arbor, Michigan

Reprinted from

Individual Onsite Wastewater Systems
Proceedings of the Third National Conference 1976

Nina I. McClelland, Editor

Available from: ANN ARBOR SCIENCE PUBLISHERS, INC.
230 Collingwood Street
P.O. Box 1425
Ann Arbor, MI 48106

Price: $22.50

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INTRODUCTION

Background

There is a great deal of interest in onsite sewage treatment and disposal. As a case in point, one need only recall that this is the third national conference on the subject held by the National Sanitation Foundation.

It is hardly necessary to reiterate the statistics about the number of onsite systems currently in use (or misuse) in the United States today. Surely we already know the magnitude of the usage, most of the problems with and many of the technical aspects of the various systems of onsite sewerage. Other speakers at this conference will expound further upon these points. Instead, I would like to discuss the onsite sewerage regulatory program most familiar to you -- the one that you administer, comply with and/or live under. However, this is not possible, due both to the vast number of programs and my own limited knowledge of them. Thus it is necessary to speak of an assumed typical system and a general regulatory approach. I hope that you do not view this as a philosophical discussion of regulation. This discussion will conclude with both general suggestions on how to improve a regulatory program and suggestions for regulation of innovative systems. I invite you to consider your own regulatory program and if it already has incorporated in it many of these suggestions, I suggest that you have a better program than most. If

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your program has already tried and discarded as unworkable any of these suggestions, I very much would like to hear from you.

Assumptions

The underlying premise of this paper assumes that the same basic administrative structure will be used to regulate both the conventional septic tank-soil absorption system, as well as the more innovative systems of onsite treatment and disposal. This assumption is warranted because in all likelihood the unit(s) of government, which is currently regulating conventional systems will in the future be called upon to regulate the more innovative systems as they are developed and proven acceptable.

Additionally, as previously noted, there is great diversity of governmental units throughout the country involved in the regulation of onsite systems. This range of possible units includes local governmental units of general jurisdiction, such as towns, townships, charter townships, boroughs, villages, cities and counties, as well as a limited number of regional governmental units and a seemingly unlimited number of special purpose districts. It is assumed that appropriate specific units of government having adequate authority are available in all areas of the country and that the reader will substitute the appropriate unit of government, as needed, in this discussion.

Abstract

This paper begins with an examination of the techniques available for regulation and then identifies three phases where regulation of onsite sewerage systems is required. The paper offers some general suggestions which might be used to improve any regulatory program and concludes by

categorizing most innovative treatment and/or disposal systems within a matrix and suggests possible regulatory techniques for each category.

REGULATORY TECHNIQUES

There are only a limited number of techniques available to any regulating authority regardless of the subject matter of the regulatory program. Thus, a program to regulate onsite sewerage and suggestions to improve that regulation are, in fact, constrained to draw from the same "laundry list" of available regulatory techniques. Most of these techniques may be included in one of the following four subsets:

1. Direct controls over the onsite system, itself;
2. Controls upon the actors (i.e., designers, installers, etc.);
3. General or indirect controls; and
4. Unfair or unlawful controls.

Prior to a brief discussion of the techniques, it must be noted that the regulating agency must have the authority to impose these controls. This authority might be in the form of statutory enabling legislation enacted by the state legislature granting the regulatory agency (at either the state or local level of government) the necessary power to implement the regulatory program. This legislation may or may not be obligatory - requiring the designated agencies to regulate onsite sewerage. Further, the legislation might specifically designate the exact regulatory techniques which are to be used and in some cases might even prescribe the procedure to be used and might establish a fee structure.

Alternatively, certain possible governmental agencies possess adequate authority either via the state's constitution or by their general statutory grants of authority to implement a regulatory program consisting

of many, if not most, of the available regulatory techniques. One example of such an agency might be the state agency responsible for protecting public health and/or water quality. As a second example, incorporated communities, cities and villages etc. in many states have the authority to impose the controls needed for an adequate regulatory program. In many states, these "home rule" powers are also available to other units of local government, such as towns and counties.

Obviously then, it is necessary to first determine what unit of government is attempting to actually regulate onsite sewerage and then to carefully assess what authority it has. To be absolutely correct, this assessment must look at statutory and case law, as well as the State Constitution and often the assessment is made more difficult because more than one unit of government is involved in the program, i.e., a state-county program.

Direct Controls

Direct controls may be thought of as those techniques which the regulatory agency imposes directly upon the onsite system, itself. These controls can perhaps best be viewed in the chronological order of any onsite system.

