# 1979 Bibliography of Small Wastewater Flows

Compiled by The Professional Staff EPA Small Wastewater Flows Clearinghouse

EPA Small Wastewater Flows Clearinghouse Centennial House West Virginia University Morgantown, WV 26506 1979 Bibliography of Small Wastewater Flows

EPA Grant No. R-806526-01

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# EPA Small Wastewater Flows Clearinghouse Centennial House West Virginia University Morgantown, WV 26506

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#### **ACKNOWLEDGMENTS**

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This volume was compiled, edited and published through the combined efforts of the EPA Small Wastewater Flows Clearinghouse professional staff. Since the formation of the Clearinghouse, the goal has been to assemble a valid data base to assist all persons concerned with small wastewater flows.

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# Sheila L. Wolfe

# PREFACE

This publication contains abstracts and indexes of alternative treatment and collection systems from domestic and foreign literature as searched by Enviro Control, Inc., and the professional staff of the EPA Small Wastewater Flows Clearinghouse (SWF). Both technical and non-technical reports and information are included.

The subject matter researched includes innovative and alternative wastewater treatment systems for small communities, the sparsely populated areas of larger communities and individual on-site systems.

This bibliography contains information that is applicable to:

- septic tanks and subsurface disposal systems;
- other on-site systems, including dual systems;
- small systems serving clusters consisting of a small number of households or commercial users, each user with average annual dry weather flows of under 25,000 gallons per day;
- six-inch and smaller gravity sewers carrying partially or fully treated wastewater or carrying raw wastewater as part of limited conveyance systems which serve clusters of households and small commercial establishments;
- pressure and vacuum sewers;
- the above and other alternative sewers that are specifically exempted from the collector sewer interceptor designations and that are not the subject of EPA collection system policy; and
- other treatment or conveyance works that employ alternative technologies and that serve communities with populations of 3,500 or less or the sparsely populated areas of larger communities.

This is the first publication, and each year a revised and updated edition will be made available to the public.

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. . . . .

Each abstract is listed by accession number in the abstract entry section. A sample abstract is provided below to show how to locate items in the abstract listing.

1	& 2.	ACC#	:	L000001 *
	3.	AUTHO	R:	Fripp, J.L., Jr.
	4.	AFF IL	. :	Georgia Department of Transportation, Atlanta, GA
	5.	TITLE	::	Centralized Management of Small Plants
	6.	SOURC	:Е:	National Conference on Less Costly Wastewater Treatment
				Systems for Small Communities; 1977; pp. 77-79 (EPA-600/ 9-79-010; NTIS Report No. PB 293 254/AS)
	7.	COST	:	\$6.50
	8.	YEAR	:	1978
	9.	TEXT	:	Describes Georgia's system of dealing with safety rest area wastewater treatment plants. Plants are septic tanks, activated sludge followed by secondary treatment by polishing ponds, and activated sludge followed by rapid sand filtration. Presents the major topics considered in constructing and successfully operating small treatment plants. (SWF)
	10.	CON	:	NTIS 5285 Port Royal Road Springfield, VA 22161

- SWF accession number - identification number sequentially assigned to documents as they are processed. The accession number refers to the entry in the abstract section where the complete bibliographic information, the abstract of the document and the availability of the information can be found.
- 2. \* The asterisk denotes that the document is reported by the National Technical Information Service as being available, but a copy is not available in the SWF Clearinghouse. When the accession numbwer has no asterisk, a copy of the publication is stored in the Clearinghouse.
- 3. Author(s) name.
- 4. Author's affiliation as indicated on publication.
- 5. Title of publication.
- 6. Source of publication (book, journal, report, proceedings), publisher and number of pages.
- 7. Cost from contact cited. SWF price code is listed and the code is explained in the section "ORDERING INFORMATION"
- 8. Date published.
- 9. Text - the abstract.
- 10. Con - contact where document may be obtained.

# HOW TO USE THE INDEXES

Users can identify documents of interest by scanning the abstract listings or by using the title index (listed by order of accession number), the taxonomy index, the author index or the state index.

# Title Index

The title index is arranged by accession number for easy cross-reference from the numbers in other indexes.

### Taxonomy Index

The taxonomy index enables the user to search for information in either a general or a specific subject area. An accession number is included for each document under the subject heading.

#### Author Index

Documents can be located by the name of the author. Accession numbers are provided as in the taxonomy index.

# State Index

Accession numbers are listed under the names of the states. These entries refer to information specifically concerned with the individual state under which it is listed.

#### ORDERING INFORMATION

The citation contains a contact source where the document can be obtained. Libraries are the recommended source of the documents listed in the Bibliography.

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: L000001 1004 AUTHOR: Fripp, J.L., Jr. AFFIL : Georgia Department of Transportation, Atlanta, GA **?** (1) TITLE : Centralized Management of Small Plants SOURCE: National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 77-79 (EPA-600/9-79-010; NTIS Report No. PB 293 254/AS1 COST : \$6.50 : 1978 TEAR : Describes Georgia's system of dealing with safety rest area wastewater TETT treatment plants. Plants are septic tanks, activated sludge followed by secondary treatment by polishing ponds, and activated sludge followed by rapid sand filtration. Presents the major topics considered in constructing and successfully operating small treatment plants. (SWF) CON : NTIS 5285 Port Royal Road Springfield, VA 22161 ACC# : 1000002 AUTHOR: Kalb, K.R.; Bernardin, F.R.; Coviello, A.J. AFFIL : Thetford Corp., Waste Treatment Products Division, Ann Arbor, HI TITLE : Effects of Toilet Usage Patterns on Onsite Treatment Systems SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference: National Sanitation Foundation; 1977; pp. 153-166 YEAR : 1978 TEXT : The design of an on-site wastewater treatment facility should consider toilet usage patterns. Patterns vary widely. It was found that a fivefold difference in organic or hydraulic loading can be experienced, depending on the type of facility. Toilet usage in a household, a factory, an office, and public restrooms was determined. The usage patterns were monitored from five weeks to sixteen months. Statistics and tables were presented for toilet uses per capita, per hour per day, per day per week, and per month per year. Implication of use patterns on design of treatment facilities were discussed. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : 1000003 AUTHOR: Guttormsen, D. AFFIL : Agriculture University, Institute of Microbiology, 1s, Norway TITLE : Some Aspects of Composting Toilets with Specific Reference to Their Function and Practical Applications in Norway SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference: National Sanitation Foundation; 1977; pp. 145-151 TEAR : 1978 TEXT : Presents the results of performance tests on the 21 models of composting toilets available commercially in Morway. Nost models meet, or nearly meet, the criteria established by the World Health Organization. The toilets were separated into three major groups by structure and method of operation. The groups were the large box type, the large sloping floor type, and the small toilets with electric heating elements. Each toilet was operated for 150 days. The following parameters were recorded: weight reduction in the waste, temperature in the composting container, numbers of E. coli, and the survival of salmonella and poliovirus. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : 1000004 AUTHOR: Abney, J.L. AFFIL : Parrott, Ely & Burt Consulting Engineers; Lexington, KY TITLE : Integration of Onsite Disposal in a 201 Facilities Plan SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 277-299 YEAR : 1977 TEXT : Presents an alternative for eliminating inefficient disposal without installing a centralized collection and treatment system. The system consists of individual septic tanks, effluent severs, and clustered subsurface disposal sites. Includes detailed construction costs and a summary of the possible effects of implementing the system. (SWP) COM : Ann Arbor Science Publishers, Inc. P.O. BOX 1425 Ann Arbor, MI 48106

- ACC# : L000005
- AUTHOR: Waldorf, L.E.
- AFFIL : Appalachian Regional Commission, Washington, D.C. TITLE : The Boyd County Demonstration Project A System Approach to Individual Rural Sanitation (An Update)

7

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SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third National Conference: National Sanitation Foundation; 1976; pp. 235-243 TEAR : 1977 : A systems approach to individual home treatment of wastewater was TRIT attempted at the Boyd County, Kentucky demonstration project. By forming a sever district, individual systems can be collectively financed and managed without using conventional centralized treatment. The project uses aerobic systems with a combination of subsurface disposal, spray irrigation, stream discharge, recycled wastewater and evapotranspiration. Experience obtained, recommendations for similar projects and sources of funding are described. (SWF) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000006 AUTHOR: Carcich, I.G.; Hetling, L.J.; Farrell, R.P. AFFIL : BPA, Washington, D.C. TITLE : A Pressure Sever System Demonstration SOURCE: NTIS Report Number PB-214 409/5 (BPA/R2-72-091), (GPO Stock Number RP1.23/2:72-091); 225 pages : 1972 TEAR TEXT : A field demonstration of 12 Grinder Pump (GP) Units was performed for a 13 month period in Albany, New York. Pressures, water usage, operating time, overflow occurrences, total number of operations, and simultaneous operations were reported for the duration of the project. The prototype GP Units registered an undesirably high number of malfunctions: loss of prime by pump, and grease clogging of pressure sensing tube. The effectiveness of small, non-metallic pipes transporting macerated wastewater under pressure was successfully demonstrated. Extensive chemical sampling proved that pressure sever waste was 100 percent stronger but contained 50 percent less contaminants on a gm/capita/day basis. Settleability tests on the pressure sever waste showedno significant differences over conventional wastewater. (SWP) CON : NTIS 5285 Port Royal Rd. Springfield, VA 22161 ACC# : L000007 AUTHOR: Hudson, J.F. AFFIL : Urban Systems Research & Engineering, Inc.; Cambridge, HA TITLE : Environmental Impact of On-Site Systems SOURCE: Mational Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 29-32 (EPA-600/9-79-010; WTIS Report No. PB 293 254/15) COST : \$6.50 YEAR : 1978 : Discusses the environmental impacts of making on-site treatment systems, TELT especially septic tank systems, more common. Failures caused by lack of maintenance, problems related to septage treatment and disposal, the economic effects of on-site versus conventional systems, and ways to avoid adverse environmental impacts of septic tanks are described. (SWF) : NTIS CON 5285 Port Royal Road Springfield, VA 22161 ACC# : 1000008 AUTHOR: Forren, R.K. AFFIL : West Virginia State Department of Health, East Charleston, WV **TITLE : Certification of Contractors** SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference: National Sanitation Foundation; 1977; pp. 119-121 YEAR : 1978 Text : Briefly presents West Virginia's contract certification program for septic tank installers. After two years of implementing a contract certification program, samitarians in Nest Virginia are reporting a significant improvement in the quality and design of septic tank systems inspected in the field. (SWF) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, MI 48106 ACC# : 1000009 AUTHOR: Pearson, K.C. AFFIL : Interlink Life Support Systems, Inc., Costa Mesa, CA TITLE : Innovation in Wastewater Technology: The Challenge of the 1980's SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 301-305 YEAR : 1977

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TEXT : CON :	Presents a summary of the three levels or resistance to the widespread use of on-site sewage treatment. The levels are aesthetic and functional performance, skepticism of a large proportion of public health bodies in the country, and the political problems of conflicting views of various groups. Each aspect is briefly presented. (SWF) Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106
ACC# : AUTHOR: APPIL : TITLE :	L000010 Converse, J.C.; Otis, R.J.; Bouma, J. University of Wisconsin, Madison, WI Design and Construction Procedures for Fill Systems in Permeable Soils
SOURCE:	With High Water Tables Small Scale Waste Management Project; University of Wisconsin; 30 pages
YEAR : TEIT :	1975 Describes design and construction procedures for a fill (mound) system allowing the disposal and treatment of domestic wastewater when less than three feet of permeable soil (percolation rate faster than 60 minutes/inch) are present between the bottom of the seepage bed and high groundwater. Includes sample plans and tables for the design of a fill system for level or sloping ground. Though it is experimental, the system design was based on research findings conducted over a four-year period. (SWF)
CON :	Small Scale Waste Hanagement Project 1 Agriculture Hall
	University of Wisconsin Madison, WI 53706
ACC# :	L000011 Toppan, W.C.
AFFIL : TITLE : SOURCE:	Department of Human Services, Augusta, HE State Agency Management Plans and Approval Practices for Maine Individual Onsite Wastewater Systems; Proceedings of the Third National Conference; National Sanitation Foundation; 1976; pp. 215-219
YBAR : TEXT :	1977 The development of Maine's on-site wastewater treatment and disposal regulations is described. Since 1974 a statewide permit procedure, enforced by licensed plumbing inspectors, has been used. Provisions for greywater disposal, malfunctioning existing systems and experimental events are briefly discussed (SWP)
CON :	Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106
ACC# :	L000012
AUTHOR: AFFIL : TITLE : SOURCE:	Oregon Department of Public Works, Douglas County, OR Collection Alternative: The Pressure Sever Individual Onsite Wastewater Systems; Proceedings of the Third National Conference; National Sanitation Foundation; 1976; pp. 171-186
YBAR : TBXT :	1977 Describes the use of pressure severs as a collection alternative in Glide, Oregon to replace drainfields of which 60 percent showed evidence of failure. Presents the hardware and maintenance requirements, costs, and various applications of pressure sever systems. (SWF)
CON :	Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106
ACC# :	1000013 Reed. S.T.
AFFIL :	Department of Social and Health Services, Olympia, WA
TITLE : SOURCE:	State Programs and Perspectives Individual Onsite Wastewater Systems; Proceedings of the Fourth Wational Conference; Wational Sanitation Foundation: 1977: pp. 27-34
YBAR : TBXT :	1978 Identifies the shortcomings of relying on detailed compliance standards in the rapidly evolving field of on-site wastewater treatment. Recom- mends the increased use of performance standards as an alternative. The major role of federal, state and local environmental health organiza- tions should be to provide leadership for public involvement and for the cooperation of all concerned parties in determining priorities and goals. (SWF)
CON :	Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, NI 48106
ACC# : AUTHOR: AFFIL :	L000014 Melbourn, J.; Quick, G. Department of Public Health, San Diego, CA

TITLE : Local Experiences with Alternative Systems: Salvation, Circumvention, or Cop-Out SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 35-40 YEAR : 1978 TEXT : Discusses circusstances leading to the increased use of individual onsite wastewater treatment in California. Septic tank soil absorption system design criteria, alternative sewage system requirements and proposed research topics concerning the use of individual sewage disposal are identified. (SWP) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000015 AUTHOR: Peige, W.A.; Oppelt, E.T.; Kreissl, J.F. AFFIL : Municipal Environmental Research Laboratory, Cincinnati, OR TITLE : An Alternative Septage Treatment Method: Lime Stabilization/Sand-Bed Dewatering SOURCE: NTIS Report No. PB-245 816/4ST (BPA/600/2-75/036); 64 pages YEAR : 1975 TEXT : Few desirable methods exist for disposing of the sludge that is periodically pumped from septic tanks. This report describes the result obtained from a pilot study of one alternative septage treatment meth-od - lime stabilization followed by covered sand-bed devatering. The study was conducted in two phases. Phase I (four months) consisted of the general, chemical, and biological characterizations of the incoming septage. Attempts were made to thicken the material via stirring, polyelectrolyte addition, and lime additon. Phase II (nine months) Concerned itself with the application of lime septage onto covered sand beds. Four experimental runs were conducted to assess the feasibility of such an approach. The septage was limed to pH 10.5, 11.0, and 11.5 and applied at eight inch (20.3 cm.) depths. Underdrainage and cake characteristics were monitored and practical sand-bed application rates were determined. A materials balance of chemical constituents around the system was made. A cost estimate for the treatment of septage at small treatment plants via this method is included. (NT) CON : NTIS 5285 Port Royal Boad Springfield, VA 22161 ACC# : L000016 AUTHOR: Rose, C.W. AFFIL : USDA; Farmers Home Administration, Washington, D.C. TITLE : Onsite Systems: Farmers Home Administration SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Pourth National Conference; National Sanitation Foundation; 1977; pp. 21-26 YEAR : 1978 TEXT : Describes the Farmers Home Administration's involvement in planning waste treatment systems through financial aid to farmers, rural families and communities. Also presents a view of the current status of on-site treatment, regional planning concepts, pressure sever systems, and Ten State standards, as they relate to Farmers Home Administration. (SWP) : Ann Arbon Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000017 AUTHOR: Abney, J.L. AFFIL : Parrott, Ely & Hurt, Lexington, KY TITLE : Fountain Run, Kentucky (Case Study) SOURCE: Mational Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 54-67 (EPA-600/9-79-010; NTIS Report No. PB 293 254/AS) COST : \$6.50 : 1978 YEAR : Presents an alternative, proposed for installation in Fountain Run, Kentucky, to centralized collection and treatment. The system consists TRIT of individual septic tanks, effluent severs, and clustered subsurface disposal sites. Includes detailed construction costs and a summary of the possible effects of implementing the system. (SWF) CON : WTIS 5285 Port Royal Road Springfield, VA 22161 ACC # : L000018 AUTHOR: Stryker, B.W.; Steele, W.T. AFFIL : University of Vermont, Burlington, VT TITLE : Hanagement of Bural Septic Systems Utilizing the Natural Resource Conservation District Specialist Program SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 85-118

**TERE : 1978 TEXT : Several conservation districts in Vermont have insured the proper** installation of sewage systems through the District Specialist Program. The specalist, provided through a cooperative arrangement between the district and a town, is responsible for site evaluation, system design and inspection. Soil survey data and site evaluation, rather than just percolation tests, provide the basis for system design. (SWF) COM : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 1004 : L000019 AUTHOR: Rhett, J.T. AFFIL : BPA, Water Programs Operations, Washington, D.C. TITLE : Onsite Systems: EPA's Construction Grants Program SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 15-20 YBAR : 1978 : Describes changes in the Environmental Protection Agency's Construction TBIT Grants Program as they relate to both increased funding of treatment facilities for small communities and to eligibility of on-site wastewater systems. (SWP) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, MI 48106 ACC# : 1000020 AUTHOR: Hoxie, D.C.; Hinckley, W.W. AFFIL : Department of Human Services, Augusta, HB TITLE : Factors Affecting Acceptance of Waterless Toilets - The Maine Experience SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth Wational Conference; National Sanitation Foundation; 1977; pp. 167-172 TEAR : 1978 : Explores Maine's experience with waterless toilets since 1974, their TEXT acceptance as a method of human waste disposal, and the factors affecting their future use. Briefly discusses cost and seven common uses of waterless toilets. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000021 AUTHOR: Dines, A.J. APTFIL: A.J. Dines Associates, Inc., Ann Arbor, MI TITLE : Implementation of Onsite Wastewater Management Arrangements-Overcoming Incentives for Inaction SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 69-77 TEAR : 1978 : Your factors are responsible for limiting implementation of on-site TEIT treatment systems: habit, uncertainty, political alignments, and respons to recommendations of external origin are briefly discussed in terms of their plan limiting tendencies. Recommendations for dealing with each factor are presented. (SWF) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, HI 48106 ACC# : 1000022 AUTHOR: HacGregor, A.S.; Johnson, G.H. AFFIL : Roy F. Weston, Inc., West Chester, PA TITLE : Management Districts - A Key to Implementing an Onlot Disposal Alternative SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth Wational Conference; National Samitation Foundation; 1977: pp. 41-49 : 1978 YBL R TEXT : Presents the role of management districts in bringing about wastewater treatment programs based on long-term reliance on on-site treatment. The structure and function of a management district is also described. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000023 AUTHOR: Polhemus, V.D.; Friedman, D.S. AFFIL : Roy F. Weston, Inc., West Chester, PA TITLE : In Application of the Onlot Management Concept: Objectives, Responsibilities, and Costs SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 53-67 YEAR : 1978

TBIT : CON :	An application of the management district concept as it applies to on-site wastewater treatment is presented. Topics covered include applying the system in the Pocono Hountains resort area, a summary of on-lot disposal methods, responsibilities of the district, and costs of implementing the system. (SWF) Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106
ACC# : AUTHOR:	L000023 Maurer, G.E.
AFFIL : TITLE :	Department of Environmental Resources, Harrisburg, PA Certification of Sewage Enforcement Officers: An Onsite Hanagement Alternative
SOURCE:	Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 123-128
CON :	Describes Pennsylvania's certification procedure for sewage enforcement officers as a tool to manage on-site sewage treatment. Includes elements of the state sewage program and the sewage enforcement officer's certification, responsibilities, and duties. (SWF) Ann Arbor Science Publishers, Inc.
	P.O. Box 1425 Ann Arbor, HI 48106
ACC# : AUTHOR: AFFIL : TITLE :	L000025 Wise, R.H.; Pressley, T.A.; Austern, B.H. BPA Hunicipal Environmental Research Laboratory, Cincinnati, OH Partial Characterization of Chlorinated Organics in Superchlorinated Septages and Hixed Sludges WETC Depart We Depart 129 (857 (TPA (600/2-78 (020)) + 30 pages
YEAR : TEXT :	1978 The chlorinated organic materials produced by applying the Purifax (R) process to a septage and a mixed primary/secondary sludge were studied to assess the types, amounts, and distribution of chlori- nated organics present. Total organic chlorine in the solids phases was determined by Schoniger-flask combustion. Concentrated hexane- ether extracts of the liquid phases were also analyzed for total chlorine by microcolorimetric titration; these same extracts were then analyzed by GC/BS for individual organic compounds. Helium-purgeable- organics in the liquid phases were also determined by GC/MS. Liquid phases from one Purifax (R) installation were analyzed for TOC, TDS, and TSS to furnish engineering cost data for applying filtration/carbon adsorption as a Purifax-treatment adjunct. (WT)
CON :	NTIS 5285 Port Royal Rd. Springfield, VA 22161
ACC4 : AUTHOR: AFFIL : TITLE : SOURCE: YEAR : TEXT :	L000026 Brandes, M. Ontario Ministry of the Environment, Toronto, Ontario, Canada Accumulation Rate and Characterisitics of Septic Tank Sludge and Septage Journal of the Water Pollution Control Pederation, 50(5): 936-943 1978 Properties of sludge and septage depend on strength of raw wastewater.
	Longer detention times improved decomposition and lowered the rate of sludge accumulation. Additional results of monitoring three two- compartment septic tanks for two years revealed that septage accumula- tion is approximately 200 liter/person/year. Land required for septage- disposal of 2.5 million people in Ontario is 14 square km. Data is given for the contaminant concentration of the supernatant, sludge and septage for each septic tank. (SWF)
ACC4 : AUTHOR: AFFIL : TITLE : SOURCE: YEAR : TEXT :	L000027 D'Aragon, P. Quebec, Canada Sewage Treatment Tank U.S. Patent No. 3,888,767 1975 Describes a sewage treatment tank with separate compartments which can digest sewage in successive stages by anaerobes and aerobes. (SWF)
ACC4 : AUTHOR: AFFIL : TITLE : SOURCE: YEAR :	L000028 Petter, C.W., Jr.; Sloey, W.E.; Spangler, F.L. University of Wisconsin, Oshkosh, WI Potential Replacement of Septic Tank Drain Fields by Artificial Marsh Wastewater Treatment Systems Ground Water, 14(6): 396-402 1976 Individual subsurface lignid waste disposal has been cited as a source
	of groundwater contamination. Wastewater treatment systems using emergent marsh vegetation planted in a gravel substrate in a plastic-

lined trench could be used to treat septic tank effluent. A pilot plant treating unchlorinated primary municipal effluent achieved the following reductions in mass: five-day BOD-77 percent; COD-71 percent; orthophos-phate-35 percent; total phosphorus-37 percent; nitrate-22 percent; and coliform bacteria-99.9 percent. While such treatment is possible only during the growing season, it could be useful at summer cottages, camping areas, resorts and roadside rest areas. Marsh treatment systems are inexpensive to operate and are virtually automatic. (AU) ACC # : L000029 AUTHOR: N/A AFFIL : EPA, Environmental Research Information Center, Washington, D.C. TITLE : Onsite Wastewater Disposal Alternatives-Federal, State and Local Involvement SOURCE: EPA Report No. 440/3-77-020, 11 pages YEAR : 1978 TEXT : This case history in 208 Water Quality Management Planning reviews and evaluates wastewater systems employed in the South Kennebec Valley Region of Maine. A survey revealed that 50 percent of the disposal systems are within 30 meters of the shoreline; 33 percent are improperly maintained; and about five percent are actually malfunctioning. Recommended possible remedies include cluster systems, improved individual on-site disposal, water use reduction, pumping waste to more suitable soils, waterless toilets and regular pumping of holding tanks. Possible funding and implementation is also reviewed. (SWF) ACC# : L000030 AUTHOR: Galonian, G.E.; Aulenbach, D.B. AFFIL : Bio-Environmental Engineering Division of Rensslaer Polytechnic Institute, Troy, NY TITLE : Phosphate Removal from Laundry Wastewater SOURCE: Journal of the Water Pollution Control Federation, 45(8): 1708-1717 YEAR : 1973 TEXT : Acceptable levels of phosphate removal from laundry wastewater was accomplished in laboratory studies by using an American Laundry Machinery Industries System in conjunction with chemical coagulants at a pH range of 9.5-10.0. Precipitation tests of phosphate removal efficiencies were run on three chemicals: calcium chloride, alum, and ferric chloride. Calcium chloride was found to be the most efficient and ferric chloride the least efficient. (SWF) ACC# : L000031 AUTHOR: Grethlein, H.E. AFFIL : Dartmouth College, Hanover, NH TITLE : Anaerobic Digestion and Membrane Separation of Domestic Wastewater SOURCE: Journal of the Water Pollution Control Federation, 50(4): 754-763 YEAR : 1978 TEXT : Septic tank treatment systems using semi-permeable membranes are described and evaluated. Laboratory and pilot plant studies indicate that these systems exceed secondary effluent standards and increase anaerobic decomposition rates in the septic tank by a factor of three to four times. A general diagram of the basic system is included. (SWF) ACC# : L000032 AUTHOR: Harkin, J.H.; Javson, H.D.; Baker, F.G. AFFIL : University of Wisconsin, Soil Science & Water Resource Center, Hadison, VI TITLE : Causes and Remedy of Failure of Septic Tank Seepage Systems SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Second Bational Conference; National Sanitation Foundation; 1975; pp. 145-157 TBAR : 1976 TEXT : Hydrogen peroxide was used on failed septic systems in an attempt to unclog the seepage beds. Laboratory columns and field systems showed that hydrogen peroxide added directly to the seepage beds will solubilize sulfide depositions that clog soil pores. Preventive treatment is recommended over remedial treatment of failed septic systems. See L000102. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000033 AUTHOR: Johnson, W.; Urie, D.H. AFFIL : BPA Office of Research & Development, Washington, D.C. TITLE : Ground-Water Pollution Aspects of Land Disposal of Sewage from Remote Recreation Areas SOURCE: Proceedings of the Third National Groundwater Quality Symposium; 1976; pp.47-54 YBAR : 1977 TEXT : Wastewater injection into subsurface soil is a reliable, low cost method for the disposal of liquefied campground sewage. Pilot tests of the

wastewater injection treatment were conducted in Michigan's Hiawatha

National Forest. Wo significant amount of bacterial or viral contamination of groundwater was encountered in the test wells located near the injection site, except under extreme conditions. Limiting conditions are explained in a set of proposed guidelines governing the future use of soil injection as a means of treatment. (SWF) ACC# : L000034 AUTHOR: Jewell, W.J.; Howley, J.B.; Perrin, D.R. AFFIL : Cornell University, Ithaca, WY TITLE : Treatability of Septic Tank Sludge SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas: 1975: Paper No. 28: pp. 445-477 YEAR : 1975 TEXT : Laboratory studies indicated that centralized aerated lagoons, or aerobic digestion units, provided the best means of treating septage. Twenty-four samples of septage obtained from a local contractor supplied the feed for the seven merated lagoons, 14 merobic digestion units and one anaerobic digestion unit. Dewatering septage with sand drying beds was found to be unfeasible. However, aerobic treatment or chemical additives substantially increased devatering rates. Fearing and odor were major problems with aerobic systems due to the presence of house-hold detergents in the septage. Conventional septage treatment by existing municipal facilities was judged to be inadequate. See L000090. (SWP) COM : University Press of New England Hanover, NH 03755 ACC# : L000035 AUTHOR: Jones, P.H. AFFIL : University of Toronto, Ontario, Canada TITLE : Low Cost Wastewater Treatment Facilities for Rural Areas SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 25; pp. 371-388 YEAR : 1975 TEXT : Treatment plant design and process selection for wastewater treatment facilities in rural areas are discussed. Ten selected wastewater treatment plants in Ontario, Canada are compared on the basis of size, cost, plant efficiency and process selection. (SWF) : University Press of New England CON Hanover, NH 03755 ACC# : L000036 AUTHOR: Lent, D.S. AFFIL : Hilitary Technology Department, Fort Belvoir, VA TITLE : Treatment of Power Laundry Wastewater Utilizing Powdered Activated Carbon and Cationic Polyelectrolyte SOURCE: Proceedings of the Industrial Waste Conference; 1977; Volume 30; PP. 751-759 YBAR : 1977 TEXT : Power laundry wastewater can be effectively treated by a powdered activated carbon/polymer/coagulation process. The effluent can be reused or discharged into receiving waters in compliance with BPA guidelines. Results of the commercial testing of the system conducted at Sterling Laundry in Washington, D.C., from October 15, 1973, to Pebruary 21, 1974 are presented. (SWF) ACC# : 1000037 AUTHOR: Siegrist, R. AFFIL : University of Wisconsin, Hadison, WI TITLE : Waste Segregation as a Means of Enhancing Onsite Wastewater Management SOURCE: Journal of Environmental Health, 40 (1): 5-8 YEAR : 1977 TEXT : Segregation of in-house wastes into blackwater (sewage) and greywater streams results in better disposal by conventional methods. Blimination of the garbage grinder and toilet from the remaining household wastewater stream, by use of a monconventional toilet system, yields simplified wastewater treatment. Benefits include surface disposal and outside reuse of the greywater fraction as well as conservation of water resources and the recycling of valuable nutrients to the soil. (SWF) ACC# : 1000038 AUTHOR: Siegrist, R.; Witt, H.; Boyle, W.C. AFFIL : University of Wisconsin, Hadison, WI TITLE : Characteristics of Rural Household Wastewater SOURCE: ASCE Journal of Environmental Engineering Division, 102(EE3): 533-548 YEAR : 1976 TEXT : Water use and wastewater guality were sonitored in 11 homes for four weeks. Five categories of water consumption and wastewater production, toilet, clothes washing, bathing, dishwashing and water-softening were established. Data on the individual water and wastewater streams are

supparized in a series of tables and charts showing the major sources

of water consusption and wastewater contribution. (SWF)

ACC# : L000039 AUTHOR: Traverse, C.E. AFFIL : Lake Waynewood, Lake Ariel, PA TITLE ; Method and Apparatus for Aerobic Sewage Treatment SOURCE: U.S. Patent No. 4,002,561 Source: u.s. ratent no. grouped YEAR : 1977 TEXT : Describes a septic tank mechanism for physically reducing floc particles to an optimum size in order to achieve a maximum rate of aerobic de-to an optimum size in order to achieve a maximum rate of aerobic de-to an optimum size in order to achieve a maximum rate of aerobic de-to an optimum size in order to achieve a maximum rate of the system. composition. The mechanism also provides optimum aeration of the system. (SWP) : L000040 ACC # AUTHOR: Sauer, D.K.; Boyle, W.C.; Otis, R.J. APPIL : University of Wisconsin, Madison, WI TITLE : Intermittent Sand Filtration of Household Wastewater SOURCE: ASCE Journal of Environmental Engineering Division, 102(EE4): 789-803 YEAR : 1976 TEXT : The combination of an aerobic treatment unit or septic tank with intermittent sand filters provides a treated effluent which will meet current surface discharge effluent standards. Four systems were studied, two septic tank systems and two aerobic treatment units, at field sites in Wisconsin from September 1973 to February 1975. Effluent quality data were presented along with cost comparisons for the various systems. (SWF) : L000041 ACC# AUTHOR: Bell, H.F. AFFIL : Bell Construction Co., Matteson, IL TITLE : Reviving the Septic Tank SOURCE: Civil Engineering, 47(12): 83-84 YEAR : 1977 TEXT : General suggestions for installation of seepage fields and recommended practices for improved on-site sewage disposal are discussed. The septic tank is often criticized because of ignorance as to what a septic tank system is designed to accomplish. (SWP) ACC# : 1000042 AUTHOR: Bouma, J.; Converse, J.C.; Otis, R.J.; Walker, W.G.; Ziebell, W.A. AFFIL : University of Wisconsin, College of Agriculture & Life Sciences, Madison, WI TITLE : A Hound System for Onsite Disposal of Septic Tank Effluent in Slowly Permeable Soils with Seasonally Perched Water Tables SOURCE: Journal of Environmental Quality, 4(3): 382-388 YBAR : 1975 TEXT : Slowly permeable soils with seasonal high water tables cannot be used for conventional subsurface disposal of septic tank effluent. An alternative mound system is described which consists of soil-covered seepage trenches on top of 60 cm. of sand fill deposited on the original soil surface. The bottom area of the mound is sufficiently large to allow soil absorption of effluent considering the low conductivity of the subsoil, which was measured in-situ with the crust test procedure. Honitoring data for four experimental mound systems and design and construction criteria are discussed. (AU) ACC# : 1000043 AUTHOR: Bouma, J. AFFIL : University of Wisconsin; Madison, WI TITLE : New Concepts in Soil Survey Interpretations for On-Site Disposal of Septic Tank Effluent SOURCE: Soil Science Society of America Proceedings, 38(6): 941-946 Sources: soil strence strence, TBAR : 1974 TEAR : 1974 TEAT : Advocates the use of soil survey information in designing on-site waste disposal systems. Soil potential is emphasized instead of soil limita-disposal systems. Soil potential is emphasized instead of soil limita-disposal systems. Soil potential is emphasized instead of soil limita-disposal systems. Soil potential is emphasized instead of soil limita-disposal systems. Soil potential is emphasized instead of soil limita-disposal systems. tions. Hydraulic conductivity, degree of purification, and design of on-site systems are main factors to be considered in developing a workable soil absorption system. (SWP) ACC# : L000044 AUTHOR: Tyler, E.J.; Laak, R.; McCoy, E.; Sandhu, S.S. AFFIL : University of Wisconsin, Madison, WI TITLE : The Soil as a Treatment System SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 22-37 : 1978 YEAR TEXT : The effectiveness and acceptability of soil disposal systems depends on the type of soil underlying the treatment system. Physical, chemical, and biological factors affecting soil absorption systems are examined. (SWP) CON : American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, MI 49085

ACC# : L000045 AUTHOR: Carcich, I.G.; Hetling, L.J.; Farrell, B.P. AFFIL : New York State Department of Environmental Conservation, Albany, NY TITLE : The Pressure Sewer: A New Alternative to Gravity Sewers SOURCE: Civil Engineering, 44(5): 50-53 YBAR : 1974 TEXT : Use of grinder pumps to discharge household sewage into small diameter pressure sewers greatly reduced the cost of installing treatment systems in a 12-house area in Albany, New York. Elimination of infiltration and other extraneous flows, such as downspouts and foundation drainage, reduced sewage volume by two-thirds over conventional sewers, thus saving additional costs. (SWP) : L000046 ACC # AUTHOR: Dyment, R. AFFIL : N/A TITLE : Truck-Tankers Clean Septic Tanks in Rural Areas SOURCE: Water And Sewage Works, 125(1): 49 YEAR : 1978
TEXT : Sludge from septic systems can be disposed of by injecting it eight to
 ten inches into the soil. This method of disposal has been approved for
 use in Clarence, New York, by state and county health departments. Equipment used in the process is described. (SWP) ACC# : 1000047 AUTHOR: El Nashar, A.M. AFFIL : University of Mansoura, Department of Mechanical Engineering, Alexandria, Egypt TITLE : The Separation of Shower and Laundry Wastewater Using Zr-Paa R.O. Meabranes SOURCE: Desalination, 23(1-3): 1-18 YEAR : 1977 TEXT : This paper describes the reverse osmosis tests which were carried out on shower and laundry wastewater using dynamically formed zirconium oxide-polyacrylate membranes which were formed in-situ. Performance data consisting of solute rejection and product water flux, as depending on several operating parameters, are presented. These parameters are: operating pressure, circulation velocity, and feed concentration. Data presented include rejections of organic material (TOC), ammonia, urea, and several icnic species. (10) ACC# : L000048 AUTHOR: Gibbs, M.M. AFFIL : Ecology Division, Department of Science and Industrial Research, Taupo, New Zealand TITLE : Study of a Septic Tank System on a Lake Shore: Temperature and Effluent Flow Patterns SOURCE: New Zealand Journal of Science, 20(1): 55-61 YEAR : 1977 : By using groundwater temperature mapping techniques, it was determined TEXT that because of high groundwater table in the area, septic tank effluent was contaminating Lake Taupo, New Zealand. See L000059. (SWF) ACC # : L000049 AUTHOR: Hershaft, A. AFFIL : Interstate Electronics Corporation, Arlington, VA TITLE : The Plight and Promise of On-Site Wastewater Treatment SOURCE: Compost Science, 17(5): 6-12 YEAR : 1976 TEXT ; The expanded use of on-site wastewater treatment systems has been hindered because current opinion favors severs and centralized waste treatment facilities. The disadvantages of severed central waste facilities are cost, depletion of groundwater and eutrophication. Ad-vantages of on-site systems and a list of their manufacturers are also presented. (SWF) ACC# : L000050 AUTHOR: Klein, S.A. AFFIL : University of California, Sanitary Engineering Research Laboratory, Berkeley, CA TITLE : NTA Removal in Septic Tank and Oxidation Pond System SOURCE: Journal of the Water Pollution Control Federation, 45(1): 78-88 YEAR : 1974 TEXT : Degradation of trisodium nitrilotriacetate (NTA), a possible substitute for phosphate in detergents, was studied by four pilot-scale septic tank and leaching field systems for nine months. Results indicate that a 23 percent removal of WTA could be achieved in the septic tank and that complete decomposition occurred in aerobic percolation fields, though anaerobic fields could degrade only 10 percent of the MTA. (SWP)

ACC# : L000051 AUTHOR: Ligman, K.; Hutzler, N.; Boyle, W.C. AFFIL : Baxter & Woodman, Inc., Crystal Lake, IL TITLE : Household Wastewater Characterization SOURCE: ASCE Journal of the Environmental Engineering Division, 100(EE1): 201-213 : 1974 YEAR TEXT : A survey of residents in urban and rural communities in Wisconsin was conducted from January to May 1972. The study showed that peak waste-water flows occurred at 8-9 a.m. and 6-7 p.m. From this data, simulated loading rates were developed for use in wastewater treatment and disposal studies. (SWF) : L000052 ACC # AUTHOR: Lombardo, P. AFFIL : Pio Lombardo and Associates, Boston, MA TITLE : Septage Composting SOURCE: Compost Science, 18(6): 12-14 TEAR : 1977 TEXT : The 1976 Rehoboth pilot project in Massachusetts showed that septage can be economically and successfully treated by composting. The addition of sawdust as a bulking agent was reported to be beneficial. Tables showing septage characteristics and metals concentration are included. (SWP) ACC# : L000053 AUTHOR: Magdoff, F.R.; Bouma, J.; Keeney, D.R. AFFIL : University of Wisconsin, Madison, WI TITLE : Columns Representing Hound-Type Disposal Systems for Septic Tank Effluent: I. Soil-water and Gas Relations SOURCE: Journal of Environmental Quality, 3(3): 223-228 YEAR : 1974 TEXT : Perforated and non-perforated columns were used to approximate a mound disposal system. Crusting at the interface of the subsurface seepage bed and the soil, with both types of columns employed, occurred as the levels of COD and total solids increased at the interface. With crusting came ponding and near-aerobic conditions in the soil pores. (SWF) : L000054 ACC # AUTHOR: Magdoff, F.R.; Keeney, D.R.; Bouma, J.; Ziebell, W.A. AFFIL : University of Wisconsin, Madison, WI TITLE : Columns Representing Mound-type Disposal Systems for Septic Tank Effluent: II. Nutrient Transformations and Bacterial Populations SOURCE: Journal of Environmental Quality, 3(3): 228-234 YEAR : 1974 TEXT : Soil materials, arranged as 60 cm. of fill over 30 cm. of silty loam to simulate the percolating bed of a mound, improved the quality of percolated septic tank effluent. Complete removal of fecal indicators, nearly complete COD removal and significant decreases in nitrogen and concentrations were achieved. (SWP) ACC# : 1000055 AUTHOR: Bounds, T. AFFIL : Douglas County Public Works Department, Douglas County, Oregon TITLE : Pressure Sewers (with Glide/Idleyld Case Study) SOURCE: National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 45-53 (BPA-600/9-79-010; MTIS Report No. PB 293 254/AS) : \$6.50 COST YEAR : 1978 TEXT : A survey of 500 homes in Glide, Oregon, revealed that 60 percent of the drainfields showed some form of failure. Economic considerations dictated the use of pressure severs as a means of wastewater conveyance. Alternative disposal systems, mounds, sand filters and evapotranspiration beds were compared in terms of cost, site criteria, and efficiency. (SWF) CON : WTIS 5285 Port Royal Rd. Springfield, VA 22161 ACC# : L000056 AUTHOR: Hagdoff, F.R.; Keeney, D.R. AFFIL : University of Wisconsin, Madison, WI TITLE : Mutrient Mass Balance in Columns Representing Fill Systems for Disposal of Septic Tank Effluents SOURCE: Environmental Letters, 10(4): 285-294 YEAR : 1975 TEXT : Columns representing the vertical dimensions of a fill-type disposal system were sectioned and analyzed after prolonged leaching with septic tank effluent. Carbon and N accumulated mainly in and just below the crust (clogged surface) on top of the 60 cm. sand layer. Depletion of both C and W from the 30 cm. silt loam layer at the bottom of the column

was large enough to result in a net loss of these constituents from the soil materials. The materials, as arranged in the columns, removed nearly all of the influent COD and about 22 percent of the N. (AU) : L000057 ACC# AUTHOR: Parker, D.E.; Lehr, J.H.; Roseler, R.C.; Paeth, R.C. AFFIL : Wisconsin Department of Health and Social Services, Madison, WI TITLE : Sits Evaluation for Soil Absorption Systems SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 3-15 : 1978 YEAR TEXT : Site conditions needed for conventional soil absorption systems and alternate systems are identified along with adverse conditions where absorption systems should not be permitted. Resource materials for preliminary site evaluation are discussed and a detailed site evaluation procedure is suggested. Other items, such as permit applications, political factors and regional differences in site evaluation are also discussed. (AU) : American Society of Agricultural Engineers CON 2950 Niles Road St. Joseph, MI 49085 ACC# : L000058 AUTHOR: Sikora, L.J.; Corey, R.B. AFFIL : University of Wisconsin, Madison, WI TITLE : Fate of Witrogen and Phosphorus in Soils Under Septic Tank Waste Disposal Fields SOURCE: Transactions of the ASAE, 19(5): 866-870 YEAR : 1976 TEXT : Probable nitrogen forms in soils under septic tank waste disposal fields are predicted by correlating observed soil moisture tensions with aeration status. The conditions beneath most waste disposal fields are sufficiently aerobic for mitrate to be the probable mitrogen form. The probable phosphorus form would depend upon many factors including mineral content and pH of the soil. Due to high P concentration in septic tank wastes, both sorption and decomposition-precipitation reactions must be considered when determining P movement. Only in soils with little sorption capacity would the pollution potential of phos-phorus from septic tank waste be considerable. (AU) ACC# : 1000059 AUTHOR: Gibbs, H.H. AFFIL : Ecology Div., Department of Scientific and Industrial Research, Taupo, New Zealand )TITLE : Soil Renovation of Bffluent from a Septic Tank on a Lake Shore SOURCE: New Zealand Journal of Science, 20(3): 255-263 YEAR : 1977 : Witrogen, phosphorus, and bacterial contamination in Lake Taupo, New TEXT Zealand, has been linked to the presence of septic tanks constructed over shallow groundwater tables near the lake. Flow patterns from septic tanks were determined by thermal mapping of sites near the lake. Distinct possibilities of health hazards occurring in the area were found to exist. See L000048. (SWF) : L000060 ACC# AUTHOR: Reneau, R.B.; Pettry, D.E. AFFIL : Virginia Polytechnic Institute and State University, Blacksburg, VA TITLE : Hovement of Coliform Bacteria from Septic Tank Effluent through Selected Coastal Plain Soils of Virginia SOURCE: Journal of Environmental Quality, 4(1): 41-45 YEAR : 1975 TEXT : Howement of total and fecal coliform bacteria from septic tank effluent through three Virginia Coastal Plain soils was monitored in-situ over a two-year period. These soils were considered to be marginally suited for sanitary disposal of domestic wastes because of fluctuating seasonal water tables and/or restricting layers. Since septic effluent moved predominantly in a horizontal direction in these soils as a result of slowly permeable subsurface horizons, a series of piezometers were in-stalled to collect samples at selected distances and depths from the source (subsurface drainfield) in each of the soils studied. Generally the most-probable-numbers (HPW) of both total and fecal coliforms decreased significantly with horizontal distance and depth. At the Varina location total and fecal colliform counts were observed to decrease at 6.1 m., above a relatively impermeable plinthic horizon. At the Goldsboro and Beltsville sites large reductions in both total and fecal coliform counts were noted within 13.5 m. Pew detectable fecal coliforms

were present below the restricting layers at all three sites. On the basis of these results, it seems unlikely that colliform bacteria would

move into the permanent groundwater system. (AU)