Standards are the first direct control which could be imposed. Sizing, design and installation standards, as well as site requirements have always been the basis of most regulatory programs. However, these standards for even the conventional system have been found to vary widely from one program to another (1). This is especially so when comparing on state's program to another. Many individuals regulated by these programs and those involved in the regulatory programs have questioned this variance, since all programs are intended to have the identical purpose -

the protection of public health.

Plan review and approval is a second direct control, which frequently is included in a regulatory program, although by no means is this technique used in every program. For example, Wisconsin does not require the submission of plans for state approval of conventional onsite systems serving single families; however, pursuant to a recent amendment, the state now requires county review of such plans (2).

Insepction is a third technique which is used in most regulatory programs. The types of inspections which have been used range from the inspection of the proposed site prior to its approval for installation of an onsite system, to compliance inspections made after the system is completely installed. Included within this range are one or more inspections during construction. Note, the traditional "pre-coverup" inspection would be included here.

Additionally, access to the property for the purpose of making the inspection has been the subject of several court cases. In summary, the United States Supreme Court has held that under certain circumstances inspections of property might be "searches" within the meaning of the fourth and fourteenth amendments of the U.S. Constitution and unless consented to can only be conducted or compelled under a search warrant. [See Camara v. Municipal Court of San Francisco, 387 U.S. 523 (1967) and companion case See v. City of Seattle, 387 U.S. 541 (1967).] Clearly, under these holding nonconsentual inspections of a residence would require a search warrant. The courts have also extended this fourth amendment protection to include out buildings and surrounding land (English law recognized this land as the curtilage or courtyard area). Thus, it is likely that a warrant might be needed if permission cannot

be obtained. For non-criminal proceedings many state statutes now prescribe the procedure for the issuance of an administrative warrant, since the standard search warrant procedure is generally not available.

Permit or license issuance is a technique which is often used to regulate onsite sewerage. Generally, the program requires that a permit must be obtained prior to commencing installation of any onsite system. Clearly, the permit requirements may be varied for different types of onsite systems. In addition to the installation or construction permit, some programs require "use" or "occupancy" permits prior to occupancy of the residence served by the onsite system.

Also included under the rubric of this technique are conditional permits - defined as one which is valid only until the occurrence of an event or the failure to comply with a requirement. The placard, stop work order or "red tag" might be used to show this occurrence or failure. The placard or "red tag" might be thought of as a permit (albeit negative) in its own right.

Monitoring or surveillance requirements are direct control techniques and are, in fact, similar to the inspection technique discussed earlier. The same constitutional constraints would apply to nonconsentual access to property as was discussed for inspections in general.

Controls Upon Actors

Onsite sewerage regulatory programs can obtain their primary objecti protection of public health, by means other than direct regulation of the onsite systems, themselves. The most important method of so doing is to regulate those who act on the systems. Primarily these actors most likely to be regulated are the soil testers, designers and installers of

onsite systems, as well as those who service or maintain the systems (i.e., liquid waste pumpers/haulers).

Licensure of qualified individuals has long been recognized as a legitimate function of the state under its police power. The United States Supreme Court described this power as follows:

> "The power of the state to provide for the general welfare of its people authorizes it to . . . secure them against the consequences of ignorance and incapacity, as well as of deception and fraud. As one means to this end it has been the practice of different states, from time immemorial to exact in many pursuits a certain degree of skill and learning upon which the community may confidentially rely, their possession being generally ascertained upon an examination of parties by competent persons, or inferred from a certificate to them in the form of a diploma or license from an institution." [Dent v. West Virginia, 129 U.S. 114, 122 (1889).]

As stated by the Supreme Court, the requisite degree of skill may be ascertained by an examination or inferred from a diploma or license, from an institution.

Some of these regulatory programs have required that the designers of the onsite systems be licensed professional engineers, architects or plumbers. Additionally, some programs limit those who may actually install the systems to those who are licensed plumbers, architects, engineers, etc.

However, it is important to realize that the regulatory program is not constrained to rely on pre-existing licensing programs, but may, in fact, provide a training and/or examination program and establish its own licensing program. For example, Wisconsin recently created a program to license those who perform the soils evaluations for the suitability of sites for onsite soil disposal systems (3). Similarly, several agencies have apparently incorporated the licensure of the liquid waste haulers/pumpers into their regulatory programs.

Registration requirements are sometimes used as a regulatory technique. Generally the difference between this and licensure is that registration is often only a bookkeeping non-discretionary listing of those who are performing certain functions. That is registration might be nothing more than the keeping of an updated list of all those who have applied to the agency or otherwise indicated an interest in performing these functions.