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ACC# : L000061 AUTHOR: Smith, H.B. ATTIL : N/A TITLE : Making Septic Tank Systems Work SOURCE: Compost Science, 17(4): 27 IBAR : 1976 TEXT : Increased housing development in the mountainous region of California has brought concern for present and future control of the sanitary systems. This narrative by a health officer describes a program for upgrading septic tanks and installing alternative waste sethods that the community prefers over "sewering the whole county". (SWP) ACC# : 1000062 AUTHOR: Thackwell, H.L. APPIL : Consulting Engineer, Yucaipa, Ca TITLE : Septic Tank Efficiency (A Discussion) SOURCE: ASCE Journal of the Environmental Engineering Division, 102(EE6): 1304-1305 : 1976 TRIR TEXT : A discussion of "Septic Tank Efficiency" by Viraraghavan (ACC# L000069). Design practices in England, Taiwan and Southern California are given for comparison. Other means of treating septic tank effluent to improve its quality are also stated. (SWP) : L000063 ACC . AUTHOR: Sobsey, H.D.; Wallis, C.; Helnick, J.L. AVTHOR: Sobsey, H.D.; Wallis, C.; Helnick, J.L. AFFIL : Baylor University, College of Hedicine, Houston, TX TITLE : Chemical Disinfection of Holding-Tank Sewage SOURCE: Applied Microbiology, 28(5): 861-866 YEAR : 1974 TEXT : A number of chemical disinfectants were evaluated for their bactericidal and virucidal effectiveness in holding tank sevage. It was found that the disinfection efficiencies of formaldehyde, benzalkonium chloride, cetylpyridinius chloride, and methylene blue were markedly improved if the pH of the sewage was raised from 8.0 to 10.5. When formaldehyde, bensalkonium chloride, and methylene blue were tested with either two-week holding times with no sewage additions or ten-day holding times with daily sevage additions, disinfection effectiveness was maintained as long as the sewage pff was kept at 10.5 and the disinfectant concen-tration was kept at 100 mg/liter or more. Calcium hypochlorite, sinc sulfate, and phenol were found to be relatively ineffective disinfectants for holding tank sewage. (10) LCC# : L000064 LUTHOR: Horsau, E. IFFIL : Department of Human Services, Augusta, HB ITLE : Haise's Perspective on Composting Toilets and Alternate Greywater Systems DURCE: Compost Science, 18(4): 18-19 TRA : 1977 EXT : Haine first permitted the use of composting toilets and greywater systems in 1974. If properly designed and saintained, these systems can operate effectively. The status of these systems and their pertinent state regulations are presented. The originality of Haine's state code is emphasized. (SWP) : L000065 CC UTHOR: Troyan, J.J., et.al. **PFIL : Brown & Caldwell, Eugene, OR** ITLE : Cost-Effectiveness of On-Site and Community Severage Alternatives OURCE: Civil Engineering, 47(12): 84-89 EAR : 1977 BIT : Outlines a procedure for assessing the cost-effectiveness of wastewater BIT : Outlines a procedure for assessing the cost-effectiveness of wastewater treatment alternatives. The need to assume equal service and to consider technical and administrative feasibility, while comparing systems is emphasized. Advantages, disadvantages, limitations and cost factors for evaluating septic (ST)-soil absorption systems, ST-mound systems, ST-evapotranspiration systems, ST-sand filter systems, conventional gravity severs, small diameter gravity severs, pressure severs and vacuum severs are described. (SWP) C# : 1000066 PTNOR: Vepraskas, H.J.; Baker, F.G.; Bouma, J. PFIL : University of Wisconsin, Hadison, WI [TLE : Soil Hottling and Draimage in a Mollic Hapludalf as Related to Suitability for Septic Tank Construction WRCE: Soil Science of America Proceedings, 38(3): 497-501 IAR : 1974 MT : Septic tank effluent disposal feasibility in a fine silty Hollic Hapindicated reducing conditions and channel and plane neoferrans indicated oxidative conditions in the larger pores. Physical data showed high K values and drainage rates at saturation, due to channels and planes, but a very strong drop of these values upon desaturation. Lack of extended saturation of the entire subsoil makes possible excavation of the silt cap and construction of a septic tank seepage bed in the underlying sand. (AU)

ACC # : L000067 AUTHOR: Beneau, R.B., Jr.; Pettry, D.E. AFFIL : Virginia Polytechnic Institute and State University, Blacksburg, VA ) TITLE : Hovement of Hethylene Blue Active Substance from Septic Tank Effluent through Two Coastal Plain Soils SOURCE: Journal of Environmental Quality, 4(3): 370-375 YEAR : 1975 TEXT : Hethylene blue active substances (HBAS) concentration as a function of distance and depth in soils with high perched water tables were moni-tored as part of a study, supported by the Virginia Department of Health to determine movement of septic pollutants through natural soil systems. The soils studied were Varina and Goldsboro. Piezometers were placed at selected distances and depths from the drainfield in the direction of groundwater flow to determine both vertical and lateral movement. Also soil adsorption studies were conducted on selected horizons from these soils to determine the influence of adsorption on distance traveled and biodegradation. Horizontal movement of HBAS in both soils were generally limited to 3.0 m or less. Sol adsorption studies indicated that these soils were capable of adsorbing large quantities of linear alkyibenzenesulfonate (LAS), but inefficiently under saturated conditions as indicated by adsorption of approximately 65 percent of the original for all three levels employed. (AU) ACC# : L000068 AUTHOR: Viraraghavan, T. APPIL : ADI Ltd., Fredericton, New Brunswick, Canada TITLE : Septic Tank Efficiency (Closure) SOURCE: ASCE Journal of the Environmental Engineering Division, 103(EE4): 743 YEAR : 1977 TEXT : The increase of detention time in designing septic tanks should also increase their suspended solids removal efficiency. (SWF) ACC# : 1000069 AUTHOR: Viraraghavan, 1. AVTHOR: Viraraghavan, 1. AFFIL : ADI Ltd., Fredericton, New Brunswick, Canada TITLE : Septic Tank Efficiency SOURCE: ASCE Journal of the Environmental Engineering Division, 102(BE2): 505-508 YEAR : 1976 TEIT : Septic tank performance of a twelve member family dwelling in Quebec in 1973 showed a 15S removal of 20 percent and a 50 percent removal of BOD and COD. Low total suspended solids and bacterial removals in the septic tank indicated that a guiescent settling tank should follow the septic tank, thus preventing re-entrainment of sedimented material into the effluent stream. There was no appreciable removal of indicator organism through the septic tank. However, removals of over 80 percent of Pseudomonas Aeruginosa were consistent through treatment in the septic tank. (SWP) ACC# : 1000070 AUTHOR: Wooding, W.H. AFFIL : Penn State University, College of Agriculture, University Park, PA /TITLE : Alternate Methods of Effluent Disposal for On-Lot Home Sewage Systems SOURCE: Pennsylvania State University Extension Service; Special Circular 214; 1976; 15 pages 1970; 19 pages
1976
This pauphlet prepared by the Penn State Cooperative Extension service serves as a guide to the homebuilder and the homeowner who needs to build, replace, or repair an on-site system. Elevated sand mounds, sand-liest had and transfer, aerobic sewage treatment system standards, YBAR TRIT oversized absorption areas, effluent distribution systems, and shallow placement absorption systems are discussed. Information as to permissible soil and site conditions, site preparation, design and construction, size of necessary absorption areas and a decision-making matrix for selection of the appropriate subsurface absorption area is included. (STP) ACC# : 1000071 AUTHOR: Reneau, R.B., Jr. AFFIL : Virginia Polytechnic Institute & State University, Dept. of Agronomy, Blacksburg, VA TITLE : Influence of Artificial Draimage on Penetration of Coliform Bacteria from Septic Tank Effluents into Wet Tile Drained Soils

SOURCE: Journal of Environmental Quality, 7(1): 23-30

YBAR : TEXT :	1978 The penetration of total and fecal coliform bacteria from septic tank drainage fields into wet tile drained soils classified as Typic and Aeric Ochraqualts was studied from 1974 to 1976. These bacteria were monitored in groundwaters at selected distances from the septic tank drainage fields in the direction of groundwater flow and were compared to coliform densities in control wells and in tile outfalls. The outfall from the study area was normally less than 200 fecals/100 ml. compared to less than 3.0/100 ml. in outfall waters from a control area. Fecal coliform densities of the outfall from the study area were some tenfold less than the bacterial quality of the receiving stream. Coliform densities in groundwaters decreased as a logarithmic function of distance. (AU)
ACC # :	L000072
AUTHOB:	Alleman, D.; Jenkins, S.; Hedstrom, W.; Pochop, L.
AFFIL :	W/A
TITLE :	Pilot Plant Treatment of Recreational Area Vault Toilet Waste
SOURCE:	Journal of the Water Pollution Control Federation, 47(2): 377-385
IBAR :	1975
TEIT :	A two-cell aerated lagoon system for the treatment of vault toilet
	wastes in the Hedicine Bow National Forest (Nyoming) was investigated through the use of on-site pilot lagoons. Biochemical oxygen demand was reduced by over 99 percent, the effluent having very little turbidity, odor, or color. Raising the operating temperature of the first cell by eight degrees to 15 degrees Centigrade did not significantly change the lagoon's biochemical oxygen demand removal efficiency or the quality of the effluent when the system was operated for 30 to 35 days. Irrigation of the effluent onto soil columns with growing native plants caused marked increases in growth rates with no noticeable adverse effects or danger of groundwater contamination. (AU)
ACC# :	LOODO73
AUTBOR:	Wooding, N.H.
APPIL :	Penn State University, College of Agrigulture, University Park, PA
TITLE :	Bome Sewage Disposal
SOURCE:	Pennsylvania State University Extension Service; Special Circular 212.
YBAR :	1976; 21 pages 1976
TBXT ;	A description and listing of rules, regulations and practices for selection, installation, construction and maintenance of on-site small wastewater flow systems is given. Discussion and guidelines for use of some alternative systems is included. This publication presents in a clear and succinct form many of the most popular home sewage disposal methods for rural areas. (SWP)
ACC # :	L000074
AUT BOR :	Anonymous
AFFIL :	N/A
TITLE :	New Aerobic Batch Process Replaces Septic Tanks
SOUBCE:	Water and Sewage Works, 122(3): 46-47
YEAR	1975
TBIT :	A three-stage batch aerobic treatment system is described: in the inlet/ surge/aeration chamber (Stage 1) raw sewage is mixed with a prefixed amount of air and biological growths; in the aeration/settling chamber (Stage 2) secondary breakdown of organic matter is achieved by further agitation with diffused air; the effluent from Stage 2 is pumped into a chlorine detention chamber (Stage 3) for its disinfection before dis- charge. Settled sludge is returned into the Stage 1 chamber. (SWP)
ACC# :	L000075
AUTHOR :	Smyser, S.
APPIL :	N/A
TITLE :	New Visibility for On-Site Waste Treatment Systems
SOURCE:	Compost Science, 17(5): 12-14
IGAN 1 TRIT :	Low residential areas in Massachusetts can be economically served by on-site systems, with as much as 79 percent savings. However, though methods of on-site wastewater treatment are now being studied, publi- cized and demonstrated, their acceptance is lacking because of insuffi- cient data on systems and their long-term effects (e.g. composting toilet). A tabulated summary of Non-Sewered Waste Management Demonstra- tion Projects is included. (SWP)
ACC# :	L000076
AUTHOR:	Anonymous
APPIL :	W/A
TITLE	PORTADIE Plant Heets Tertiary Requirements
SOURCE:	American City Hagazine, 86(3): 63
YEAR	: 1971

EXT : Tertiary requirments for wastewater have been set by means of a portable activated sludge/ultrafiltration unit at Pike's Peak, Colorado. The test plant can treat up to 15,000 gallons per day, while producing only 0.06 gallons of sludge per 1000 gallons of effluent. (SWF) CC# : 1000077 OTHOR: Lee, O.G. FFIL : Housing and Urban Development, Washington, D.C. ITLE : HUD's Response to the Housing Crisis - Current Extent of Agency Involvement OURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Hational Conference; National Sanitation Foundation; 1976; pp. 43-51 : 1977 'RAR 'EIT : Presents a sussary of HUD's efforts to cope with rural-urban population shifts and the environmental impacts such a shift entails as related to sevage treatment. A work statement that explains HUD's objectives in dealing with these aforementioned problems is outlined. (SWF) : Ann Arbor Science Publishers, Inc. :01 P.O. Box 1425 Ann Arbor, HI 48106 CC# : L000078 WTHOR: Appelgren, W.; Jorsback, J.; Maesland, G.; Olsson, E.R. FFIL : Saltsjobaden, Sweden ITLE : Severage System for Houses Particularly in Rural Areas OURCE: U.S. Patent Office Official Gazette, 884(2): 578 'BAR : 1971 'BXT : Patent claims that solid and semi-solid impurities can be removed from household wastewater by means of a centrifugal filter-type mechanical strainer. The effluent produced is suitable for pumping into a narrow sever. The filter can be disposable or renewable. (SWP) ICC# : 1000079 UTHOR: Dearth, K. IFFIL : EPA, Hunicipal Constructions Division, Washington, D.C. TILE : U.S. EPA Response to PL 92-500 Relating to Rural Wastewater Problems OURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 37-41 (EAR : 1977 EEXT : Presents EPA's three-step grants procedure established to cover all phases of the wastewater treatment works construction program. Discusses briefly the applicability of section 201 grants to various on-site systems. (SWP) : Ann Arbor Science Publishers, Inc. 101 P.O. Box 1425 Ann Arbor, MI 48106 ICC# : L000080 IUTHOR: Blankenship, E.B. IFFIL : Irving, TX MITLE : Automatic Incinerating Urinal JOURCE: U.S. Patent Office Official Gazette, 896(3): 841 IBAR : 1972 TEXT : A waterless urinal comprised of a bowl having a drain which opens into an insulated electric incinerator having a pan in the bottom thereof and switch means actuated by use of the urinal for activating the heater of the urinal for a period of time. (AU) LCC# : L000081 AUTHOR: Leich, H.H. IFFIL : W/A FITLE : Severless Sanitation: Clean Water Act Strengthens On-Site Ideas SOURCE: Compost Science, 19: 32 TEAR : 1978 TEXT : Discusses the Clean Water Act provisions for establishing a national clearinghouse of information on on-site, individual, or alternative sewage disposal systems. Procedures and requirements for procuring grants from BPA to construct such systems are also presented. (SWP) LCC# : L000082 AUTHOR: Bouna, J. AFFIL : Soil Survey Institute, Regeningen, The Netherlands FITLE : Unsaturated Flow During Soil Treatment of Septic Tank Effluent SOURCE: ASCE Journal of Environmental Engineering Division, 101(EE6): 967-983 IEAR : 1975 FEXT : Unsaturated flow as a parameter to achieve adequate purification of septic tank effluent is discussed. Column studies and field monitoring of homes in Wisconsin showed that the capacity of the soil to accept, conduct, and purify septic tank effluent is determinable only if appropriate hydraulic conductivity (k) curves are available for the soil in question. A suggested espirical design criteria for field systems is presented. (SWY)

ACC# : L000083 AUTHOR: Burant, W., Jr. AFFIL : Rothschild, WI TITLE : Sewage Sludge and Garbage Grinder SOURCE: U.S. Patent Office Official Gazette, 897(4): 1272 YEAR : 1972 TEXT : Patent for a sewage sludge and garbage grinder that moves sludge radially outward to the cutters and trough through slots to the outlet. (STP) ACC# : 1000084 AUTHOR: Carcich, I.G.; Farrell, R.P.; Hetling, L.J. AFFIL : New York State Department of Environmental Conservation, Albany, NY TITLE : Pressure Sever Demonstration Project SOURCE: Journal of the Water Pollution Control Pederation, 44(2): 165-175 TEAR : 1972 TEXT : An investigation of the potential applications of pressure severs by the New York State Department of Environmental Conservation's Research and Development unit is discussed. The features of a pilot demonstration project serving 12 townhouses in Albany, New York are described. Features and criteria for selection of the components utilized, including the monitoring equipment and evaluation programs, are discussed. The evaluation of the system or its performance are not discussed in this paper. (SWF) ACC# : L000085 AUTHOR: Claunch, R.W. AFFIL : New Orleans, LA TITLE : Sewage Disposal System with Reusable Flush Medium SOURCE: U.S. Patent Office Official Gazette, 900(1): 12 YEAR : 1972 TEXT : Patent provides for the use of a recyclable flushing medium in place of water for disposing of toilet wastes and then separating the flushing medium from the waste. (SWF) ACC# : 1000086 AUTHOR: Coolbroth, F. AFFIL : Coolbroth-Sitton Septic Tanks, Inc., Minneapolis, HW TITLE : The Sewage Osmosis Concept to Bliminate Ground Water Pollution SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 97-102 YBAR : 1977 TEXT : The movement of water through clay soils was investigated. This investigation showed how to increase the lateral movement of water through clay. In the experiments, dissimilar materials were buried on opposite ends of a lined bed or on opposite sides of drainfield trenches, and an electrical potential of one wolt direct current between cathode and anode was created. The enhanced upward movement of water and gases through the soil by capillarity was stated to be the greatest benefit of this scheme. (SWF) ACC# : 1000087 AUTHOR: CTOBS, F. AFFIL : Soil Conservation Service, Information Division, Washington, D.C. TITLE : Mound Systems Aid in Sewage Disposal SOURCE: Soil Conservation, 36(3): 63 YEAR : 1970 TEXT : Describes a variation of the "Nodak mound system" used by residents of Clark County, Wisconsin, to remedy the problem of disposing sewage into non-percolating soil found in that area. (SWF) ACC# : L000088 AUTHOR: Goodman, G.J. AFFIL : Chomeday, Laval, Canada TITLE : Septic to Aerobic Sewage Treatment Conversion Apparatus SOURCE: U.S. Patent Office Official Gazette, 893(2): 564 YEAR : 1971 TETT : This patent describes how septic tanks can be converted to aerobic treatment units by adding a system of baffles and countercurrent air diffusers. (SWF) ACC# : L000089 AUTHOR: Healy, K.A.; Laak, B. AFFIL : University of Connecticut, Storrs, CT TITLE : Site Evaluation and Design of Seepage Fields SOURCE: ASCE Journal of the Environmental Engineering Division, 100(EE5): 1133-1146 **TEAR** : 1974 TEXT : Septic tank effluent can be indefinitely absorbed by soil if the application rate is kept below a certain level, which is a function of soil perseability. This acceptance rate is independent of whether the soil is flooded continuously or intermittently. Groundwater flow below

a seepage field is, in many cases, a function of the hydraulic conductivity of the ground surrounding the field. Techniques for site evaluation of soil permeability, depth to water table, and depth to any impervious strata are presented along with design examples. (SWP) ACC. : L000090 AUTHOR: Jewell, W.J.; Howley, J.B.; Perrin, D.R. AFFIL : Cornell University, Ithaca, NY TITLE : Design Guidelines for Septic Tank Sludge Treatment and Disposal SOURCE: Progress in Water Technology, 7(2): 191-205 COST : YEAR : 1975 TEXT : Laboratory studies indicated that centralized aerated lagoons, or aerobic digestion units, provided the best means of treating septage. Twenty-four samples of septage obtained from a local contractor supplied the feed for the seven aerated lagoons, 14 aerobic digestion units and one anaerobic digestion unit. Dewatering septage with sand drying beds was found to be unfeasible. However, aerobic treatment or chemical additives substantially increased dewatering rates. Foaming and odor were major problems with aerobic systems due to the presence of house-hold detergents in the septage. Conventional septage treatment by existing municipal facilities was judged to be inadequate. See L000034. (STP) 100 : L000091 AUTHOR: Janicek, G.P.; Simpson, H.E. AFFIL : AIRVAC, Rochester, IN TITLE : Vacuum Sevage Transport and Collection SOURCE: Pollution Engineering, 5(9): 76-79 YEAR : 1973 TEXT : The physical and economic requirements of vacuum sevage collection systems and some of their component design details are discussed. Construction, maintenance, operation costs and personnel requirements of pressure/vacuum systems are compared to traditionally severed systems. (STT) ACC# : 1000092 AUTHOB: Kroschel, H.L. AFFIL : Farallopes Institute, Berkeley, CA TITLE : Experiences with Owner-Built Onsite Waste Hanagement Systems in California SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 173-187 YEAR : 1978 TEXT : Describes the Farallones Institute's two-year experiment with its design for a batch-type composting privy and suggested modifications for improved operation. Includes a general description of owner-built on-site toilets in which water is conserved and waste is recycled to the soil. Also describes the design and operation of a drug privy and a solar waste pasteurizing oven. Health issues involved in the use of composted human waste as a soil amendment are discussed. (SWF) COT : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000093 AUTHOR: Stafford, R.T. AFFIL : U.S. Senate, Washington, D.C. TITLE : Reynote Address to the Fourth National Conference on Individual Onsite Wastewater Systems SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Fourth National Conference; National Sanitation Foundation; 1977; pp. 5-14 : 1978 Y BA R TEXT : Discusses some proposed amendments to the 1972 Federal Water Pollution Control Act and environmental objectives for rural areas: making privately owned wastewater systems under public management eleigible for federal funding, establishing a national clearinghouse for the dissemination of information on alternative treatment, requiring rural states to use at least four percent of their construction grant money for alternative treatment facilities, and allowing two percent of each state's construction grant allotment to be used for administration of grant programs. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 ACC# : 1000094 AUTHOR: Bouma, J.; Converse, J.C.; Hagdoff, P.B. AFFIL : University of Wisconsin, Hadison, WI TITLE : Dosing and Resting to Improve Soil Absorption Beds SOURCE: Transactions of the ASAE; 17(2); 295-298 YEAR : 1974

- TEXT : The practical significance of dosing (as opposed to continuous trickle) subsurface seepage beds is explored. Field studies over a ten month period were conducted in a 28 inch seepage trench with effluent dosing controlled by a time clock relay control box. The average measured loading was 0.8 gal/sg. ft./day, which is 33 percent higher than the current Wisconsin State health code value. Results indicate a dualtrench dosing system could provide a longer life expectancy for a leaching field with a smaller area. (SWF) ACC# : 1000095 AUTHOR: Holzer, T.L. AFFIL : University of Connecticut, Storrs, CT TITLE : Limits to Growth and Septic Tanks SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas: 1975; Paper No. 6; pp. 65-74 TEAR : 1975 TEXT : The effect of septic tank effluent on groundwater guality may be a limiting factor for population growth. Data review of groundwater quality showed that, based on recharge, septic tank effluent could substantially contaminate groundwater if a large amount is discharged into regions where groundwater circulates in a very thin zone near the surface. The suitability of an area for the use of conventional septic tank systems was found to be a function of potential leaching field failure, groundwater contamination, and population density. The particular example discusses the hill area of eastern Connecticut. (SWP) COL : University Press of New England Banover, NH 03755 ACC# : 1000096 AUTHOR: Cotteral, J.A., Jr.; Morris, D.P. AFFIL : Brown & Caldwell, San Francisco, CA TITLE : Septic Tank Systems SOURCE: ASCE Journal of the Sanitary Engineering Division, 95(S14): 715-746 TEAR : 1969 TEXT : Surveys show that 30 percent of the septic systems in Harin and Alameda TEXT : Surveys show that 30 percent of the septic systems is the set of these systems is Counties, California, are failing. The failure rate of these systems is generally 100 percent within 12 years. Recommendations and regulations for septic tank systems in Marin County are discussed. A comparative table of regulations for septic systems for selected counties in California is included. Reasons for septic tank system failure and possible remedial measures are discussed in detail. Several survey sussary tables are provided. (SWP) ACC# : 1000097 AUTHOR: Godiard, H.K. HFFIL: Department of Environmental Resources, Harrisburg, PA TITLE: The Social, Economic and Political Impacts of Onlot Sewage Disposal SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; Wational Sanitation Foundation; 1976; pp.15-20 YEAR : 1977 TEXT : General discussion of the economic, political, and social impact of onsite sewage disposal in Pennsylvania. The limited availability of suitable land (30 percent nationally) for on-site systems is of major importance to planners. Revision or expansion of regulations on on-site alternatives can actually make more land suitable. Information gaps between the technical or regulatory agency and the general public were cited as political and social bulwarks against environmental plans and programs. (SWF) : Ann Arbor Science Publishers, Inc COF P.O. Box 1425 Ann Arbor, HI 48106 ACC# : L000098 AUTHOR: Hiddendorf, W.B. APPIL : Penasylvania Department of Environmental Resources, Harrisburg, PA TITLE : Management Guidelines for Conventional and Alternative Onsite Sevage Systems-Pennsylvania SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Mational Conference; National Samitation Foundation; 1976; pp. 195-200 TRAR : 1977 TEXT : Presents the use of a permit issuance program as a management tool for on-site treatment systems in Pennsylvania. Pennsylvania's management system is discussed in some detail. (SWP) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106
- ACC# : 1000099

AUTHOR: Drouhard, A.J., Jr.; Stinson, J.B.

AFFIL : Bansfield, OB TITLE : Apparatus for Pneumatic Transportation of Sanitary Waste from a Toilet to a Holding Tank

SOURCE: U.S. Patent Office Official Gazette, 898(4): pp. 1118-1119 YEAR : 1972 TEXT : Patent describes a system for pneumatically transporting sanitary toilet waste to holding tank by using a vacuum pump to reduce the pressure in the holding tank transfer conduit and in the macerating portion of the toilet. (SWF) ACC# : 1000100 AUTHOR: Evans, J.L. AFFIL : Ohio Department of Health TITLE : The Obio Experience with Innovative On-Site Sewage System Designs SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 132-147 : 1977 YEAR TEXT : A critical assessment of Ohio's sanitary code as it relates to design features of innovative on-site sevage systems. (SWP) LCC# : L000101 AUTHOR: Glenn, D.R.; Pederico, J.G. AFFIL : General Electric Company, Philadelphia, PA FITLE : The Impact of Pressure Severs on the Nation's Water Resources SOURCE: Water Resources Bulletin, 7(5): 1081-1092 **FEAR : 1971** PERT : Pressure sever systems are compared with conventional gravity sever systems. The benefits of pressure severs are cited. Itenized cost com-parisons are presented for pressure and gravity severs for a hypothetical community's sever system. (SWF) : L000102 ICC# LUTHOR: Harkin, J.H.; Jawson, H.D. LTFIL: University of Wisconsin, Hadison, WI FITLE: Clogging and Unclogging of Septic System Seepage Beds 30URCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 11-21 : 1977 FRAR. (EXT : Hydrogen peroxide was used on failed septic systems in an attempt to unclog the seepage beds. Laboratory columns and field systems showed that hydrogen peroxide added directly to the seepage beds will solubilize sulfide depositions that clog soil pores. Preventive treatment is recommended over remedial treatment of failed septic systems. See L000032. (SWF) ICC# : 1000103 UTHOR: Jones, E.E., Jr. IPPIL : USDA, Beltsville Agricultural Research Center, Beltsville, HD ITLE : Improving Subsurface Disposal System Performance HOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 64-82 BAR : 1977 BAR : Reviews past work of other researchers with regard to septic tank offluent disposal performance and useful life expectancy of the subsurface disposal systems. Data for determining the life expectancy of a system for various soils is presented. Improvement of leaching bed life expectancy by use of alternate bed loading schemes is discussed. (SWP) CC# : L000104 UTHOR: Kemper, J.H. FFIL : Hollywood, CA ITLE : Recirculating Toilet System and Filter Therefor OURCE: U.S. Patent Office Official Gazette, 898(3): 870 BAR : 1972 BAR : Portable toilet system with a perforated metal filter having openings which allow a minimal liquid flow rate into the interior of the filter. This prevents movement of wastes and paper which tend to block the filter openings when in operation. (SWF) CC# : 1000105 UTBOR: Kemper, J.H. FFIL : Los Angeles, CA ITLE : Self-Contained Recirculating Sanitary System OURCE: U.S. Patent Office Official Gasette, 894(3): 865 BAR : 1972 BIT : Patent for a recirculating toilet system whereby a manually activated diaphragm pump supplies flushing medium to a bowl. A portion of the flow is diverted to drive a pump which delivers a deodorizing chemical into the storage tank. (SWF) CC# : L000106 OTHOR: Jay, F.A.; Kroesche, J.L. FFIL : Lockwood, Andrews & Mewman, Austin, TX ITLE : State Park Gets Good Treatment

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SOURCE: Water and Wastes Engineering, 13(11): 65-66, 71
TEAR : 1976
TEAT : Pressurized collection networks with variable capacity extended-aeration
           tanks and an effluent irrigation system were used to combat problems
engendered by topography, soil, and effluent quality limits at Inks
           Lake State Park, Texas. Seasonal flow variations of 3,000 to 70,000 gallons per day dictated the use of a flexible extended-aeration plant.
           The selection of the design criteria is discussed. (SWF)
ACC# : 1000107
AUTHOR: Lagstron, G.E.
APPIL : Stockholm, Sweden
TITLE : Electric Toilet
SOURCE: U.S. Patent Office Official Gazette, 894(2): 472
YEAR : 1972
TEXT : Patent for incinerating toilet waste by means of a built-in electric
           combustion chamber and grid. A flue and a removable ash bor are
           featured. (SWF)
ACC# : 1000108
AUTHOR: Leich, H.H.
AFFIL : Bethesda, HD
TITLE : Better Water Resources Through Severless Sanitation
SOURCE: Water Resources Bulletin, 13(2): 401-407
YEAR : 1977
TELT : General discussion of alternative, on-site waste disposal systems now
available or under development. Aerobic treatment units, recycling,
available or under development. Aerobic treatment units, recycling,
           composting, incinerating and closed-loop toilets, as well as pressure
           systems, are briefly described. (SWP)
ACC# : L000109
AUTHOR: MacCallum, R.
AFFIL : C. MacCallum-Consulting Engineers, Port Washington, L.I., WY
TITLE : Treat Septic-Tank Wastes Separately
SOURCE: American City Magazine, 86(1): 48-49
TEAR : 1971
TEXT : A waste treatment system was built in 1965 in Babylon, WY, to handle
Cesspool and septic tank pumpage. The scavenger wastes (septage) are
            treated with chlorine to form hypochlorous acid and nascent oxygen.
           Organic matter is converted into a stable, nonodorous sludge by a
Purifax (R) chemical oridizer. The facility, in operation for four
            years, requires minimal maintenance and is operated with fees collected
            from pumpers. (SWF)
ACC# : L000110
AUTHOR: HacGregor, A.; Tuffey, T.J.
AFFIL : Roy F. Weston, Inc., West Chester, PA
TITLE : On-Lot Disposal Hanagement Districts
SOURCE: Proceedings of Second Annual Illinois Private Sewage Disposal Symposium;
            1977; pp. 148-158
YEAR
        : 1977
TEXT : Provides a rationale for on-site wastewater systems as an alternative
            or prelude to centralized gravity severs in low density or developing
            areas. Banagement is a requirement for either interim or long-term
            reliance on on-site systems. Describes the concept of On-Lot Disposal
            Management Districts, "community absorption fields" and options for
their structure, function, and role in planning for growth. (SWP)
ACC# : 1000111
AUTHOR: Miller, J.C.
AFFIL : University of Delaware; Newark, DB
 TITLE : Witrate Contamination of the Water-Table Aguifer by Septic Tank Systems
 in the Coastal Plain of Delaware
SOURCE: Proceedings of Rural Environental Engineering Conference on Water
            Pollution Control in Low Density Areas: 1975; Paper No. 11; pp. 121-133
 YEAR : 1975
THIT : Investigation to determine the causes of mitrate contamination of well
water in two suburban areas were undertaken when high levels of
the substance were found. Mitrates were not found in areas where
the abundance of water disallowed the change of ammonia and organic
            nitrogen into nitrate. Mitrates were, however, found in abundance in
the well samples from areas with permeable soil and septic tanks which
rarely overflowed. The findings tend to support the belief that septic
tanks have detrimental effects on ground water in areas with high
            density suburban development.
 CON
           : University Press of New England
             Hanover, MH 03755
 ACC4 : L000112
AUTHOR: Morrill, G.B., III; Toler, L.G.
 APPIL : W/A
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TITLE : Effect of Septic Tank Wastes on Quality of Water, Ipswich and Shawsheen River Basins, Massachusetts SOURCE: U.S. Geological Survey, Journal of Research, 1(1): 117-120 YEAR : 1973 Text : Many housing projects in the metropolitan area of Boston are beyond the reach of municipal sever systems. Waste water disposed of through septic tank or cesspool systems percolates to ground water reservoirs and eventually reaches the streams. The dissolved solids load in the streams receiving septic tank effluent is increased by an amount that can be predicted from the housing density. In the study area, highway deicing salts are the only materials other than septic tank discharge that contribute to water quality degradation. The effect of these salts on the relationship with housing density is eliminated by subtracting the specific conductance due to soldium chloride from the measured specific conductance of a water sample. The difference is called residual conductance and is proportional to the dissolved solids content minus the concentration of modium chloride. (AU) ACC# : L000113 AUTHOR: Otis, R.J.; Bouma, J.; Walker, W.G. APPIL : University of Wisconsin, Hadison, WI TITLE : Uniform Distribution in Soil Absorption Fields SOURCE: Proceedings of the Second National Groundwater Quality Symposium; 1974; pp. 81-89 : 1974 TELE TEXT : Failure of septic tank absorption systems causes: (1) inadequate infiltration of effluent into soil due to soil clogging or an increase in loading which results in surfacing septic tank effluent, and (2) inadequate purification in the soil during percolation because of short travel times which can be due either to presence of very permeable, shallow soils or to local overloading. Inadequate purification may result in pathogenic pollution of private well water supplies. Failures of the second type can be prevented through proper design and operation of the soil absorption field. Uniform distribution of the septic tank effluent over the entire soil absorption field is necessary to relieve this situation. (AU) ICC# : 1000114 NUTHOR: Sproul, O.J. NFFIL : University of Saine, Orono, HE MITLE : Virus Hovement into Groundwater from Septic Tank Systems 30URCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 12; pp. 135-144 : 1975 FEAR. (EXT : Hethods of predicting the capacity of a septic tank soil absorption system to remove viruses are discussed. Criteria necessary to evaluate these methods are briefly outlined with many references cited. Viruses appear in water that has been subjected to domestic wastewater contamination. Provides evidence for the need to assess the discharge methods in order to reduce well water and surface water contamination. (SWF) : University Press of New England :0# Hanover, NH 03755 LCC# : L000115 IUTHOR: Bouma, J. IFFIL : University of Wisconsin, College of Agriculture and Life Science, Hadison, WI FITLE : Innovative On-Site Soil Disposal and Treatment Systems for Septic Tank Effluent SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 152-162 IBAR : 1975 FEXT : The process of designing an adequate soil absorption system should consider: 1) level of purification desired, 2) range of natural and man-induced hydraulic conditions of the soil, and 3) hydraulic conditions necessary to achieve the desired purification level. A system design should incorporate construction and management techniques that will achieve these desirable hydraulic conditions. Design implications of four soil types are described. (SWP) CON : American Society of Agricultural Engineers 2950 Miles Road St. Joseph, HI 49085 : L000116 AUTHOR: Greenstein, E.I. APPIL : M/A FITLE : The Beleaguered Bole of the Septic Tank SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAB Publication Proc-175; pp. 14-16 YEAR : 1975

TEXT :	The Florida Septic Tank Association was formed to unify septic tank contractors in the state. Their purpose is to emphasize the importance of on-site systems to Florida's economic growth and health. Primary goals, principles, and policies of the association are explained. (SWF)
CON :	American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, HI 49085
ACC# :	L000117
AUTHOR: APPIL :	Jones, E.E., Jr. U.S. Department of Agriculture, Agriculture Resources Service,
TITLE :	Beltsville, BD Domestic Water Use in Individual Homes and Hydraulic Loading of and
SOURCE:	Discharge from Septic Tanks Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAB Publication Proc~175; pp. 89-103
YEAR :	
IDA 1	irrectly related to hydraulic loading in the septic tank. It was found that high rate intermittent dosing of the disposal fields, rather than continuous reduced rate loading, was conducive to good effluent distribution and presention of field clossing. (SWF)
COR	American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, HI 49085
1004 .	L000118
AUTHOR:	Green, K.H.: Cliver, D.O.
APPIL :	University of Wisconsin, Hadison, WI
TITLE : Source:	Removal of Virus from Septic Tank Effluent By Sand Columns Proceedings of the National Home Sewage Disposal Symposium; 1974;
TRIR .	ASAE Publication Proc~175; pp. 137-143
TEXT :	Sand columns were laboratory tested to determine their effectiveness
	for virus removal. Three variables tested were column conditioning, hydraulic dose rate and temperature. Effectiveness was measured in terms of virus inactivation, detention, or removal. The sand was shown to remove policyirus effectively from mentic tank effluent. The
	effectiveness of virus removal was proportional to the column length. The sand was less retentive of viruses at low temperatures and at
CON :	Alga Ilula Saturation. (SWF) Aberican Society of Agricultural Preincers
•	2950 Wiles Road St. Joseph, MI 49085
1004 -	1.000.110
AUTHOR :	Laak, R.: Kolega, J.J.: Cosenza, B.J.: Weinberg, H.S.: Winneberger, J.
AFFIL : TITLE :	University of Connecticut, Storrs, CT Feasibility Studies on Utilizing Sodium Bicarbonate with Septic Tank
	Systems
SOURCE:	Proceedings of the National Rome Sewage Disposal Symposium; 1974; ASAB Publication Proc-175; pp. 202-209
TBIT :	1975 Discussion of a number of experiments in which concentrations of
	sodium bicarbonate were added to septic tank and laboratory experiment- ation cylinders. The chemical may enhance the buffering capacity and solids digestion in the tank, reduce suspended solids, and affect soil clogging, but these results were primingry and inconclusive. (SUP)
CON :	American Society of Agricultural Engineers 2950 Hiles Road St. Joseph, HI 40985
ACC# :	L000120
AUTHOR:	Karikari, T.J.; Beer, C.B.; Smith, R.J.
TITLR •	Lowa State University of Science and Technology, Ames, IA
SOURCE	Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 144-151
TEAR :	1975
TEXT :	Laboratory experiments related soil depth to performance of leachfields, and the change in quality of raw septic tank effluent after treatment in an aerobic lagoon was evaluated on the basis of COD, BOD, ammonia- nitrogen, Kjeldahl-mitrogen, nitrate-nitrogen, orthoshosphate, and total solids. Results show loading rates and soil depth effected treatment efficiency. COD and TS reduction was not significant and Phosphorus absorption efficiency reached extended to the solution of the second
	weeks. Tabulated data for each parameter are included. (SWP)
CON :	American Society of Agricultural Engineers 2950 Wiles Road
	are anamabut at #2400

ACC : 1000121 AUTHOR: Hagdoff, F.R.; Bouma, J. AFFIL : University of Vermont, Burlington TITLE : The Development of Soil Clogging in Sands Leached with Septic Tank Effluent SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 37-47 : 1975 TRAR TEXT : Describes an experimental study of crust development in sand columns domed with meptic tank effluent. Field and laboratory tests reveal soil clogging is caused by isotropic organic compounds and opaque organic fragments in the soil pores. Tensioneters measured the hydraulic conductivity through crusts, while their resistance to flow was evaluated using a physical flow computer model. (SWF) : American Society of Agricultural Engineers CON 2950 Wiles Road St. Joseph, HI 49085 ACC : 1000122 AUTHOR: Hatelski, R.P. AFFIL : Penn State University, University Park, PA TITLE : The Field Percolation Bate of Pennsylvania Soils for Septic Tank Drainage Fields SOURCE: The Pennsylvania State University, Agricultural Experiment Station; Progress Report #345; 35 pages YELR : 1975 Text : Listing of percolation rates for modal profiles of 90 Pennsylvania soils based on 2000 field tests taken from 250 sites in 41 counties. The variation in results is discussed in relation to measured and observed soil characteristics. (SWF) ACC# : L000123 AUTHOB: McGaubey, P.H. AFFIL : University of California, Berkeley TITLE : Septic Tanks and Their Effects on the Environment SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas: 1975; Paper No. 4; pp. 43-54 : 1975 TRAR Text : The various percolation systems: cesspools, narrow trenches and seepage beds, deep trenches and meapage pits, sand filters and evapotransporation systems, are briefly described and evaluated in terms of treatment effectiveness and environmental impact. (SWF) : University Press of New England COM Hanover, NH 03755 ACC# : L000124 AUTHOR: Reneau, R.B., Jr.; Pettry, D.B. AFFIL : Virginia Polytechnic Institute and State University, Blacksburg, VA ITTLE : Phosphorus Distribution from Septic Tank Effluent in Coastal Plain Soils SOURCE: Journal of Environental Quality, 5(1): 34-39 YEAR : 1976 Text : Phosphorus (P) accumulation in two soils with high perched water tables were monitored as a function of distance and depth to determine the fate of P from septic effluent in natural soil systems. The soils studied were Varina and Goldsboro sandy loams. Piezometers were placed at selected distances and depths from the drainfield in the direction of groundwater flow to determine both vertical and lateral P movement. Soil P was fractionated to determine the type and extent of soil P fractions adjacent to the drainfield. (10) ACC# : L000125 AUTHOR: Brandes, H. AFFIL : Hinistry of the Environment, Pollution Control Branch, Toronto, Canada TITLE : Effective Phosphorus Removal by Adding Alum to Septic Tank SOURCE: Journal of the Water Pollution Control Federation, 49(11): 2285-2296 YEAR : 1977 TEXT : In rural areas where no proper soil mantle for subsurface wastewater disposal is available, the main contaminants must be removed from the vastewater before the septic tank effluent leaves the tank. A n origional method of alum dosing is presented, along with its results in terms of removal of phosphorus and other contaminants. An excellent mixing of the alum with the raw wastewater was obtained by regularly injecting portions of liquid alum into the tank with each flushing of the toilet. At a ratio of Al:P=2.0, a 96 percent removal of P was achieved and total and fecal coliform counts dropped to 8000 and less than 1000/100 ml, respectively. The sludge accumulation rate increased from 62 to 146 1/y. (AU) ACC# : L000126 AUTHOR: Bailey, J.; Wallman, H. AFFIL : General Dynamics Corp., Groton, CT

TITLE : A Survey of Household Waste Treatment Systems

SOURCE: Journal of Water Pollution Control Federation, 43(12): 2349-60 YEAR : 1971 TEXT : Individual residential waste treatment equipment was evaluated based on field data and manufacturer's information. Anaerobic and aerobic systems are described and compared by initial cost, operating cost and effluent quality. Varying soil conditions were taken into consideration. (SWP) ACC# : L000127 AUTHOR: Calabro, J.F.; Cosenza, B.J.; Kolega, J.J. AFFIL : Pennsylvania Water and Gas Company, Scranton, PA TITLE : Bacteriophages Recovered From Septage SOURCE: Journal of Water Pollution Control Federation, 44(12): 2355-58 YEAR : 1972 TEXT : A study was made to (a) determine the presence of bacteriophage in septage where numbers of coliforms are markedly reduced. (b) examine their morphology and host specificity and (c) detect any biological effects of linear alkyl sulfonate (LLS) on phage attachment in the system. Three active filtrates were recovered, and two distinct The morphological types were observed with an electron microscope. short-tail phage infected Citrobacter Freundii, Escherichia coli, and cell wall mutants of Salmonella Typhimurium, and a long-tail phage was specific for Shigella Plexneri. Host specificity suggested three different types. Only rough strains of hosts were found to be sus-ceptible to phage. Concentrations of LAS normally encountered in septage showed no deleterious effect on the phage and host model system used. (AU) ACC# : 1000128 AUTHOR: Carcich, I.G.; Hetling, L.J.; Farrell, R.P. APPIL : New York State Department of Environmental Conservation, Albany, MY TITLE : Pressure Sever Demonstration SOURCE: ASCE Journal of Environental Engineering Division, 100 (BE1): 25-40 IBAR : 1974 TEIT : Project demonstrates the feasibility of pressure severs as a viable TEIT : Project demonstrates the feasibility of pressure severs as a viable alternative to conventional gravity severs. The 12 units tested in Albany, New York, over a 13 month period proved to be mechanically sound after some initial problems were resolved. The system consists of individual in-home grinder pumps that force macerated solids and liquids through 1-1/4 inch plastic pipe to larger pressurized sever mains. Extensive automatic monitoring equipment was used to document effectiveness. (SWF) ACC# : L000129 AUTHOR: Leich, H.H. APPIL : N/A TITLE : Oil-Flushed Toilets Gain SOURCE: Compost Science, 18(1): 25 YEAR : 197 TEXT : Brief description of the oil flushed toilet system, its operating experience in several national park facilities, and the potential for use in residential and marine conditions. (SWF) YCC 1 : L000130 AUTHOR: Wilson, G.E.; Buang, J.Y.C. AFFIL : Eutek, Inc., Sacramento, CA TITLE : Case Study: Cost Effective Evaluation of On-Site Wastewater Hanagement Systems in Unsevered Areas SOURCE: Proceedings of the Illinois Private Sevage Disposal Symposium; 1978; pp, 67-111 : 1978 YEAR TEXT : Provides criteria for evaluating the cost-effectiveness of on-site wastewater management programs. Uses a case study of Stinson Beach, California, as an example of planning for on-site wastewater treatment. Discusses the incorporation of a community's needs and values in the planning process. (SWF) ACC# : 1000131 AUTHOR: Rhett, J.T. APPIL : EPA, Deputy Assistant Administrator for Water Programs Operations, Washington, D.C. TITLE : OWPO Policy SOURCE: National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 80-82 (BPA-600/9-79-010; NTIS Report No. PB 293 254/LS} COST : \$6.50 **YEAR : 1978** : A brief review of BPA policy elements as they concern discussions at the 1974 conference on "Less Costly Wastewater Disposal Systems to TEIT Small Communities\*. (SWF)

CON : NTIS 5285 Port Royal Road Springfield, VA 22161 ACC# : L000132 AUTHOR: Sikora, L.J.; Keeney, D.R. AFFIL : University of Wisconsin, Hadison, WI TITLE : Denitrification of Mitrified Septic Tank Effluent SOURCE: Journal of the Water Pollution Control Federation, 48(8): 2018-25 COST : TEAR : 1976 TEAR : 1976 TEAT : Describes a detailed laboratory analysis of the effects of methanol as an energy source to denitrify septic tank effluent. Denitrification rates were obtained from packed columns fed with dilute nitrified septic tank effluent. Continuous flow from the column was analyzed and evaluated for carbon levels, oxidation-reduction potential, and exit gas products. The kinetics of the system were evaluated and a detailed discussion of the results is included. (SWP) ACC# : L000133 AUTBOR: Sharpe, W. AFFIL : Pennsylvania State University, University Park, PA TITLE : Water Conservation and Wastewater Reduction in the Home SOURCE: Pennsylvania State University, Extension Service, Circular 184, 9 pages YEAR : 1975 TEXT : This (cooperative extension service) bulletin discusses and illustrates water saving appliances and devices for use in residential homes. It includes cost calculations which emphasize savings in wastes consumption, sewage flow and energy. (SWF) ACC# : L000134 AUTHOR: Didal, D.L. APFIL : State University of New York, Syracuse, NY TITLE : Comparing Toilet Compost With Other Organic Waste Sources SOURCE: Compost Science, 19(2): 33-34 YEAR : 1978 TEXT : The results of compost chemical analysis from eight mullbank toilets indicated that the toilet is well suited as a soil amendment. Comparisons of sullbank toilet compost, digested sewage sludge and farmyard manare with its organic matter, nutrient elements, and heavy metal content are discussed and graphically presented. (SWP) : L000135 JCC I AUTHOR: Cooper, R.C.; Golueke, C.G. AFFIL : University of California, Berkeley, CA TITLE : Public Health Aspects of On-Site Waste Treatment SOURCE: Compost Science, 18(3): 8-11 YEAR : 1977 TEXT : Factors affecting the public health aspects of waste disposal are discussed with considerations to the misconceptions of wastewater treatment and reuse. Agents of disease, the concentration of the agent, the host response, and the manner of contact collectively gives rise to concern for suitability of treatment systems. In approach to assess public health aspects with probability matrix is suggested. (SWP) ACC# : L000136 AUTHOR: Spohr, G.W. AFFIL : Department of Public Works, Glen Burnie, HD TITLE : Hunicipal Disposal and Treatment of Septic Tank Sludge SOURCE: Public Works, 105(12): 67-68 **YEAR : 1974** : Discussion of management guidelines for the disposal and treatment of TRIT septic tank sludge in a municipal wastewater plant, based on observations in Anne Arundel County, Maryland. (SWP) ACC# : 1000137 AUTHOR: Sanson, R.L. AFFIL : SIECO, Inc., Columbus, IN TITLE : Design Procedure for a Bural Pressure Sever System SOURCE: Public Works, 104(10): 86-87 YEAR : 1973 TEXT : Description of a research and demonstration project studying the appropriate design and operation of a pressure sever system linked to individual grinder pumps in two Indiana lakeside communities. (SWP) ACC# : L000138 AUTHOR: Leich, H. H. APPIL : W/A TITLE : Protecting Water Supplies Through Sewerless Sanitation SOURCE: BRistics, 43 (254): 22-27 YEAR : 1977