One spinoff technique available to those agencies which impose licensure requirements upon some or all of those who perform actions upon onsite systems is to limit the issuance of permits solely to those who are properly licensed or registered.

General or Indirect Controls

Included here are controls which the regulatory agency seldom has the ability to influence or determine completely. Examples of these controls are zoning and land use policies. While the regulatory agency might have the enforcement or administrative responsibilities for zoning or other land use techniques, it is unlikely that the agency itself can adopt zoning land use ordinances. One exception to this would be the denial of the issuance of building permits until all onsite requirements have been complied with. It is possible that the same regulatory agency would process both permits.

A second example of an indirect control would be the existence of public policies in favor of or against certain regulated actions and these policies might aid or hinder the regulatory agency in the administration of its program.

Unfair or Unlawful Controls

The regulatory agency might seek to control certain portions of its onsite system regulatory program by establishing excessive fee requirements or by delay in processing applications. These techniques are not desirable control techniques and are just mentioned to point out that they do exist and have been used in the past.

THREE REGULATORY PHASES OF ONSITE SYSTEMS

The three phases where regulation of any on-site system is needed are the initial installation phase, the maintenance phase, and the failure phase. A good administrative program is one which adequately regulates all three of these phases.

First, the initial installation phase consists of proper siting and design requirements and proper construction of the onsite system. Through proper siting, installation, and design controls, the attendant problems of public health, chemical addition to the surface and groundwater and economic hardship problems may be avoided. For this reason, a good regulatory program must impose siting and design requirements at this initial phase.

Second, the second phase in the life of any onsite system is that of operation and maintenance. The problems of public health and chemical addition to the surface and groundwater may occur if the regulatory program lacks control over proper operation and maintenance. While there are very few operational or maintenance requirements for a septic system, some of the more innovative systems have more extensive requirements. Whether the system's operation and maintenance requirements are straightforward or elaborate, a good regulatory program should impose controls at this

second phase in the life cycle.

Third, the third phase occurs when a system fails. This phase involves both the detection of the failure and the necessary subsequent actions taken (repair or abandonment). This is the most difficult phase to regulate; however, the problems of public health, chemical addition to the wastewaters and economic and financial hardships may be attenuated or avoided by proper regulatory control at this phase.

SUGGESTED IMPROVEMENTS

Due to the variety of regulatory schemes used by the various states, the following suggested means of improving the regulation of onsite sewerage systems will not be applicable to all states and localities. Also, some of the suggestions may already be incorporated into the regulatory scheme in the jurisdiction of interest. Further, due to different state constitutional limitations and requirements, several of these suggestions may not be possible in all states. Also, many of these suggestions may require the enactment of enabling legislation.

These suggestions are discussed under the headings of the three phases in the life of an onsite system. Obviously, a suggested improvement may bring about improvements in more than one phase. In such situations, the suggestions are discussed in the phase where the most improvement might be effected. These suggestions deal first with the initial installation phase and then operation and maintenance and finally the existing failing system phase.

Initial Installation

State Permit Program. It is suspected that many local health authorities are subjected to local political pressure to approve the

installation of systems on unsuited sites. Aside from direct political pressure, some local authorities have reported that their boards of appeal have been subject to pressures and consistently override denials by permitting installation on sites thought to be unsuited by the local authority. To avoid this undue pressure, it is suggested that those states which do not presently have a state permit program should adopt one. The chance for direct political pressures at the state level should be less than the local level and the resources should be greater, in that the state either has or can employ soils or other experienced personnel to evaluate site suitability.

State Plan Review and State Standards. As an alternative, it is suggested that states should adopt a mandatory plan review of all the onsite systems approved at the local level. This state review process would be conducted by the appropriate state authority and would prevent the use of systems on improper sites by countermanding local approval when required. As an alternative to plan review, it is suggested that the state enact a mandatory review of all local sanitary programs; and when a local program is found to be deficient, the state should impose a state program until the locality brings its program up to standards. The state would have to establish minimum standards for local programs including enforcement practices, staff requirements, employment practices, siting and installation inspection requirements, etc. Also, these standards could even set out design and siting requirements for onsite systems.