TEXT : Conventional sewage disposal has created numerous problems. Aerobic tanks, biological tanks, composting toilets, incinerating toilets, oil flushed toilets and pressure or vacuum toilets are described as alternatives to conventional sever systems. (SWF) ACC# : L000139 AUTHOR: Mesbitt, P.H.; Seldman, M.M. APPIL : Institute for Local Self-Reliance, Washington, D.C. TITLE : Cities Need Severless Toilets SOURCE: Building Systems Design, 73(3): 11-17 YEAR : 1976 TEXT : The exhorbitant cost of expanding sewage treatment facilities in Washington, D.C., is discussed. It is more sound, economically and environmentally, to reduce the flow of wastewater than it is to expand treatsent facilities. Severless toilets have the potential to signifi-cantly reduce the need for increased capacity. Various options are described. (SWP) ACC# : L000140 AUTHOR: Kolega, J.J. AFFIL : University of Connecticut, Storrs, CT TITLE : Design Curves for Septage SOURCE: Water and Sewage Works, 118(5); 132-135 TEAR : 1971 TEXT : Based on the laboratory analysis of over 180 Connecticut septage samples, cumulative percentage curves were developed for all major septage characteristics as an aid in the design of treatment facilities. (SWF) ACC# : 1000141 AUTHOR: Fullerton, R.W. APPIL : Chrysler Corporation, Space Division, New Orleans, LA TITLE : Waterless Sanitation for Rest Areas SOURCE: Water and Sewage Works, 121(6): 86-88 YEAR : 1974 TEXT : Describes a closed loop no-discharge, nonbiological sevage disposal system using mineral oil as the flush fluid to transport human waste. The flushing fluid carries waste from conventional commodes to a separation tank where the sewage is separated by gravity. The fluid is filtered, purified and reused indefinitely. Disposal is by burning in a pollution-free incinerator. (AU) ACC# : L000142 AUTHOR: Smith, P.J. AFFIL : New York State Department of Health, Division of Sanitary Engineering, Albany, MY TITLE : New York State Standards for Individual Household Systems SOURCE: Individual Onsite Wastewater Systems, Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 211-214 YEAR : 1977 TEXT : Describes recent experience of New York State in updating its standards for on-site wastewater treatment. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 ACC# : L000143 AUTHOR: Bernhart, A.P. AFFIL : University of Toronto, Ontario, Canada TITLE : Return of Effluent Nutrients to the Natural Cycle Through Evapotranspira tion and Subscil-Infiltration of Domestic Wastewater SOURCE: Proceedings of the Wational Home Sewage Disposal Symposium, 1974; ASAE Publication Proc-175; pp. 175-181 YEAR : 1974 TEXT : Human wastes contain many nutrients necessary for plant life and, therefore, should be reapplied into cycle of nature. The author suggests that today's centralized sewage collection and disposal practices, as opposed to on-site systems, waste valuable nutrients. The author suggests criteria for a two part "effluent re-use" system, con-The sisting of a treatment tank and a seepage bed. (SWP) COM : American Society of Agricultural Engineers 2950 Hiles Rd. St. Joseph, BI 49085 ACC# : 1000144 AUTHOR: Bennett, E.R.; Linstedt, K.D.; Felton, J.T. AFFIL : University of Colorado, Boulder, CO TITLE : Rural Home Wastewater Characteristics SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 74-78 YEAR : 1974

TEXT : Evaluation of in-home flow patterns, surge peaks, and waste strength characteristics is discussed. Flow patterns and surge peaks are a function of the life style of the occupants. Toilet and garbage disposal wastes account for about 75 percent of the COD but only 1/3 of the flow. Tabulated characteristics of home wastewater sources is included. (SWF) : American Society of Agricultural Engineers CON 2950 Miles Rd. St. Joseph, MI 49085 ACC# : L000145 AUTHOR: Baker, F.G. APPIL : University of Wisconsin, Madison, WI TITLE : A Hodel for Planning and Location of On-Site Waste Disposal Systems SOURCE: Water Resources Bulletin, 14(1): 144-156 YBAR : 1978 TEXT : A BO : A model that incorporates performance data about several wastewater Banagement systems is discussed. From these data the expected behavior of an individual wastewater system or group of systems can be predicted within limits. Also, the behavior of a wastewater system can be treated as the product of the performance probabilities of its individual components. The model can be used on a regional scale facilitating land use planning by allowing accurate estimates of performance for a prospective wastewater management system. At this scale, it can allow the impact evaluation of new wastewater technology on land use in a region. (AU) ACC# : 1000146 AUTHOR: Aulenbach, D.B.; Clesceri, N.L.; Tofflemire, J: Ferrim, J.J. AFFIL : Renumelaer Polytechnic Institute, Troy, W TITLE : Thirty-Five Years of Use of a Natural Sand Bed for Polishing a Secondary-Treated Effluent SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 18; pp. 227-240 YEAR : 1973 : Reports the past and present studies of secondary sewage effluent applied for over 35 years to natural sand beds at a treatment plant at TRIT a small New York resort community. Data indicated that the polishing beds can substantially reduce BOD, coliforas, nitrogen, and phosphate. As expected, the effluent from the natural sand beds resulted in an increased level of alkalinity, chlorides, and dissolved solids in the area's natural groundwater. (SWP) CON : University Press of New England Hanover, NH 03755 ACC# : 1000147 AUTHOR: 1/A AFFIL : AWWA Research Foundation, Denver, CO TITLE : Water Recycling at Highway Rest Stations SOURCE: Municipal Wastewater Reuse News; April, 1979; No. 19; pp. 21-23 YEAR : 1979 TEXT : This wastewater treatment and recycling study sponsored by the Virginia Highway and Transportation Research Council has indicated that water reuse for toilet flushing at rest areas was both efficient and economical. Results indicated tht 95 percent of the water could be recycled and that BOD reduction by biological oxidation is not hindered by the recycled water quality. Extended aeration functioned at the low pH and high assonia nitrogen levels present in the system. Schematic flow diagram is included. (SWP) : AWWA Research Foundation 6666 W. Quincy Ave. Denver, CO 80235 CON ACC# : L000148 AUTHOR: Otis, R.J.; Boyle, W.C. AFFIL : University of Wisconsin, Madison, WI TITLE : Performance of Single Household Treatment Units SOURCE: ASCE Journal of the Environmental Engineering Division, 102(EE1): 175-189 : 1976 YEAR : Report of a field study evaluating the performance of conventional TEXT septic tanks and aerobic units under normal residential use conditions. Results of laboratory analyses of periodic effluent samplings are presented in tables and graphs. While BOD removal in aeration units is significantly higher, the figure still exceeds natural effluent criteria. Aeration units achieve almost complete nitrification. Design and operation modifications are suggested which may help achieve high quality effluent from aerobic units. Their annual cost is calculated to be almost five times that for septic tanks. (SWF)
ACC# : 1000149 AUTHOR: Hanlon, J. APPIL : N/A TITLE : A Problem That Won't Plush Away SOURCE: New Scientist, 75(1061) : 166-167 YBAR : 1977 TEXT : Discusses alternatives to the use of severs and public health implica-tions in developing countries as addressed at a conference in Oxford on Sanitation in Developing Countries. (SWF) ACC# : L000150 AUTHOR: Laak, R. AFFIL : University of Connecticut, Storrs, CT TITLE : A Graywater Soil Treatment System SOURCE: Compost Sciences, 18(6): 29-32 YBAR : 1977 TEXT : The characteristics of greywater are described. Criteria are given for the design of greywater treatment tanks, fixed media up flow filters and soil absorption fields. The effectiveness of the filter and tank for redacing levels of BOD, SS, TW, PO, and grease from greywater are compared. (SWP) ACC# : 1000151 AUTHOR: Leich, H.H. APPIL : M/A TITLE : Severiess Sanitation: Water Shortage May Stimulate Sanitary Innovations SOURCE: Compost Science, 18(2): 17 YEAR : 1977 TEXT : Discussion of the use and operating problems of large and small composting toilets in Scandinavia and Manitoba. (SWF) ACC# : L000152 AUTHOR: Bousa, J. AFFIL : Soil Survey Institute, Wagenigen, Wetherlands TITLE : Unsaturated Flow During Soil Treatment of Septic Tank Effluent SOURCE: ASCE Journal of the Environmental Engineering Division; 103(EE3): 509-510 TRIR : 1977 TEXT : This review of L000289 disagrees with the postulate "that adequate pathogen removal does not require unsaturated flow." It further questions the validity of the arguments and data utilized to arrive to the postulate. (SWF) ACC# : L000153 AUTHOR: Converse, J.C. AFFIL : University of Wisconsin, Hadison, WI TITLE : Distribution of Domestic Waste Effluent in Soil Absorption Beds SOURCE: Transactions of the ASAE, 17(2): 299-304, 309 TEAR : 1974 TEXT : Prototype studies on the effluent distribution of soil absorption beds TEXT : Prototype studies on the effluent distribution of soil absorption beds revealed that intermittent dosing helped to reduce uneven effluent distribution. Hole spacing in perforated distribution pipes and flow rates affected distribution of effluent significantly. A minimum flow rate of 2.5 minutes and a hole spacing of three feet (holes upward) was recom-mended for four inch rigid plastic or bituminous fiber pipe. For manifold lateral pressurized systems using one inch PVC laterals, perforations were recommended at thirty inch spacings and a flow rate of 3.5 cfa. (SWP) ACC# : 1000154 AUTHOR: Winneberger, J.H.T.; Weinberg, H.S. AFFIL : Septic Tank Systems, Berkeley, CA TITLE : Beneficial Effects of Baking Soda Added to Septic Tanks SOURCE: Journal of Environmental Health, 38(5): 322-6 **YBAR : 1976** : Although there is no proper beneficial effect from any of 1200 septic tank additives, this California field experiment showed that baking soda TEXT and other flocculants can help decrease hydraulic in active zones by lowering the concentration of suspended solids in septic tanks. (SWF) ACC# : 1000155 AUTHOR: Yost, K.J. AFFIL : Coate Burial Vault, Inc., West Milton, OH TITLE : Sewage Treatment System Including Effluent Evaporator SOURCE: U.S. Patent Humber 3,907,679 TRAR : 1973 TEXT : Patent for a horizontal coiled plastic conduit system that contacts effluent from a buried tank with atmospheric air. The purpose is to evaporate water and discharge the vapor into the atmosphere. Air flow is supplied by a pump. (SWP)

ICC. : L000156 AUTHOR: Plevs, G.D. AFFIL : Department of Social and Health Services, Olympia, WA TITLE : The Adequacy and Uniformity of Regulations for On-Site Wastewater Disposal - A State Viewpoint SOURCE : National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 20-28 (EPA-600/9-79-010; MTIS Report No. PB 293 254/15) COST : \$6.50 TRAR : 1978 : Discussed the origin and current status of state regulations dealing FEIT with on-site wastewater treatment. Although local health departments are the implementers of on-site regulations in most states, state program administration is generally deficient of standards and evaluation criteria. Includes tables of state design requirements for septic tank capacity in gallons by number of bedrooms, absorption field design features and sizing methods. (SWP) 201 : NTIS 5285 Port Royal Road Springfield, VA 22161 ICC# : 1000157 LUTHOR: Sikora, L.J.; Kenney, D.R. ITTIL : N/A MITLE : Laboratory Studies on Stimulation of Biological Denitrification SOURCE: Proceedings of the National Home Sevage Disposal Symposium; 1974; ASAB Publication Proc-175; pp. 64-73 **IBAR** : 1975 NEXT : Initial studies to evaluate organic substrates and columnar flow methods for biological denitrification are discussed. Batch studies indicate that fluid energy sources such as methanol and paper mill sludges exhibit higher rates of denitrification than solid energy sources such as peat and oat straw. Continuous flow column studies with a methanol energy source exhibit rapid demitrification, but gas release and cell accusulation problems remain unanswered. Details of materials and methods are discussed. (SWP) : American Society of Agricultural Engineers :01 2950 Wiles Boad St. Joseph, HI 49085 100 : L000158 UTHOR: Walker, W.G.; Bouma, J.; Kenney, D.R.; Hagdoff, F.R. IFFIL : University of Wisconsin, Hadison, WI TTLE : Mitrogen Transformations During Subsurface Disposal of Septic Tank Effluent in Sands: I. Soil Transformations OURCE: Journal of Environmental Quality, 2(4): 475-480 'EAR : 1973 BIT : Soil physical and chemical studies of five subsurface septic tank seepage beds were conducted to determine the biochemical transformations of nitrogen and its potential for ground-water pollution. Effluent was found to be ponded in all the seepage beds examined due to the presence of an impeding layer, a "crust", at the boundary between the gravel bed and adjacent soil. The atmospheric composition of the soil crust and below crust were measured. (10) CC 0 : L000159 UTHOR: Walker, W.G.; Bouma, J.; Kenney, D.R.; Olcott, P.G. PFIL : University of Wisconsin, Madison, WI TTLE : Mitrogen Transformations During Subsurface Disposal of Septic Tank Effluent in Sands: II. Ground Water Quality OURCE: Journal of Environmental Quality, 2(4): 521-525 BAR : 1973 BAR : Groundwater observation wells were installed in the immediate vicinity of four septic tank effluent soil disposal systems. Potentiometric maps were constructed from measurements of the groundwater level at each site to establish the direction of movement. Groundwater samples were pusped from each well to establish patterns of N enrichment in the ground water around the seepage beds and to evaluate the performance of these disposal systems in mands in terms of nitrogen removal. Soil dis-posal systems of septic tank effluent in mands were found to add significant quantities of nitrate to underlying groundwater. The data obtained suggest that in sands, the only active mechanism of lowering the mitrate content is by dilution with uncontaminated groundwater. (AU) : L000160 CC UTHOR: Winneberger, J.H.T. FFIL : Winneberger Consultants, Berkeley, CA ITLE : Ryon's Septic-Tank Practices Corrected OURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 215-221 **TEAR** : 1975

TEXT : Byon's percolation test was developed in 1926 with insufficient understanding of soil hydraulics and of the need for standardization. Author suggests several improvements in use and interpretation of the test by assuming sidewall absorption in disposal trenches, increasing the life span of systems by resting of alternating beds, and homeowner assistance from public utility districts. (SWF) COM : American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, Mi 49085 ACC # : L000161 AUTHOR: Baumann, E.R.; Jones, E.E.; Jakubowski, W.H.; Nottingham, H.C. AFFIL : Iowa State University, Ames, IA TITLE : Septic Tanks SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 38-53 YEAR : 1977 TEXT : A discussion of the design, operation and maintenance of the septic tank. Includes recommended tank sizes, a typical chemical analysis of sewage, sludge, scum data, general tank design, hydraulic, considerations, as well as a schematic detail of septic tanks. Septic tank performance data are expressed in graphs and tables. (SWF) CON : American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, MI 49085 ACC# : L000162 AUTHOR: Joeres, E.F.; Quigley, J.T. AFFIL : University of Wisconsin, Hadison, WI TITLE : Cost Comparison of Water Collection and Disposal Alternatives SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 251-259 YBA R : 1977 TEXT : Describes the use of a computer model to select and size components for incorporation into a complex wastewater management system. Alternative collection, treatment and disposal system can be tailored to the needs of a geographically diverse service district. A Lake Michigan island, used as a specific design example, requires periodic surface vehicle transport of wastewater from domestic holding tanks to regional wastewater treatment facilities. (SWP) CON : American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, MI 49085 ACC# : L000163 AUTHOR: Laak, R.O.; Crates, F.J. AFFIL : University of Connecticut, Storrs, CT TITLE : Sewage Treatment by a Septic Tank SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 54-59 YELR : 1977 TEXT : The basic operation of a septic tank is described. An explanation of the biological treatment process, advantages and disadvantages of septic tanks, factors influencing anaerobic digestion, and maintenance procedures are briefly described. (SWP) CON : American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, MI 49085 ACC# : 1000164 AUTHOR: Langford, R.E. AFFIL : Peabody Barnes, Inc., Mansfield, OB TITLE : Effluent Pressure Sever Systems SOURCE: Water Pollution Control Federation 1977 Annual Heeting, Philadelphia, PA **YEAR : 1977** TEXT : Provides detailed descriptions of effluent pressure sever systems, in-Cluding design, hardware, cost, septage disposal, operation, maintenance and economics. Describes the advantages of effluent pressure sever systems over gravity severs and grinder pusp systems. Identifies a describes past research and effluent pressure systems currently in Identifies and operation. (SWF) 1004 : L000165 AUTHOR: Machaeier, R.E.; Mattson, L.L. AFFIL : University of Minnesota, St. Paul, MM TITLE : Performance of Alternating Seepage Beds in Ontonagon Clay SOURCE: Proceedings of Second Mational Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 185-192 : 1978 TRAR TEXT : Two identical seepage beds were constructed on an ontonagon clay soil and monitored for three years to determine the effect of resting and dosing on the hydraulic conductivity of the soil. The effectiveness of

sevage treatment and various construction techniques were also considered. Recommendations concerning dosing rates, resting periods, effects of precipitation, and techniques for construction of beds on ontonagon clay are presented. (SWP) : American Society of Agricultural Engineers COT 2950 Hiles Road St. Joseph, MI 49085 ACC# : L000166 AUTHOR: Peavy, H.S.; Groves, K.S. APPIL : Hontana State University, Bozeman, HT TITLE : The Influence of Septic Tank Drainfields on Groundwater Quality in Areas of High Groundwater SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 218-225 TEAR : 1978 : The extent to which groundwater quality was affected by a septic tank drainfield was investigated. The drainfield was located 1.2 m. above TEXT uterinfield was investigated. The drainfield was located 1.2 m. above the groundwater table on an alluvial terrace near Bozeman, Hontana. Samples were taken over a five month period from 10 wells located in the top 30 cm at the saturated strata, and they were analyzed for each of the following: BOD, COD, TOC, alkalinity, hardness, nitrate, phosphate (ORTHO), chloride and fecal coliform. Only nitrate concentrations er-ceeded health standards in three out of the ten wells. (SWF) : American Society of Agricultural Engineers 2950 Wiles Road CON 2950 Wiles Road St. Joseph, HI 49085 ACC# : L000167 AUTHOR: Clayton, J.W. AFFIL : Fairfax County Health Department, Fairfax, VA TITLE : An Analysis of Septic Tank Survival Data from 1952 to 1972 in Pairfar County Virginia SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 7; pp. 75-87 : 1975 TRIP TEXT : Careful planning and evaluation of the soils where the absorption field is to be located have been reported to be responsible for high success rates of septic tank systems in this county. Results of a "survival rate" survey showed that the average life of individual sewage disposal systems is 20-30 years and that not less than 92 percent of all systems installed during the past 20 years are still functioning. Tabulated survey data are included along with related diagrams. (SWF) : University Press of New England COM Hanover, MH 03755 ACC# : 1000168 AUTHOR: Clark, L.K.; Eblen, J.E. AFFIL : C & G Engineering, Salem, OR TITLE : Demonstrating the Peasibility of Vacuum and Pressure Severs SOURCE: Public Works, 108(4): 81-84 YEAR : 1977 TEXT : An EPA-assisted study was conducted to determine the feasibility of using vacuum and pressure severs as a means of collecting effluent from septic tanks and raw waste streams and transporting them to a centralized sewage collection system. The pressure sever collects septic tank effluent and pumps it to the closet interceptor line. The vacuum sever draws air through small diameter pipes connected to small sumps, receiving a raw wastewater from residences. This wastewater is also pumped to the interceptors. Details concerning design, installation, operation and maintenance are included. (SWP) ACC# : L000169 AUTHOR: Kuhner, J.O.; Luecke, D.; Sharpin, R. AFFIL : Heta Systems, Inc., Cambridge, MA TITLE : Water Use and Wastewater and Residuals Generation in Households: Potential for Conservation SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASLE Publication Proc-175; pp. 260-267 : 1977 TEAR TEXT : The potential and cost-effectiveness of water using/conserving components was investigated. A high and low water use baseline was developed for two hypothetical families. Water savings was evaluated in terms of investment cost/unit of water for each component in both households. (SWP) CON : American Society of Agricultural Engineers 2950 Wiles Rd.

St. Joseph, MI 49085

ACC# : L000170 AUTHOR: Lenning, D.A.; Hermanson, R.E. AFFIL: Department of Social and Realth Services, Olympia, WA TITLE: Hanagement Guidelines for On-Site Sewage Systems SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 236-242 YEAR : 1977 TEXT : Centralized management is necessary to insure a minibum environmental concessory of the management conce impact of on-site sewage systems. Discussion of the management concept includes identifying the need for: 1) guality control beginning with site evaluation; 2) use of existing public entities as management bodies to insure permanence and financial solvency; 3) allowing flexibility in the level of management depending on site characteristics, and 4) defining levels of competency for management systems personnel. Hanagement system programs in Washington are described. (SWF) : American Society of Agricultural Engineers COM 2950 Wiles Rd. St. Joseph, HI 49085 ACC# : 1000171 AUTHOR: Sauer, D.K.; Boyle, W.C. AFFIL : Wisconsin Department of Natural Resources, Hadison, WI TITLE : Intermittent Sand Filtration and Disinfection of Small Wastewater Flows SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAB Publication 5-77; pp. 164-174 YEAR : 1977 TEXT : A study involving the intermittent mand filtration of septic tank the second of the second sector of the sector of t effluent and aerobically treated effluent was conducted by the Small Scale Waste Hanagement Project at the University of Wisconsin, 1973-1976. Disinfection of the sand filter effluent by chlorination and ultraviolet light irradiation was also performed. The objection of the study was to evaluate the effectiveness of these waste treatment methods to achieve a water quality acceptable for surface discharge. Surface discharge of treated wastewater is an alternative disposal method for homes where conventional septic tank - soil absorption systems can not be used. (10) CON : American Society of Agricultural Engineers 2950 Wiles Rd. St. Joseph, HI 49085 1004 : L000172 AUTHOR: Viraraghavan, I.; Warnock, R.G. APFIL: University of Ottawa, Dept. of Civil Engr., Ottawa, Ontario, Canada TITLE: Treatment Through Soil of Septic Tank Effluent SOURCE: Proceedings of International Conference on Land for Waste Hanagement, Ottawa, Canada, October 1-3, 1973 TEAR : 1973 TEXT : A field investigation is in progress to examine the performance of a single-family septic tank system with an absorption tile field in a rural household in Quebec under seasonally varying environmental condi-tions. The aim is also to investigate the changes (both chemical and bacteriological) in water quality that occur through the mechanism of soil filtration. Environmental persentators being considered are air soil filtration. Environmental parameters being considered are air temperature, snow cover, and depth of unsaturated soil. (AU) ACC# : 1000173 AUTHOR: Pate, P. AFFIL : Jefferson County Department of Health, Birsinghas, AL TITLE : Onsite Wastewater Disposal: A Local Government Dilessa SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1977; pp. 67-73 YBAR : 1977 TEXT : Discusses the dilemma facing Jackson County, Alabama, concerning the Cost of expanding and upgrading an existing gravity sever system versus an increased reliance on on-site wastewater systems. Rephasizes the need for additional research on on-site systems. Provides information on number of on-site systems being installed and number of complaints received concerning on-site vastevater systems. (SWF) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 ACC# : 1000174 AUTHOR: Quan, E.L.; Sweet, H.R.; Illian, J.R. AFFIL : Oregon Department of Environmental Quality, Water Quality Division, Portland, OR VTITLE : Subsurface Sewage Disposal and Contamination of Ground Water in East Portland, Oregon SOURCE: Ground Water, 12(6): 356-368 YBAR : 1974

TBXT :	This report describes the geology, bydrology and hydrogeology in a 30 sq. mi. unsewered area in Hultnomah County, Oregon. Subsurface disposal of domestic waste from cesspools, seepage beds and drainage fields in this area has contaminated the groundwater and has affected the quality of surface water in an adjacent area downgradient from the unsewered area. Witrate levels (4.7 to 11.86 mg/1) were present in wells which tap the upper portions of the saturated zone in the unsewered areas. (SWF)
ACC# : AUTHOB: APPIL : TITLE :	L000175 Sawhney, B.L.; Hill, D.B. Connecticut Agricultural Experiment Station, New Haven, CT Phosphate Sorption Characteristics of Soils Treated with Domestic Waste
SOURCE:	Journal of Environmental Quality, 4(3): 342-346
TEXT :	Phosphate sorption capacities of several Connecticut soils having widely different physical and chemical characteristics were determined in the laboratory using dilute P solutions. Although sorption capacities of the soils varied over a four-fold range, calculations based on these determinations revealed that soils surrounding drainfields of septic tank systems can effectively remove P from waste water for a number of years. (AU)
ACC# :	L000176
APFIL : TITLE :	Cover, A.; Luccian, F. National Sanitation Poundation, Ann Arbor, MI An Operator's View of Performance: Sanitation District #3, Boyd County, Penturts
SOUBCE:	Individual Onsite Wastewater Systems; Proceedings of the Fourth Wational Conference; Wational Sanitation Foundation; 1977; pp. 135-143 1978
TBIT :	Discusses the operation of the individual aeration treatment units in- stalled in Boyd County, Kentucky. Includes the technical details of installation, effluent disposal, and maintenance. (SWF)
CON :	Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106
ACC# : AUTHOR: AFFIL : TITLE : SOURCE:	L000177 Cohen, S.; Wallman, H. General Dynamics Corporation, Electric Boat Division, Groton, CT Demonstration of Waste Flow Reduction From Households EPA Report Number 670/2-74-071, 111 pages 1974
TBXT :	A two-year demonstration program evaluated water savings, costs, perfor- mance and acceptability of various water-saving devices for households. Heters were attached to water-using fixtures in order to monitor water use. Detailed results are given including extensive data on performance of components used and flow reductions achieved. (SWF)
ACC# : AUTHOR:	L000178 Winneberger, J.H.T.
TITLE :	A Consultant's Overview of On-Site Meeds
SOURCE:	National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 73-76 (EPA-600/9-79-010; NTIS Report No. PB 293 254/AS)
YEAR :	1978
TBIT :	presents the on-Site wastewater management District (OSWHD) Concept and the benefits that can be derived from its usage. Discusses management of on-site treatment, possible guidelines, the qualification of pro- prietary devices, and an overview of needs. (SWF)
CON 3	WTIS 5285 Port Royal Boad Springfield, VA 22161
10C4 :	
AUTHOR: AFFIL :	H.A. Clift & Associates, Inc.
TITLE : SOURCE: YEAR 1	Experience with Pressure Severage ASCE Journal of the Sanitary Engineering Division, 94(SA5): 849-865 1968
TEXT :	The transport of sewage and waste liquids by means of a closed-to-atmos-
	substantial reduction in sever construction costs in locations or under conditions adverse to gravity severage, such as sparsely settled areas, irregular topography, sand, wet or marshy soils, tidal areas, lake
	settlements and areas of high rock. Experience with pressure severage over a three-year period at Radcliff, Kentucky, is described, including factors influencing its use, design considerations, economies obtained

and operational and maintenance procedures developed. Information is included on availability and performance characteristics of individual pumping units. Estimated costs of two proposed projects involving pressure severage are given. (SWF) ACC# : L000180 AUTHOR: Sepp, E. AFFIL : California State Department of Health TITLE : Disposal of Domestic Wastewater by Hillside Sprays SOURCE: Journal of the Environmental Engineering Division, ASCE, 99(EE2): 109-TEAR : 1973 TEXT : Population pressures are creating waste disposal problems which threaten the high quality of mountain waters. Land confinement of sewage in California's mountain areas has proven more reliable than other methods in controlling disposal problems. Spray irrigation of hillsides is a method of land confinement which is being used by 100 small systems located in foothill and mountain areas. This method is most suitable for the disposal of seasonal flows and on soils with good infiltration capacity. Summarizes California's experience with hillside sprays and analyzes the use of adequate reliability features for the protection of public health. (SWP) ACC# : L000181 AUTHOR: Stone, R. AFFIL : Ralph Stone and Company, Inc., Los Angeles, CA TITLE : Disposal of Domestic Wastewater by Hillside Sprays, Discussion by Ralph SOURCE: ASCE Journal of the Sanitary Engineering Division, 99(226): 964-965 TEAR : 1973 TEXT : Construction and operating experiences for hillside spray systems are discussed, including critical observations made for visits of particular sites. Included are suggestions to avoid problems incurred with these disposal systems, such as reduced soil permeability, and excessive plant growth. The author cites proper design, construction, and operation as the Bain means of avoiding these difficulties. Also discussed is the operation of subsurface leach lines placed in hillside areas. (SWP) ACC# : L000182 AUTHOR: Waltz, J.P. AFFIL : Colorado State University, Fort Collins, CO TITLE : Nethods of Geologic Evaluation of Pollution Potential at Hountain Homesites SOURCE: Ground Water, 10(1): 42-48 : 1972 TRYT : Investigations of geologic, topographic, and hydrologic conditions at over 100 homesites in the Bocky Hountains of north-central Colorado have resulted in the development of objective criteria for evaluating pollution potential at mountain homesites. In addition, the results of these investigations indicate that contamination of water wells may be decreased significantly where geologic conditions are considered in the selection of sites for leach fields and wells. (AU) ACC 4 : L000183 AUTHOR: Baman, V.; Chaklader, N. AFFIL : Central Public Realth Engineering Research Institute, Zonal Lab., Worli, Bombay, India TITLE : Upflow Filters for Septic Tank Effluents Control Federa SOURCE: Journal of Water Pollution Control Pederation, 44(8): 1552-1560 VEAR : 1972 TEXT : UPILOW filters are a simple and inexpensive method for treating septic TEXT : Upilow filters are a simple and suburban computies. Such filters can achieve bio-chemical oxygen demand removal efficiencies of up to 75 percent and can operate at hydraulic loading rates slightly greater than those for low-rate trickling filters. Haintenance is simple, head losses are low, and the filters can operate continuously and unattended for long periods. (AU) ACC# : L000184 AUTHOR: Bockefeller, A.; Lindstrom, C. APPIL : N/A TITLE : Greywater for the Greenhouse SOURCE: Compost Science, 18(5): 22-25 YEAR : 1977 THIT : Describes the yearlong use of greywater for greenhouse irrigation in Cambridge, Hassachusettes. Wastewater goes through a roughing filter and is automatically pumped through 1-1/2 inch PVC leach pipes into four foot deep soil boxes. The effluent from the soil boxes is biologically and chemically stable. The relationships between the greenhouse and the greywater involving water purification that exchange number greywater involving water purification, heat exchange, nutrients supply and plant growth are explained. Potential problems are identified. (SWP)

ACC# : L000185 AUTHOR: Schmidt, K.D. AFFIL : Harshbarger and Associates, Tucson, AZ TITLE : Mitrate in Ground Water of the Presno-Clovis Metropolitan Area, CA SOURCE: Ground Water, 10(1): 50-62 YEAR : 1972 TEAM : 1972 TEXT : Watural concentrations of nitrate are quite low in most ground waters in the eastern part of the San Joaquin Valley. High nitrate contents are related to sewage effluent percolation ponds, septic tank disposal systems, industrial wastewaters, and agricultural fertilizers. Hydrolo-gic factors are closely related to the occurance of nitrate. Transmissibility of the aguifer, hardpan development in the soil, canal recharge and cobble zones in the subsurface are the primary factors of importance Bitrate is stratified in the aquifer beneath unsewered metropolitan areas and highest contents occur in the upper 50 or 60 feet. Water quality hydrographs were used to show long- and short-term trends in Chloride and nitrate hydrographs, trilinear diagrams, the nitrate. distribution of other constituents, and hydrologic data were used to effectively delineate sources of nitrate in areas where numerous potential sources were present. Conclusions from groundwater data agree well with previous studies in other areas beneath unsevered tracts and near sewage treatment plants in which attention was focused primarilyy on the soil or the unsaturated zone. (AU) ICC # : L000186 UTHOR: N/A IFFIL : Environmental Protection Agency, Washington, D.C. 'ITLE : Onsite Wastewater Disposal Alternatives - A Hethodology for Evaluation OURCE: BPA No. 440/3-77-021 BAR : 1978 BAR : 1978 BAR : Hethods for evaluating on-site wastewater disposal are outlined in this case history of a 208 Water Quality Hanagement plan. A Hassachusetts case history of a 208 Water Quality Hanagement plan. A Hassachusetts regional planning council meeding to revise their areavide planning program developed this evaluation methodology to implement decision making. The methods developed led to improved water quality because of the decision to upgrade and reconstruct on-site systems. Suggestions are included for surveys, determining future needs, and inplementing findings. (SWP) : L000187 UTHOR: Winneberger, J.H.T.; Anderman, W.H., Jr. IFFIL : Winneberger Consultants, Berkeley, CA ITLE : Public Hanagement of Septic-Tank Systems is a Practical Hethod of Maintenance NURCE: Journal of Environmental Health, 35(2): 145-146 'EAR : 1972 BXT : Article proposes a total management concept whereby a district agency is responsible for all sevage disposal practices including septic tank systems. Presents three case studies in California where this concept was applied successfully. (SWF) CC# : L000188 UTHOR: Rajagopal, E.; Patterson, R.L.; Canale, R.P.; Armstrong, J.H. IFFIL : Duke University, Durham, NC ITLE : Water Quality and Economic Criteria for Rural Wastewater and Water Supply Systems OURCE: Journal of the Water Pollution Control Federation, 47(7): 1834-1847 IBAR : 1975 EXT : Wastewater disposal and water supply alernatives for Grand Traverse Bay, Bichigan, were evaluated on the basis of effects on groundwater quality and cost criteria. Cost equations were developed for individual and community wastewater disposal and water supply systems. The results indicated that community systems for rural populations of 1000 to 5000 were uneconomical. Hajor findings were integrated into a computer systen which provided wastewater disposal, water supply costs, and groundwater quality information on the basis of population growth and land use alternatives. Rural areas in transition to urban centers were the prime targets. (SWP) ACC# : 1000189 AUTHOR: Converse, J.C.; Carlile, B.L.; Peterson, G.W. AFFIL : University of Wisconsin, Hadison, WI TITLE : Hounds for the Treatment and Disposal of Septic Tank Effluent SOURCE: Proceedings of Second National Home Sevage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 100-119 YEAR : 1977 TEXT : A mound system (Wisconsin) for septic tank effluent where natural soil does not permit installation of conventional leaching fields is discussed. The system consists of a septic tank, a pumping or a siphon chamber, and the mound. Septic tank capacity is sized according to conventional criteria. Pump or siphon components are designed to provide for uniform distribution of flow into and within the mound. The mound

consists of fill material; an absorption area, a cap to provide a barrier to infiltration, and a topsoil cover to provide a barrier to infil-tration, and a topsoil cover to provide a medium for vegetation cover. Alternative design schemes and criteria are presented, including sample calculations. (SWP) : American Society of Agricultural Engineers CON 2950 Miles Rd. St. Joseph, MI 49085 1000 : L000190 AUTHOR: Corey, B.B.; Tyler, E.J.; Olotu, H.U. AFFIL : University of Wisconsin, Madison, WI TITLE : Effects of Water Softener Use on Permeability of Septic Tank Seepage Fields SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 226-234 TEAR : 1977 TEXT : The effect of brine disposal from water softener regeneration on soil absorption fields was studied. It was found that reduction of hydraulic conductivity (HC) of soil receiving water with a high sodium adsorption ratio (SAR) and a low salt concentration (HO) is due to the swelling of aggregates. Comparison of SAR and HO values from a number of septic system effluents indicates that salts in the wastewaters from water softener regeneration creates no HC problems in septic tank seepage fields. A lower HC might result from water softening if all of the house water were softened and if the regeneration waste were not allowed to enter the seepage field, since the divalent cations would be removed resulting in a high SAR and a relatively low HO. A review of pertinent literature is presented. (SWF) CON : American Society of Agricultural Engineers 2950 Wiles Rd. St. Joseph, MI 49085 ACC # : L000191 AUTHOR: Dix, S.P.; Ward, R.C. AFFIL : Colorado State University, Fort Collins, CO TITLE : Socio-Economic Factors Involved in the Development of Mon-Central Systems SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 243-250 TEA R : 1977 TEXT : Contralized management of individual wastewater treatment and disposal systems, in order to avoid "human error" associated with the failure of these systems, is proposed as a viable alternative to central systems (severs plus central treatment and disposal facilities). The basis for the proposed centralized. Management plans is drawn from a survey designed to evolve an understanding of the public's expressed needs. Summaries of these surveys are included and discussed briefly. (SWF) CON : American Society of Agricultural Engineers 2950 Wiles Rd. St. Joseph, MI 49085 ACC# : 1000192 AUTHOR: Siegrist, R.L.; Woltanski, T.; Waldorf, L.E. AFFIL : Illinois Department of Public Health, Springfield, IL TITLE : Water Conservation and Wastewater Disposal SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAB Publication 5-77; pp. 121-136 TEXT : Concerns over water supply and wastewater disposal and an increasing recognition of the benefits that may accrue through water conservation are serving to greatly stimulate the development and application of water conservation practices. One aspect of the broad and complex sub-ject of water conservation and wastewater disposal is water conservation and on-site wastewater disposal. A discussion of residential water conservation practices, including operation and performance data on selected major practices, and has been given. The impact of these practices on waste loads and various on-site wastewater treatment and disposal methods has been assessed. (AU) COW : American Society of Agricultual Engineers 2950 Miles Rd. St. Joseph, NI 49085 ACC# : L000193 AUTHOR: Hasfurther, V.E.; Poster, D.H.; Lloyd, G.D. AFFIL : University of Wyoming, Laramie, WY TITLE : Sizing an Evapotranspiration Waste Disposal System for Summer Operation 1977. SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 175-184 TEAR : 1977 : The feasibility of using evapotranspiration (ET) scheme for the disposal of liquid effluents from four individual wastewater treatment systems THIT was studied. Three different methods of evapotranspiration estimation

were used to size the ET unit. Different schemes of loading and correlating actual BT and estimated BT were analized. A cost comparison for a proposed ET system was made. In the proposed scheme the waste-water is confined within the cell by an impermeable liner which allows the liquid to escape only by evaporation or evapotranspiration. Construction requirements for the proposed system were also discussed. (SWF) COM : American Society of Agricultual Engineers 2950 Wiles Rd. St. Joseph, HI 49085 ACC # : L000194 AUTHOR: Stewart, D.B. AFFIL : Dane County Regional Planning Commission, Hadison, WI TITLE : Alternative Methods of Regulating Onsite Domestic Severage Systems SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third National Conference; National Sanitation Foundation; 1976; pp. 53-66 **YEAR** : 1977 TEXT : Describes the types of controls in each of the following categories of regulatory techniques: 1) direct control on system, 2) control on actors (installers and inspectors), 3) indirect controls, and 4) unfair or unlawful controls. Provides suggestions for improving regulations concerning the initial installation, operation and maintenence, and failing system phases of on-site systems regulation. Discusses the implications that innovative systems pose for regulation of on-site wastewater treatment and disposal. (SWP) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000195 AUTHOR: Sauer, D.K. AFFIL : University of Wisconsin, Hadison, WI FITLE : Treatment Systems Required for Surface Discharge of Onsite Wastewater SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third National Conference; National Sanitation Foundation; 1976; pp. 113-129 YEAR : 1977 TEXT : The effectiveness of intermittent mand filtration of meptic tank and aerobic treatment unit effluent, followed by disinfection, was examined to determine whether BOD, SS, and fecal coliforms had net water guality standards. Results indicate BOD and TOC levels are significantly reduced. Witrification was almost complete and orthophosphate concentration was reduced by 20 percent. Fecal colifors count was reduced, but disinfection was required in order to reach recommended levels. Laboratory and field studies conducted over several years showed little difference, especially after chlorination, in the quality of the aerobic unit - sand filtered effluent and septic tank - sand filtered effluent. A cost analysis of initial capital costs, annual operation and maintenance is tabulated. (SWP)
 Ann Arbor Science Publishers, Inc. 201 P.O. Box 1425 Ann Arbor, HI 48106 LCC# : L000196 AUTHOR: Reed, S.C.; Buzzell, T. APPIL : U.S. Army Cold Region Resources and Eng. Laboratory, Hanover, NH FITLE : Land Treatment of Wastewaters for Rural Communities SOURCE: Proceedings of the Bural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 3; pp. 23-40 **UBAR : 1975** IBAT : Three basic types of land treatment of wastewater are described in detail: rapid infiltration, spray irrigation, and overland flow. Design criteria for each system are summarized with regard to mite characteristics, pretreatment requirements, and the actual application technology. Equations for estimating land requirements are presented with an example. Cost comparison data with adjusted cost figures for each system are included. (S#P) CON : Univerity Press of New England Banover, NH 03755 LCC# : 1000197 AUTHOR: Plevs, G. APPIL : Department of Social and Health Services, On-Site Sewage Disposal, Olympia, WA FITLE : Hanagement Guidelines for Conventional and Alternative Onsite Sewage Systems - Washington State SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference: National Sanitation Foundation; 1976; pp. 187-193 I BAR : 1977 FEXT : Control and maintenance of on-site sewage systems needs supervision by some type of management group. This group should have a definite struc-ture supported by guidelines that furnish financial solvency, permanency

and an implementation policy. This article suggests some guidelines that should be included in a sanagement contract. (SWF) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, MI 48106 CF : L000198 UTHOR: Parker, D.E. FFIL : Wisconsin Department of Health and Social Services, Madison, WI ITLE : Soil Evaluation of Sites for Absorption Systems DURCE: Individual Onsite Wastewater Systems; Proceedings of the Third National Conference; National Sanitation Foundation; 1976; pp. 139-145 RAR : 1977 MIT : Factors important in site evaluation for soil absorption systems are discussed. Soil percolation tests provide some data, but detailed soil maps and soil pits can greatly aid evaluation. The factors which must be considered are soil permeability, depth to bedrock, seasonally satur-ated zones, slope, and surface flooding. (SWP) : Ann Arbor Science Publishers, Inc. **O**T P.O. Box 1425 Ann Arbor, HI 48106 CC# : L000199 OTHOR: Otis, R.J. PFIL : University of Wisconsin, College of Engineering, Hadison, WI ITLE : Onsite Wastewater Facilities for Small Communities and Subdivisions OWRCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Samitation Foundation; 1976; pp. 245-275 : 1977 TAR. BIT : Outlines the advantages and disadvantages of non centralized alternatives to vastevater treatment. Examples of the alternative systems are discussed. Presents an in-depth case study involving a community's need to decide between central facilities or small localized soil absorption field systems. Includes a tabulated susmary of various alternative costs. (SW2) 101 : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 ICC. : L000200 WTHOR: Otis, R.J.; Boyle, W.C.; Sauer, D.K. IFFIL : University of Wisconsin, Hadison, WI FITLE : The Performance of Household Wastewater Treatment Units Under Pield Conditions SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; 1518 Publication Proc-175; pp. 191-201 TRA R : 1975 FERT : Data collected over a two year period from nine field installations in Wisconsin homes indicated that none of the systems studied - septic tank, aerobic treatment, or intermittent sand filter - met surface dis charge requirements. Lerobic units and sand filter systems did provide better treatment than did the septic systems. Haintenance considerations and cost of each system are provided along with tables of treatment data for each installation and system observed. (SWP) : L000201 AUTHOR: Hines, H.W.; Bennett, B.R.; Hoehne, J.A. AFFIL : Illinois Dept. of Health, Office of Environmental Health, Springfield, IL TITLE ; Alternate Systems for Effluent Treatment and Disposal SOURCE: Proceedings of the Second National Home Sevage Treatment Symposium; 1977; ISAE Publication 5-77; pp. 137-148 YEAR : 1977 THIT : Three effluent treatment and disposal systems: granular filters, aerobic lagoons and evaporation were briefly discussed. Baphasis was placed on design criteria and field performance, but practical at home use in-formation was also presented. Three types of granular filters were discussed: buried, intermittent and recirculation. Evaporation systems included combination seepage area and evapotranspiration bed, and nondischarging evapotranspiration beds. All three methods were suggested for single families, schools, small industries and small municipalities. Each alternative method was economical, easily designed and maintained. (517) CON : American Society of Agricultural Engineers 2950 Miles Road St. Joseph, HI 49085 ACC 0 : 1000202 AUTHOR: Saurer, G.E. AFFIL : Department of Environmental Resources, Marrisburg, PA TITLE : Field Application: Sand Hound and Evapotranspiration Systems

SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 93-101 YELR. 1977 TEXT : The use of sand nounds and evapotranspiration beds for wastewater disposal systems in Pennsylvania is discussed. Evapotranspiration is not as effective in this state as it is in more arid states because of the wetter climate. Additional rainfall can cause overflow and consequently failure. Sand mound systems perform better in wet climates but many fail because of poor design or incorrect sand media. (SEP) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, MI 48106 ACC# : L000203 AUTHOR: Lambert, D.J.; HCKim, H.L. AFFIL : U.S. Army Corps of Engineers, Huntington, WV TITLE : Deer Creek Lake - On-Land Wastevater Treatment System SOURCE: Food, Fertilizer, and Agricultural Residues; Proceedings of the Minth Cornell Agricultural Waste Management Conference; 1977; pp. 79-93 TEAR : 1976 TEXT : The Deer Creek Lake (Ohio) wastewater treatment system treats wastewater from a nearby cauping site. The wastewater consists mainly of trailer sevage and material from showerhouses. The treatment system includes a stabilization pond, chloring contact chamber and spray irrigation equipment. Four three-acre spray fields, each with a different cover crop, were tested for yield and nutrient uptake. Results show grasses, alfalfa and soybeans can be grown when the application rate is less than one inch per week. The soil absorption system removes nitrogen, phos-phorus, and BOD sufficiently to meet drinking water standards. (SWP) CON : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 ACC# : 1000204 AUTHOR: Saunders, D.H.C. APPIL : Ministry of the Environment, Toronto, Ontario, Canada TITLE : An Overview of Disposal Options: The Ontario Program SOURCE: Individual Onsite Wastevater Systems; Proceedings of the Third Wational Conference; National Samitation Foundation; 1976; pp. 75-86 : 1976 **YBAR** TEXT : This broad-scoped discussion of Ontario's sewage disposal program details legislation, the six main types of sewage systems categorised by Ontario Regulation 229/74, and problems associated with the present standards for on-site sewage disposal. A brief discussion of current research activities conducted by the Ontario Applied Sciences Section concludes this article. (547) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, HI 48106 ACC# : 1000205 AUTHOR: Sawhney, B.L.; Starr, J.L. AFFIL : The Connecticut Agriculture Experiment Station, New Haven, CT TITLE : Hovement of Phorsphorus from a Septic System Drainfield SOURCE: Journal of the Water Pollution Control Federation, 49(11): 2238-2242 YEAR : 1977 TEXT : Report of an investigation of the movement of phosphorus in septic tank effluent from drainfield trenches. Sampling of effluent solution showed movement of P downward and horizontally. Only with a high or perched groundwater table is there a potential for P contamination of groundwater. (SWP) ACC# : 1000206 AUTHOR: Kolega, J.J.; Dewey, A.W. AFFIL : Univeristy of Connecticut, Storrs, CT TITLE : Septage Disposal Practices SOURCE: Proceedings of the National Home Sewage Disposal Symposuim; 1974; ASAR Publication Proc-175; pp. 122-129 **YEAR : 1975** TEXT : Septage characteristics and alternative septage disposal methods are discussed. Costs for soil injection systems, municipal and state regulations, and responsibilities for septage handling and disposal in Connecticut are detailed. (SWP) : American Society of Agricultural Engineers COT 2950 Miles Road St. Joseph, EI 49085 ACC. : 1000207 AUTHOR: Johnson, R.W.; Brasfield, J.F.; Beville, B. AFFIL : U.S. Department of Agriculture, Soil Conservation Services, Gainesville, **FL** TITLE : Using Soil Survey Information to Plan Home Sevage Disposal Systems

SOURCE: Proceedings of the National Home Sevage Disposal Symposium; 1974; ASAB Publication Proc-175; pp. 210-214 TRAP : 1975 TEXT : The use of soils information for planning disposal systems is explained. The choice of a suitable site for a home sevage disposal system should depend on the soil characteristics. A detailed discussion of soil survey programs, soil maps, and pertiment soil characteristics are presented. (SWF) : American Society of Agricultural Engineers **CO1** 2950 Wiles Road St. Joseph, MI 49085 ACC 4 : L000208 AUTHOR: Bines, H.; Favreau, R.E. AFFIL : Department of Public Health, Champaign and Marion, IL TITLE : Recirculating Sand Filters: An Alternative to Traditional Sewage Absorption Systems SOURCE: Proceedings of the Mational Home Sewage Disposal Symposium; 1974; 1512 Publication Proc-175; pp. 130-136 **YBAR** : 1975 TRIT : Research indicates that the use of a recirculating sand filter can and appropriate pumps. A diagram of the system and data for four months of operation are presented. (SWP) : American Society of Agricultural Engineers CON 2950 Wiles Road St. Joseph, HI 49085 ACC# : L000209 AUTHOR: Hall, H.W. APPIL : University of Haine, Orono, HE TITLE : & Conceptual Hodel of Nutrient Transport in Subsurface Soil SOURCE: Proceedings of the Bural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 5; pp. 55-64 TELE : 1975 TEXT : A model of how nutrients might move through the soil is proposed. Soil bacteria convert organic mitrogen to mitrate, which moves through soil - water systems with ease. Some specific soils "fix" large amounts of phosphorus, yet there is suspicion that phosphorus can also be trans-ported via soil - water movement. These observations are presented, following an extensive literature review combined with a data evaluation. (SWP) : University Press of New England Hanover, NH 03755 COT ACC# : L000210 AUTHOR: Franko, W. AFFIL : Saskatchevan Department of Agriculture, Regina, Canada TITLE : Above Ground Sewage Disposal in Rural Saskatchevan SOURCE: Proceedings of the Mational Home Sewage Disposal Symposium; 1974; ASAB Publication Proc-175; pp. 163-167 TEAR : 1975 TEXT : Because of the cold climate, special wastewater treatment and disposal in open discharge sewage jet systems are required in Saskatchevan. An open discharge sevage jet system which periodically sprays septic tank effluent directly on the soil surface near trees and vegetation is described. Sevage lagoons are also recommended for use in this climate. For consumities with popula-tions less than 300, a plastic, small community sevage system is des-cribed. Reflace to contract the second se cribed. Bffluent is pumped from individual septic tanks into a large community lagoon. Brief descriptions and applications of each system are presented. Basic design information is included. (SWP) : American Society of Agricultural Engineers CON 2950 Miles Boad St. Joseph, HI 49085 ACC# : L000211 AUTHOR: Cox, W.E.; Walker, W.R. AFFIL : Virginia Water Resources Research Center, Radford, VA TITLE : Legal Controls Applicable to Small Sevage Disposal Systems SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 51-63 : 1977 TEAR TEXT : The nature of federal, state, local and private controls over on-site vastewater systems is reviewed. Modifications are recommended concerning restrictions on soil absorption systems, increased coordination of activities with water quality management programs in each state and an increased state control over local regulatory bodies. A comprehensive approach to environmental management is considered necessary for any effective resolution of wastewater issue. (\$77)

ACC4 : 1000212 AUTHOR: Pey, R.T. AFFIL : Carl C. Crane, Inc. TITLE : Cost-Hinded Community Chooses Small Diameter Gravity System SOURCE: Water Sevage Works, 125(6): 58-61 YEAR : 1978 TEXT : The community of Westboro, Wisconsin, chose a small diameter gravity sever system for wastewater collection, treatment, and disposal after other solutions proved to be too expensive. The lines were installed to convey septic tank effluent from each private home to collection points; lift stations were employed where necessary. The collected effluent was then transferred through conventional severs to the community soil absorption field in the northern area of town where the soil type was most favorable for treatment. This project was brought about because the state of Wisconsin ordered Westboro to stop discharging septic tank effluent into a class III trout stream. (SWF) ACC# : L000213 AUTHOR: Cooper, A.; Rezek, J.W. AFFIL : Rezek, Henry, Heisenheimer & Gende, Inc., Libertyville, IL TITLE : Septage Disposal in Wastewater Treatment Plants SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 147-169 YEAR : 1977 THIT : Techniques currently used to treat septage are described in detail in this article. Emphasis is on disposal by wastewater treatment plants. Other techniques include land disposal, aerated lagoons, composting, BIF Purifax processing, and chemical treatment. Aerobic and Amaerobic pro-cessing are briefly discussed. Cost estimates for each method are briefly presented. (S¥P) : Ann Arbor Science Publishers, Inc. CON P.O. Box 1425 Ann Arbor, HI 48106 ACC# : 1000214 AUTHOR: Converse, J.C.; Anderson, J.L.; Siebell, V.A.; Bousa, J. APFIL : University of Wisconsin, Hadison, WI TITLE : Pressure Distribution to Improve Soil Absorption Systems SOURCE: Proceedings of the Mational Home Sewage Disposal Symposium; 1974; ASAR Publication Proc-175; pp. 104-115 YEAR : 1975 TEXT : Soil absorption systems can be improved through the use of pressure distribution systems. The authors stress the importance of using properly sized, submersible pumps to distribute the effluent evenly over the field. Seven distribution systems were studied; five of them for two years. General recommendations for best system performance are in-cluded. Data are represented by tables and graphs. (SWP) : American Society of Agricultural Engineers CON 2950 Niles Road St. Joseph, HI 49085 ACC# : 1000215 AUTHOR: Brandes, H.; Chowdhry, N.A.; Cheng, N.H. AFFIL: Ont. Hinist. of the Environ., Toronto, Quebec, Canada TITLE: Experimental Study on Removal of Pollutants from Domestic Sewage by Underdrained Soil Filters SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 29-36 TEAR : 1975 TEXT : Three cologn filters and 10 underdrained filter beds were used to treat septic tank effluent from seven houses in Ontario, Canada for a period of five years. Red and, a by-product of aluminum extraction from baurite, used in conjunction with medium sand, is effective in removing phosphorus, BOD-5, suspended solids, and fecal coliforms from domestic sewage. Clayey silt - 35 percent clay and 57 percent silt - when added to sand, achieved better removals than did the red mud. Phosphorus removal by limestone and clayey silt was also satisfactory. (SWP) COL : American Society of Agricultural Engineers 2950 Wiles Road St. Joseph, HI 49085 ACC# : 1000216 AUTHOR: Wooding, N.H. AFFIL : Pennsylvania State University, University Park, PA TITLE : Good Septic Tank Care Avoids Problems SOURCE: Hoards Dairyman, 117(7): 452-453 YEAR : 1972 TEXT : Provides practical tips on construction and maintainance of a conventional septic tank system. Includes diagrams of a typical system and directions for measuring scan and sludge accumulation. (SWP))

ACC. : 1000217 AUTHOR: Bennett, E.R.; Linstedt, K.D.; Felton, J. AFFIL : University of Colorado, Boulder, CO TITLE : Comparison of Septic Tank and Aerobic Treatment Units: The Impact of Wastewater Variations on These Systems SOURCE: Proceedings of the Rural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 9; pp. 95-108 : 1975 TRAD THIT : Presents a study to determine home wastewater characteristics and to relate these to the success of the treatment and disposal technique used by the homeowner. Results indicate three-fourths of the pollution load from individual homes is contained in about one-third of the total effluent volume. Plow load and surges have a negative impact on the operation of settling tanks. Brief discussions and comparisons of septic tanks, aerobic treatment units, and evapotranspiration beds and their applications in Colorado are included. (SWF) : University Press of New England CON Hanover, MH 03755 ACC# : L000218 AUTHOR: Bouna, J.; Converse, J.C.; Carlson, J.; Baker, F.G. AFFIL : University of Wisconsin, Hadison, WI TITLE : Soil absorption of Septic Tank Effluent in Hoderately Perseable Fine Silty Soils SOURCE: Transaction of the ASAE, 18(6): 1094-1099 TELE : 1975 7379 : Six subsurface seepage systems were monitored to determine reasons for failure in moderately permeable fine silty soils. Ponding in three of the six seepage systems was attributed to soil compaction during con-struction and to biological clogging. Two innovative seepage systems were designed to overcome these problems. Once-a-day dosing, with equal distribution of the effluent, allowed for a higher level of soil fauna activity than was observed in conventional seepage fields. (SWF) ACC# : 1000219 AUTHOR: BOWAR, J. AFFIL: University of Wisconsin, Hadison, WI TITLE : Septic Tanks Now Possible on Mearly All Soil Types SOURCE: Crops & Soils, 27(5): 8-10 TEAR : 1975 TEXT : Soil type and characteristics are the determining factors of wastewater Affiliation systems. disposal via septic tanks, mound systems and evapotranspiration systems. Soil potential to absorb and treat wastewater can be tested by several means, yet results do enhibit variability. The author briefly describes the use of innovative systems being researched at the University of Wisconsin. A pressure distribution system for effluent application to soil is described. (SWF) : L000220 1004 AUTHOR: Krivak, J. APPIL : U.S. Environmental Protection Agency, Water Planning Div., Washington, D.C. TITLE : 208 Program SOURCE: National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 83-85 (EPA-600/9-79-010; WTIS Report No. PB 293 254/15) COST : \$6.50 : 1978 TRAR THIT : Explains the 208 program as it relates to beneficial aspects for small consumity facility planning and policy decisions, since 208 calls for consideration of alternatives to neet cost-effective requirements, environmental standards, and social economic objectives. (SWP) CON : ITIS 5285 Port Royal Road Springfield, V1 22161 ICC# : 1000221 WTHOR: Bender, W.H. MPFIL : U.S. Department of Agriculture, Soil Conservation Service HITLE : Soils and Septic Tanks BOURCE: U.S. Department of Agriculture, Agriculture Information Bulletin No. 349, 12 pages : 1971 1212 TEXT : A compandium of procedures and guidelines for evaluating a site for construction of a septic system. Describes how factors such as soils, topography, geology, and hydrology can be interpreted for use in the evaluation. Includes instructions for using a soil map, calculating the size of an absorption field, and making a percolation test. (SWP) ACC# : L000222 AUTHOR: Anderson, J.L.; Grossman, R.B.; Healy, K.L.; Skaggs, W. AFFIL : University of Wisconsin, Hadison, WI

TITLE : Site Testing for the Design of Septic Systems SOURCE: Proceedings of Second National Home Sewage Treatment Symposium; 1977; ASAB Publicaton 5-77; pp. 16-21 : 1977 YEAR TEXT : The importance of site characterization and testing as a requirement for design of subsurface treatment systems is discussed. A list of a site characteristics that should be measured and why, and a description of the most commonly used methods for measurement with comments on their effectiveness is provided. (SWP) : American Society of Agricultural Engineers CON 2950 Miles Road St. Joseph, dI 49085 : L000223 ACC# AUTHOR: Hellen, W.L. APPIL : Lake County Health Department, Waukegan, IL TITLE : The Need for Improving Septic System Repair Practices SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium: 1977; pp. 1-10 TEAR : 1977 TEXT : Describes problems encountered with failing septic systems and possible remedies of these problems, short of replacing an entire system. The need for better judgement and knowledge in the selection and location of on-site processes is substantiated. The experimental use of hydrogen peroxide to rejuvenate leaching fields is discussed. An on-site process selection table based on soil properties is presented. (SWP) ACC 0 : L000224 AUTHOR: Patterson, D.H.; Langlots, L.W. APPIL : Indiana State Board of Health, Indianapolis, IN TITLE : A Survey and Discussion of Some Innovative On-Site Sevage Disposal Systems Installed in Indiana SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 103-115 YBAR : 1977 TEXT : Presents an evaluation of home aeration-type sewage disposal units. Problems encountered were wide variation of treatment provided by various units and poor maintenance of units and/or the components by owners. System owners do not replace calcium hypochlorite tablets. The results of an effluent monitoring program where samples were taken from 62 on-site aerated systems, including seven different units, are summarized for average values of BOD-5, TS, SS, TP and fecal colifors. The need for strict monitoring of the sytems to insure their proper operation is stressed. (SWP) ACC# : L000225 AUTHOR: Patterson, AFFIL : Salt Lake City, UT TITLE : Combustion Toilet SOURCE: U.S. Patent Office Official Gazette, 901(3): 783 YBAR : 1972 TEXT : Patent for a device which deposits toilet waste onto a pivotal, suspended receptacle which is then rotated to a combustion position; gases are removed via a flue. The receptacle then advances to a cooling position before again receiving waste. (SWF) ACC# : L000226 AUTHOR: Pretorius, W.A. AFFIL : National Institute for Nater Research, Pretoria, South Africa TITLE : Septic Tank Disc Units SOURCE: Water Pollution Control, 74(2): 196 YBAR : 1975 THIT : Treating and upgrading septic tank effluent can be accomplished, using a rotating disc unit (RDU) consisting of two or more stages. The RDU is not detrimentally affected by low dissolved oxygen concentrations characteristic of septic tank effluent and it is able to accomodate flow fluctuations fluctuations. The potential to achieve both mitrification and demitrification with the application of BDU's is proposed. (SWP) ACC# : 1000227 AUTHOR: Reid, L.C., Jr. AFFIL : University of Washington, Seattle, WA TITLE : Design of Wastewater Disposal Systems for Individual Dwellings SOURCE: Journal of Water Pollution Control Pederation, 43(10): 2004-2010 BAR : 1971 TEXT : AB : An extended aeration system for use in individual dwellings was developed and tested. The unit consists of four separate operations: primary ecration, secondary acration, sedimentation, and chlorimation. An air-lift system is used for mixing and merating the wastewater, and plate settlers are used for sludge separation. The initial phase of the project was a laboratory study conducted on a model of the plant. This study allowed the examination of the efficiency of the plate settlers

and the overall efficiency of the system. Based on the results of the laboratory work, a full-scale plant was constructed to handle 300 gpd (1.1 cu m/day). This plant was operated for five months with average biochemical oxygen demand and suspended solids removal efficiencies of 96 percent. The operating cost of the plant ranged from \$0.04 to \$0.12/ day in 1970. Chlorinated effluent was thought to be suitable for toilet flushing. The work was done in Anchorage, Alaska, by the Environmental Engineering Section of the Arctic Research Center. (AU) ACC# : L000228 AUTHOR: Reneau, R.B., Jr. AFFIL : Virginia Polytechnic Institute & State U.; Dept. of Agronomy; Blacksburg, Vl TITLE : Changes in Inorganic Mitrogenous Compounds from Septic Tank Effluent in a Soil with a Fluctuating Water Table SOURCE: Journal of Environmental Quality, 6(2): 173-178 YEAR : 1977 TERT : Changes in ammonia, nitrite, and nitrate were monitored in-situ for soil samples from 1972-1975 in a Virginia Coastal Plain soil having a not sold the plantic fluctuating water table. Ammonia-W in solution above the plinthic horizon decreased with increasing distance from the drainfield in the direction of groundwater flow. Mitrite and nitrate concentrations did arrection or groundwater riow. Mitrite and nitrate Concentrations did not change significantly with distance above the plinthic horison, but they did accumulate in the plinthic material beginning at a 1.27 meter distance from the drainfield. Witrification adjacent to the drainfield was possibly inhibited by high oxygen demand, high ammonia content, and general anaerobic conditions present. Areas where denitrification was postplated to occur had moder activities of presented w 4200 mV postulated to occur had redox potentials of approximately +200 mV (adjusted to 25 degrees Centigrade and pH 7.0). Witrite and nitrate that soved into the plinthic horizon had not undergone denitrification. The data is summarized and tabulated, for each set of parameters evaluated. (SWF) ACC# : L000229 AUTHOR: Rodale, R. AVTHOR: HOURIN, R. APPIL : Rodale Press, Inc., Emmaus, PA TITLE : Goodbye to the Flush Toilet SOURCE: Compost Science, 12(6): 24-25 TEAR : 1971 TEXT : The flush toilet is criticized as wasting water, nutrients and money. TEXT : The flush toilet is criticized as wasting water disposal problems. It also contributes to solid and liquid waste disposal problems. Recycling human wastes back to the soil is advocated. The Clivus Hultrum composting toilet is described. (SWP) ACC# : 1000230 AUTHOR: ROOSA, V.D. APPIL : West Hartford, CT TITLE : Flushing Device SOURCE: U.S. Patent Office Official Gazette, 895(5): 1617 TEAR : 1972 THIT : Patent for a flushing device that conserves water by regulating the amount of flush water. A slideable float is provided to prevent back-siphoning in case of water supply failure. (SWF) ACC# : L000231 AUTHOR: Bose, C.W. APPIL : USDA TITLE : Bural Wastes: Ideas Meeded SOURCE: Water and Wastes Engineering, 9(2): 46-47 YEAR : 1972 THIT : The need for alternative collection and disposal systems for rural areas is discussed. Pressurized, small-diameter mains and solids size reduction are seen as viable solutions toward obtaining a low-cost, dependable system for rural waste management. (SWP) ACC# : 1000232 AUTHOR: Russelmann, H.B. AFFIL : Illinois State University, Normal, IL TITLE : No Discharge Treatment Systems SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 83-96 **TEAR** : 1977 TEXT : Brief description and illustrated discussion of the six pajor types of no-discharge systems: 1) Conventional holding tank system; 2) nonconventional holding tank system; 3) sero discharge system, on-site waste treatment; 4) mero discharge system, on-site incineration; 5) mero discharge system, on-site composting; and 6) mero discharge system, evapotranspiration. (SW7) ACC# : 1000233 AUTHOR: Kreissl, J.F.