Uniform Citation and Complaint. States and localities not having a method of issuing citations for sanitary ordinance or code violations are urged to adopt such a system. The citation system is currently

being used by building inspectors in several major American cities to "ticket" owners of buildings which violate local codes (4). Essentially the uniform citation is similar to a traffic complaint and the violator of the sanitary ordinance (homeowner or system installer) signs the citation and agrees to appear in court to enter his plea. This system cuts down on enforcement delays and permits the local or state health authority to issue citations for violations as he sees them at the time of the violation. This system is equally applicable to violations in the other two regulatory phases.

Small Claims Courts. Many states have small claims courts for cases involving an amount less than a given number of dollars. Usually, these courts allow an abbreviated, less formal procedure generally using printed forms. When seeking only fines or forfeitures, state and local authorities are urged to consider using these small claims courts to prosecute initial installation violations, as well as all other sanitary ordinance and code violations. Generally, there is a smaller backlog of cases in these courts than in courts of general jurisdiction, thus the enforcement of sanitary violations can be accelerated. Note that special enabling language might be required in some states.

Civil Service Status. Many local regulatory officials and some state officials serve at the pleasure of those who appointed them to their jobs. It is assumed that this lack of job security has hindered vigorous application and enforcement of initial installation requirements as well as enforcement of the other phases of regulation. To give them the necessary job security to do a vigorous job of enforcing the sanitary requirements, especially the crucial siting requirements, local and state agencies are urged to seek a civil service program for these offici

Operation and Maintenance

Septic Tank Maintenance Permit. This phase of onsite system regulation is often the most overlooked. States or local authorities are urged to adopt a maintenance permit program to assure that septic tanks will be inspected once in a given number of years (1, 2 or 3) and that the septage will be pumped when necessary. The program would require the licensing of the pumpers. The homeowner would be mailed a maintenance permit form and would be given say 60 days to have any licensed pumper inspect and, if required, pump his tank. The pumper would sign one portion of the homeowner's permit thereby certifying that he inspected (and pumped) the tank. The authorities would then have on file a certified statement that the tank was inspected on a given date. Then just prior to the expiration of the 1, 2 or 3 year period, a similar card would be sent to the homeowner to renew the permit by repeating the process. Of course, it would be unlawful for any owner to use his system unless he held a valid permit. Also, this maintenance program could be modified so as to apply to other more innovative onsite systems.

Conditional Sanitary Permit. As an alternative to the maintenance permit program, state and local authorities which issue sanitary permits for onsite systems can make these permits valid subject to the condition that inspection and pumping (if necessary) be performed every 1, 2 or 3 years. The enabling legislation or ordinances would have to be worded to make it unlawful for a system owner to use his system unless he had a valid sanitary permit and the permit would be valid only if the necessary inspections (and pumping) had been performed.

Location Filing Requirement. Many state and local authorities already require the filing of a plan of the proposed (or built) system.

For those that do not, they are urged to impose the requirement that each system owner file an "as built" plan of his system, clearly referencing the location of the system manholes. Such a plan is invaluable when it becomes necessary to inspect or service the onsite system. It has been noted that many owners do not know the location of their systems and obviously this makes maintenance difficult. In an attempt to improve this phase of regulation, states and/or local authorities are urged to adopt this filing requirement and to establish a file for these plans and index them by street address, name of original owner, installer and perhaps legal description.

Failing Systems

Sanitary Surveys. Detection of the failing system is one of the most important aspects of this final regulatory phase. If state and local authorities do not already have the authority and funding to perform sanitary surveys, they are urged to obtain them. The large staff commitment and the expense of such surveys are recognized; but these are justified as surveys are the most thorough method of determining which existing systems are failing.

Violation as an Encumbrance. In many states, the effect of a sanitary code violation on the title to the property is unclear. In an effort to give notice to potential buyers of land containing sanitary violations, especially existing failing systems, states and localities are urged to pass legislation which makes the violation an encumbrance on the title. Such an encumbrance will put buyers on notice of the violation and will probably lower the price of the property since the seller does not have a clear title.

Pre-Sale Inspection. An alternative to the encumbrance would be to require an inspection of the onsite system prior to the sale of the property. Legislation or ordinances could be worded to either require the correction of all violations before permitting a sale or to encumber the title.

Abatement Costs. Many regulatory authorities have the authority, under certain conditions, to enter onto private property and to abate or correct violations - usually a failing onsite system. Those regulatory agencies which lack this authority should lobby to get this power. Further, however, it is necessary that the enabling legislation specifically provide that the cost of the work may be added as a tax on the lands upon which the violation occurred. Also, the agency should be given the authority to contract to have this work performed.

REGULATION OF INNOVATIVE SYSTEMS

"Innovative" for the purpose of this paper can best be defined by stating that it is any system other than the conventional septic tank-soil absorption field. The matrix shown in Figure 1 attempts to categorize all the possible types of innovative systems. Any system may be thought of as having a treatment and a disposal aspect. The possible combinations of these treatment and disposal are not unlimited as can be seen in the matrix. Essentially, any system, whether available today or yet to be developed and/or proven, will have either a conventional, innovative or no treatment method coupled with conventional, innovative or no (containment) disposal.

Figure 1 also contains a listing in each category of examples of the types of systems suggested by each category. As can be seen,

several of the categories are unrealistic or unlawful and will not be considered further. Comments about the regulatory programs for the remaining categories follow.

First, the regulatory program for the holding tanks, and toilets [no or innovative treatment - no disposal] would not require much in addition to the program for the conventional system. The eventual disposal from the holding tanks and toilets poses the most serious potential threat to public health. Licensure or registration of those who service these systems would probably be a useful regulatory technique. As a requirement for licensure, the licensed personnel should in addition be required to maintain detailed records of service and disposal locations and supply copies to the regulatory agency.

Second, the regulatory program for conventional disposal systems (regardless of the method of treatment) is not expected to require much in addition to a good conventional program. Perhaps innovative treatment with conventional disposal could demand additional inspections of the treatment device and should include some form of guarantees that the treatment system will be properly maintained. For example, permits should be conditioned upon the existence of a valid paid service contract with either the distributor/supplier or with a licensed treatment plant operato Alternatively maintenance could be performed by a special purpose district created to own and/or operate all such systems within a given area. This assurance of proper operation and maintenance is especially warranted if the conventional absorption field size is reduced because of the assumed improved treatment provided by the innovative treatment system.

Third, innovative soil disposal methods do require an increased regulatory effort. This results because the systems are designed for use on sites that are less suited for onsite sewerage. That is the public health risks are likely increased if there are any malfunctions. Regulatory techniques such as a more thorough site evaluation, an increased number of inspections during construction, agency plan review and approval and a program of monitoring (because of the increased public health risk) should be imposed. Again, these functions might be performed by the regulatory agency, itself, or by a special purpose district.

Fourth, any surface water discharge will have to comply with federal (P.L. 92-500) and state water quality standards. Each discharge will be required to obtain a pollution discharge permit (NPDES) and meet federally set discharge standards (currently secondary treatment requirements). Also, included in these federal requirements are monitoring and reporting minimums which must be met by each discharger. Thus, the regulatory program for this category of treatment-disposal will in a large part be determined by the federal requirements under P.L. 92-500. Of course the regulatory agency may employ additional regulatory techniques such as plan review, and the requirement of the use of licensed treatment plant operators to inspect and maintain the innovative treatment facilities. Again these functions could be performed by a special purpose district.

Lastly, the innovative disposal technique involving evapotranspiration might include in its regulatory program techniques such as plan review and increased inspections during construction.

In conclusion, some of the categories of treatment and disposal methods may require increased regulation because of the potential increased risk to public health. The regulatory techniques discussed earlier should be adequate to protect against this increased risk.

FIGURE 1. MATRIX OF ANTICIPATED POSSIBLE TREATMENT AND DISPOSAL COMBINATIONS OF ON-SITE SEWERAGE SYSTEMS

TREATMENT	DISPOSAL: NO (CONTAINMENT)	CONVENTIONAL (SUBSURFACE SOIL)	INNOVATIVE: SOIL	INNOVATIVE: SURFACE WATER DISCHARGE	INNOVATIVE: E-T
NO	1. HOLDING TANKS 2. RECYCLE TOILETS (NON-WATER CARRIAGE) 3. SELF CONTAINED TOILETS	1. CESSPOOL	UNLIKELY	UNLAWFUL	UNLIKELY
CONVENTIONAL (SEPTIC TANK)	UNLIKELY	1. SEPTIC TANK-SOIL ABSORPTION FIELD	1. MOUND SYSTEMS 2. FILL SYSTEMS	PROBABLY UNLAWFUL	1. E-T BEDS
INNOVATIVE	1. COMPOSTING TOILETS	1. MECHANICAL AERATION-SOIL ABSORPTION FIELD	1. MECHANICAL AERATION-MOUND SYSTEM	1. SAND FILTERS 2. PHYSICAL-CHEMICAL 3. LAGOONS 4. MECHANICAL AERATION 5. OTHERS	1. NOT KNOWN AT THIS TIME

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