AFFIL : U.S. Environmental Protection Agency, Hunicipal Environmental Research Laboratory, Cincinnati, OH TITLE : U.S. BPL Response to PL 92-500 Relating to Rural Wastewater Problems SOURCE: Individual Obsite Wastewater Systems; Proceedings of the Third Wational Conference; National Sanitation Foundation; 1976; pp. 21-36 TEAR : 1977 : Presents the response of BPA's office of Research and Development to the mandates of Sections 104 and 105 of PL 92-500. Topics include TEXT advanced collection technology, on-site alternative systems, septic tank sludge handling, and cost estimates of on-site alternatives. (SWP) t Ann Arbor Science Publishers, Inc. COT P.Q. Box 1425 Ann Arbor, HI 48106 ACC# 1 1000234 AUTHOR: Ueda, S. AFFIL : Kanagawa-ken, Japan TITLE : Flusbing Toilet Apparatus SOURCE: U.S. Patent Office Official Gazette, 896(3): 841 YEAR : 1972 : A patent device with a large water-holding chamber that provides wash-water for many toilets is substituted for the conventional-type toilet TRIT with a single water closet. (SWP) ACC# : L000235 AUTHOR: Vansickle, L. AFFIL : Vansickle Construction Company TITLE : Problems of On Site Sevage Disposal SOURCE: Proceedings of Second Annual Illinois Private Sevage Disposal Symposium; 1977; pp. 22-27 TEAR 1 1977 TEXT : A sevage disposal contractor explains that homebuilders must consider the special characteristics of a building lot when choosing a certain type of on-site treatment unit. Case studies involving aerobic systems that have been proved satisfactory are briefly discussed. Proper design and operation of an aerobic treatment system is emphasized. (SWF) ACC. 1 L000236 AUTHOR: Viraraghavan, 1.; Warnock, R.G. AFFIL : University of Ottawa, Dept. of Civil Engineering, Ottawa, Canada TITLE : Groundwater Pollution from a Septic Tile SOURCE: Water, Mir, and Soil Pollution, 5(3): 281-287 SOURCE: Water, Air, and Soll Follution, C.C. YEAR : 1976 TEXT : A soil's ability to remove pollutants from septic tank effluent was investigated. The characteristics of the groundwater below an existing septic tile field were studied during the summer of 1973. The concen-trations for chemical constituents were found to be much lower in the groundwater compared to the septic tank effluent; however, these were quite high compared to background levels for the groundwater in the area, indicating the pattern of pollution that is taking place. This article is summarized in L000237. (AU) 1 L000237 100 AUTEOR: Viraraghavan, T.; Warnock, B.G. AFFIL : University of Ottawa, Dept. of Civil Engineering, Ottawa, Canada TITLE : Groundwater Quality Adjacent to a Septic Tank System SOURCE: Journal of American Water Works Association, 68(11): 611-614 TEAR : 1976 TEAR : Sfficiency of a septic tank system mear Ottawa, Canada, receiving domestic vastes from a rural household under seasonally varying con-ditions was studied. Piedmont and Pontiac soils were prevalent in the area. The unsaturated soils removed high amounts of BOD, TSS, SOC, etc., with the exception of phosphates. During loading, a general rise of contaminant occurred in the groundwater adjacent to the tile. During periods of high water table, the travel of pollutants was decreased and their dilution increased. The pollutant concentration, as indicated by COD and BOD, annonia mitrogen and chlorides, decreased significantly with distance from the tile end. This article is a summarized version of L000236. (SWP) 1CC4 : L000238 AUTHOR: Wetzel, R.D. APPIL : Marshfield, WA TITLE : Compact Sevage Treatment Apparatus SOURCE: U.S. Patent Office Official Gazette, 903(5): 1582 TEAR : 1972 THIT : Patent for a compact housing that includes an apparatus which initially clarifies sewage by anaerobic decomposition, primary sedimentation and flotation, and chemical reduction of BOD and colliforms. Final clarificatice is performed by secondary medimentation, flotation and filtration. (377)

ACC# : 1000239 AUTHOR: Young, A.N., Jr. AFFIL : Crossglass Corporation TITLE : Soils Infiltration and Evaporation of Wastewater by Aerobic Processes SOURCE: Proceedings of the 23rd Annual Technical Meeting of the Institute of Environmental Sciences; pp. 115-117 YEAR : 1977 TEXT : Individual aerobic treatment units and the means of treating their effluent by aerobic drainage fields and by evapotranspiration beds are discussed. The installation requirements of an evapotranspiration bed are outlined. (SWF) ACC# : 1000240 APPIL : University of Wisconsin, Hadison, WI TITLE : Use of Soil for Disposal and Treatment of Septic Tank Effluent SOURCE: Proceedings of the Eural Environmental Engineering Conference on Water Pollution Control in Low Density Areas; 1975; Paper No. 8; pp. 89-94 : 1975 TRAR TEXT : The Small Scale Waste Hanagement project at the University of Wisconsin is discussed. Alternative solutions for slowly permeable soils and soils with high groundwater tables are presented. A small map of soil conditions in Wisconsin is featured. (SWP) COT : University Press of New England Hanover, NE 03755 ACC# : 1000241 AUTHOR: Berbarick, K.A.; Warrick, A.W.; Post, D.P. AFFNIL : University of Arizona, Tucson, AS TITLE : Percolation Tests for Septic Tank Suitability in Southern Arizona Soils SOURCE: Journal of Soil and Water Conservation, 31(3): 110-112 YEAR : 1976 TEXT : Percolation tests were conducted for septic tank suitability in nine southern Arizona soils to determine relationships between the percolation rate and test diameter and to correlate the rates with selected soil parameters. Coefficients of variability for the percolation rate at each site varied from seven to 48 percent. I mathematical relation-ship and a regression analysis to relate percolation rate to test-hole geometry were used. The predicted theoretical percolation rate of a test-hole 10 centimeters in diameter was 2.5 times, that for a hole 30 ca. in diameter and approximated the experimental results. (SWP) ACC# : 1000242 AUTHOR: Leinicke, J.R. AFFIL : Illinois Environmental Protection Agency, Springfield, IL FITLE : State Perspective - Pacilities Planning for Small Unsevered Communities in Illinois SOURCE: National Conference on Less Costly Mastevater Treatment Systems for Small Communities; 1977; pp. 86-92 (EPA-600/9-79-010; MIIS Report No. PB 293 254/AS) COST : \$6.50 : 1978 TELL : Cost-effectiveness concerns led to the conclusion that many unsevered TRIT communities would be economically better off to correct septic tank salfunctions and/or to study on-site alternatives, rather than to install sever systems. "No action" is an Illinois response to studying alternatives to conventional, centralised sever systems. Goals and guidelines for "no action" are included. (SWF) COT : MTIS 5285 Port Royal Road Springfield, VA 22161 ACC# : 1000243 AUTHOR: Cain, J.H.; Beatty, H.T. AFFIL : University of Wisconsin, Hadison, WI TITLE : Disposal of Septic Tank Effluent in Soils SOURCE: Journal of Soil and Water Conservation, 20(3): 101-105 TEAR : 1965 THIT : This report, based on a review of the literature of certain aspects of on-site sewage disposal, includes discussions of the use of soil survey information for identifying sites suitable for septic tank waste disposal systems, the importance and measurement of soil permeability, the possible sources of soil clogging, and the contamination of ground-water by effluent from septic tanks. The authors emphasize the need for intelligent land use planning, sound soning, and strict sanitation ordinances. (10) ACC4 : 1000244 AUTHOR: Krebs, J.R. APPIL : Hulti-Plo Inc., Dayton, OH TITLE : Sizing, Design and Application Factors in Home Sevage Treatment Systems SOURCE: Proceedings of the National Home Sevage Disposal Symposium; 1974; ASAR Publication Proc-175; pp. 182-190

**TELR : 1975** TEXT : The factors affecting sizing, flow and organic loading are explained. and the operation of an aerobic treatment system is discussed. Typical application examples are given and a simplified system design is explained briefly. (SWF) : American Society of Agricultural Engineers CON 2950 Wiles Road St. Joseph, HI 49085 ACC# : 1000245 AUTHOR: Hokas, D.L.; Whiteside, E.P. AFFIL : Michigan State University, Agricultural Experiment Station, East Lansing, HI TITLE ; Performance of Septic Tank Disposal Fields in Representative Hichigan Soils SOURCE: Hichigan Agricultural Experiment Station Research Report 157; 15 pages **YEAR : 1972** TEXT : Sussarized soil map data are used to equate the performance of present sewage disposal systems with soil texture. Soil permeability and texture are compared with percolation rate. Results show mean percolation rates (HPR) and permeabilities decrease as the soil texture becomes coarser. Seasonal variations of percolation rates exist, therefore tests for percolation should be made early in the year or after considerable presoaking. An improved presoaking method is recommended. Tabulated results are included, with disposal field performance, profile textures, estimated load/trench area ratios and field age parameters compared. (SWP) ACC# : 1000246 AUTHOR: Beer, C.E.; Smith, D.L.O.; Effert, D.D.; Smith, R.J. APPIL : Iova State University, Ames, IA TITLE : Analysis and Performance of a Sewage Osmosis System SOURCE: Proceedings of the Second National Home Sevage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 193-201 **TBAR : 1977** TEXT : Analysis was conducted on the performance of a sewage osmosis system that was claimed to operate via electrolysis, galvanic cell and electro-osmosis. Researchers found that the energy supply required to operate the system via electrolysis was inadequate. An electrochemical cell cannot simultaneously be galvanic and electrolyte as claimed by the licensee. Laboratory models and field studies at two installation sites (one being a site where a conventional field had failed) were used to obtain data. The laboratory study lasted 35 days. Field installation site I produced 362 days of useable data. Field site II was purposely overloaded and produced 101 days of useable data. The difference in absorption rates at sites I and II were greater than expected. Site II will have the sewage osmonis system installed and a follow-up report on its performance is pending. (SWP) : American Society of Agricultural Engineers CON 2950 Wiles Road St. Joseph, HI 49085 ACC# : 1000247 AUTHOR: Bouna, J.; Converse, J.C.; Siebell, W.A.; Hagdoff, F.R. AFFIL : University of Wisconsin, Hadison, WI TITLE : An Experimental Hound System for Disposal of Septic Tank Effluent in Shallow Soils over Creviced Bedrock SOURCE: Proceedings of the International Conference on Land For Waste Hanagement; 1973; pp. 367-377 TEAR : 1973 TEXT : The conventional method of subsurface disposal of liquid waste cannot be applied in shallow soils over creviced bedrock. A mound system with 60 cm (two feet) of sandy fill between a soil-covered seepage bed and the original topsoil was designed to provide disposal and treatment of septic tank effluent. Iffluent was pumped into the seepage bed four times a day through a plastic pipe 3.1 cm in diameter, leading to a man-ifold and four PVC laterals 2.5 cm in diameter. Six 5.1 mm. holes were located 75 cm. apart in each lateral, insuring even distribution of effluent during each dosage in the seepage bed. Preliminary monitoring data of an experimental field system showed strong reductions of fecal indicators, BOD, and COD. Removal of F occurring as nitrate was inadequate due to nitrification in the well-aerated mound, and further studies are in progress to improve W removal. The system was operated without problems during the winter. (AU) ACC# : 1000248 AUTHOR: Goldstein, S.N.; Hoberg, W.J., Jr. AFFIL : System Sciences Inc., Bethesda, HD TITLE : Wastewater Treatment Systems for Eural Communities SOURCE: Consission on Bural Water; 354 pages VELE : 1973

TBIT :	A guide to available systems and components for rural wastewater treat- ment. Provides a definitive approach to small sewage treatment systems, the role of soils in wastewater disposal, traditional and alternate approaches to sytems design, operations and cost of treatment systems. Intends to assist designers and planners of rural wastewater treatment facilities in laying out preliminary system plans. Provides potential clients, government agencies, loan guarantors and legislators with sufficient information on available alternatives with which to make an informed decision on effective wastewater treatment. (SWP)
ACC # : AUTBOR: AFFIL :	L000249 Stewart, D.B. University of Wisconsin, College of Agriculture 5 Life Science, Madison, WI
TITLE : SOURCE: TEAR :	Legal, Planning and Economic Considerations of On-Site Severage Sytems Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 222-230 1975
THIT :	Suggestions for improving regulations during the installation, operation and maintenance, and the failing phase of on-site systems are listed and described. (SWF) American Society of Agricultural Engineers 1950 Hiles Road No. Joseph M. 49085
ACCO : AUTBOR: AFFIL : TITLE :	LOO0250 Sikora, L.J.; Bent, H.G.; Corey, R.B.; Keeney, D.R. University of Visconsin, Badison, VI Septic Vitrogen and Phosphorus Removal Test System Ground Water, 14(5): 309-314
TRAR : TRIT :	1976 A gravity flow vertical sand column, followed by a horisontal column containing dolomite or calcite medium, was laboratory tested for home removal of nitrogen and phosphorus. Mitrogen removal was high when nitrification with methanol addition was used. Phosphorus removal failed after one month probably because of slime growth on the medium. Air ports maintained aerobic conditions in the sand column where nitrifica- tion occurred. The other column was the site of denitrification and phosphorus removal. (SWP)
ACCO : AUTBOB: AFFIL : TITLE : SOUBCE: TEAR :	L000251 Schwiesow, W.F. USDA Home Sewage Disposal Systems - Past and Present Proceedings of the National Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 2-8 1975
TRIT 1 CON 1	Brief historical account of home waste disposal systems, followed by a discussion of current trends in system design and research. (SWF) American Society of Agricultural Engineers 2950 Miles Road St. Joseph, MI 49085
ACCO : AVYNOR: AFFIL : TITLE : SOURCE: TEAR :	L000252 Viraraghavan, T. ADI Ltd., Fredericton, New Brunswick, Canada Travel of Microorganisms from a Septic Tile Water, Air, and Soil Pollution, 9(3): 355-362 1975
TET :	In investigation scaltored the horizontal travel of indicator micro- organism from the end of a septic tile in the direction of groundwater flow. The microorganism levels exhibited a declining trend with distance away from the tile end. Decause the unsaturated depth of soil available for microorganism vertical travel was limited, relatively high levels of organisms were found in the groundwater even at a horizontal distance of 15.25 m. from the end of the meptic tile. (AU)
ACC4 : AUTHOR: AFFIL : FITLE : SOURCE: THAR : THAR :	L000253 Viraraghavan, f. ADI Ltd., Fredericton, New Brunswick, Canada Influence of Temperature on the Performance of Septic Tank Systems Water, Air, and Soil Pollution, 7(1): 103-110 1977 Household hot water discharged into a septic tank system kept the tangerature of the liquid in the septic tank and drainage field above freezing during a 15-month investigation in Ottawa, Canada. The system did operate more efficiently in the removal of BOD and COD when soil and
	wastewater temperatures and graph of percent reduction of BOD and orthophosphate at different soil temperatures are included. (SWP)

ACC# : L000254 AUTHOR: Viraraghavan, T.; Warnock, R.G. AFFIL : University of Ottawa, Ontario, Canada TITLE : Efficiency of a Septic Tile System SOURCE: Journal of the Water Pollution Control Pederation, 48(5): 934-944 YEAR : 1976 TEXT : Field investigations carried out from December 1972 to Pebruary 1974 in Onterio, Canada, showed that Piedmont and Pontiac soils had the ability to remove 75-90 percent of the SS, BOD, nitrate, COD, and soluble organic carbon from septic tank effluent. Reductions of phosphate were in the 25-50 percent range. Efficiencies of the systems ranged from 80-90 percent in the summer and fell to 70-75 percent in the winter. (SWF) ACC# : L000255 AUTHOR: Berthold, G.W. AFFIL : New Orleans, LA TITLE : Septic Tank System SOURCE: Patent No. 3,564,854 YEAR : 1971 TEXT : Partially submerged septic tank system with induced air flow to aid sewage decomposition is described. Baffle prevents backflow of air that is pumped from inlet, through tank and exits discharge line. (SWP) 1004 : 1000256 AUTHOR: Bhly, J. APPIL : N/A TITLE : Recetrack Sewage Plant Solves Dinmitt's Semitation Problems SOURCE: Water & Sewage Works, 118(9): 302-303 : 1971 YEAR TEXT : Oxidation ditch sewage treatment facility was installed in Diumitt, Texas. Wastewater travels 300 feet around a "racetrack" (oxidation ditch type) and is pumped to a clarifier with revolving scraper. Solids are drawn off to a drying bed and are later sold as fertilizer. Water flows from the clarifier into small-diked retention ponds and overflows into a nearby lake. Lake water is used for farm irrigation. (SWP) ACC# : L000257 AUTHOR: Waldorf, L.E. AFFIL : Appalachian Regional Commission, Washington, D.C. TITLE : Boyd County Demonstration Project SOURCE: National Conference on Less Costly Wastewater Treatment Systems for Small Communities; 1977; pp. 68-72 (EPA-600/9-79-010; MTIS Report No. PB 293 254/AS) : \$6.50 COST : 1978 TEAR TRIT : Presentation describes the Boyd County demonstration project and provides suggestions for future grants that would pertain to sewage treatment in rural America. The project supports the aerobic treatment unit as a workable alternative for the homeowner. Forty-seven families served by 36 individual home units and two multi-family units partici-pated in the project. Six sanufacturers were represented with 16 stream discharge units, two spray irrigation units, one evapotranspiration unit and 19 subsurface field discharge units. Four recycle units serving five homes produced clear, odorless water. Problems that arose from the equipment and with the grant are included. (SWP) CON : MTIS 5285 Port Royal Boad Springfield, VA 22161 ACC# : L000258 AUTHOR: Siebell, W.L.; Anderson, J.L.; Boune, J.; HCCoy, E. AFFIL : University of Wisconsin, Hadison, WI TITLE : Fecal Bacteria: Removal from Sewage by Soils SOURCE: ASAE Paper 75-2579 for Annual Hesting TEAR : 1975 TEAR : 1975 TEAT : Column experiments determined the focal coliform removal capability of TEAT : Column experiments determined the focal coliform removal capability of sandy a sandy soil and a clayey soil. Results indicated that 60 cm. of sandy soil will remove large numbers of fecal indicators and pathogans, but a deeper amount would be necessary for complete removal. Plow and temperature greatly affected the removal process. Sirty cm. of clayey soil removed fecal indicators very effectively, but because of the less perseable nature and the characteristic air-filled soil pore, fecal coliforms could move through the soil without being removed and would later surface as an indicator of pollution. Tests were conducted on several variables. Both dosing and continuous flow studies were conducted. A lengthy list of references are provided with the article. (SWP) ACC# : L000259 AUTHOR: Leich, H.H. APPIL : N/A

KITLE : Severiess Sanitation: Sever versus Severless Methods - A Report by a Congressional Consittee SOURCE: Compost Science, 18(4): 26 ISAR : 1977 ISAR : Key issues of testimony given on domestic wastewater treatment to the House Subconnittee on the Environment and the Atmosphere (Document So. 106). Discusses the controversy of centralized wastewater treatment versus on-site disposal systems and the total lack of incentives for on-site systems. (SWF) ACC# : 1000260 LUTEOR: Bouna, J. LFFIL : University of Wisconsin, University Extension 6 Dept. of Soil Science, Hadison, WI FITLE : Eveluation of the Field Percolation Test and an Alternative Procedure to Test Soil Potential for Disposal of Septic Tank Effluent SOURCE: Soil Science Society of America Proceedings, 35(6): 871-875 (BAR : 1971 FERT : In order to provide a reliable alternative to the conventional percolation test, an alternative procedure was researched in Wisconsin. Heasurement of K values in-situ, as a function of soil moisture tension, is proposed as a field test to determine soil potential for effluent disposal. A field experiment with dosing of effluent was made to demonstrate that system management will determine which K values from the measured range will apply to the flow system at any given time. (AU) ICC4 : 1000261 IUTHOR: Hill, R.C. IFFIL : Wisconsin Bureau of Environmental Health, Hadison, WI MITLE : Soil Testing Certification SOURCE: Individual Onsite Wastewater Systems; Proceedings of the Pourth National Conference; National Sanitation Foundation; 1977; pp. 129-134 [BAR : 1978 ISAT : Discusses the development and operation of the Wisconsin program for conducting soil tests to evaluate sites for septic tank systems. (SWP) 201 : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 ICC# : L000262 IUTHOR: Sena, C.L. NYFIL : National Environmental Sealth Association TITLE ; Current Status on On-Site Vastevater Management SOURCE: Journal of Environmental Health, 40(5): 279-285 [BAR : 1978 [EXT : Examples of state and local regulatory programs are presented. Re-FEIT : Examples of state and local regulatory programs are presented. References relating to recent publications stensing from research are briefly discussed. Two tables give requirements for septic tank and absorption field design for each individual state. The need for a new handbook which would include all available on-site technologies and the need to resolve differences in opinion between planners, installers, and regulators of on-site systems are emphasized and briefly documented. (882) ACC# : 1000263 AUTHOR: BEAL, E.D. AUTHOR: BEEF, H.D. LYFFIL : Bursen of Environmental & Occupational Health, Lansing, HI FITLE : Report on the Ten State Consittee for Onsite Sewage Systems HOURCE: Individual Onsite Wastewater Systems: Proceedings of the Third Bational Conference: National Samitation Poundation; 1976; pp. 201-204 I'RA B : 1977 FRIT : Brief suggary of progress made by the Ten State Constitute for on-site sewage systems 1975-1977. The constitute serves as a medium for standards procedures and the exchange of policies over the ten state region of the Great Lakes-Upper Hississippi River Basin. Their final report was expected to be published in 1979. (SWP) 201 : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 LCC# : L000264 NUTHOR: Bailey, J.; Wallman, H. NYFIL: General Dynamics Corp., Electric Boat Division, Groton, CT FITLE: Flow Reduction of Waste Water from Households SOURCE: Water and Sewage Works, 118(3): 68-70 IBAR : 1971 FETT : An evaluation of currently available household flow reduction and treat-ment schemes is presented. Findings show that water saving devices save 30-50 percent on water charges. Honeowner acceptance of such devices is claimed and supported with survey dath. Complete waste treatment and schemes for reuse of reclaimed water in the home are found to be im-

practical at this time. Water saving suggestions and estimated cost savings are presented. (SWP) CC# : 1000265 CCV : LOUZES UTHOR: Siebell, W.A.; Mero, D.E.; Deininger, J.F.; HcCoy, E. FFIL : University of Wisconsin, Madison, WI ITLE : Use of Bacteria in Assessing Waste Treatment and Soil Disposal Systems OURCE: Proceedings of the Wational Home Sewage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 58-73 : 1975 21.2 EAR 11975 BIT : Bacteriological analysis of septic tank, mound and aerobic treatment effluents is presented. Population ranges and means for fecal strepto-cocci, fecal coliforms, total coliforms, Pseudomonas aeruginosa and total bacteria are listed. From the data, it was concluded that domestic sevage must be disinfected even after on-site treatment. (SWP) : American Society of Agricultural Engineers ON 2950 Wiles Road St. Joseph, NI 49085 CC# : L000266 UTHOR: Anonymous FFIL : N/A ITLE : Low Pressure Sever System with Grinder Pumps Provides Wastewater Collection Versatility OURCE: Water and Sevage Works, 120(11): 58-59, 69 CONCE: Water and Sevage works, factor, isons, or EAR : 1973 EXT : Low pressure sever systems with grinder pumps can solve many problems for areas where gravity severs might be costly or not applicable. This system has no infiltration problems, requires little or no bedding, and the small diameter pipes can be laid following land contours. Grinder pumps pump the sevage and reduce the size of solids to suit the pressure in the small diameter of small diameter wines this concept mild be and flow requirements of small diameter pipes. This concept could be used to connect previously non-severed areas with present gravity severs. (STP) CC# : 1000267 UTHOR: Williams, T.C. FFIL : Williams and Works, Grand Rapids, MI ITLE : Plastic Pipe, Pressure Severs, Mark Expansion OURCE: Water and Wastes Engineering, 12(11): 85-87 EAR : 1975 BIT : Description of the first polyethylene pipe collection system. Grinder pusps and pressure severs are incorporated into the system serving a resort town with fluctuating population. Wastewater is treated in four aerated lagoons and then sent to two 16-acre storage ponds for later drawdown and disposal on 18 irrigation fields. (SWF) CC# : 1000268 UTHOR: ABOBYBOUS FFIL : N/A TTLE : Pressure Sever Systems Gain New Popularity OURCE: Water and Sevage Works, 12(2): 84-87 BAR : 1975 BAR : Advantages and disadvantages of pressure sever systems are discussed. Grinder pusp systems and septic tank effluent pusping systems are examined in light of recent experience with these schemes. The concept of pressure-piping sevage is recognized as a growing and viable alterna-tive to conventional gravity systems. (SWP) CC6 ; L000269{ DTHOR: Pugsley, E.B. PFIL : Colorado Department of Health, Denver, CO TTLE : Individual Onsite Wastewater System Hanagement in Colorado OURCE: Individual Onsite Wastewater Systems; Proceedings of the Third Mational Conference: National Samitation Foundation; 1976; pp. 205-209 : 1977 781.9 EIT : General state and local regulations governing on-site wastewater treatment units in Colorado are discussed briefly. Requirements for design and installation of on-site schemes and the permit procedure are summarized. (SWF) OF : Ann Arbor Science Publishers, Inc. P.O. Box 1425 Ann Arbor, HI 48106 CC# : 1000270 UTHOR: Porto, D.D. PFIL: ECOS, Inc., Allston, HA PILE: What's in the Puture for Composting Toilets NURCE: Compost Sciences, 18 (4): 16 IRAN : 1977

TRIT :	An overview of response to regulatory and political issues regarding the acceptance of composting toilets and on-site wastewater systems. Iden- tifies the need for continued research, better information dissemination and technical training programs. (SWP)
ACC4 : AUTHOB: APPIL : TITLB : SOURCE: TEXT : COW :	L000271 Rose, L.W. California Governor's Office of Appropriate Technology, Sacramento, CA Validating Onmite Treatment in California Individual Onmite Wastewater Systems; Proceedings of the Pourth Wation- al Conference; Mational Sanitation Foundation; 1977; pp. 79-83 1978 General overview of California's efforts to make on-mite treatment a viable alternative to the centralized collection and treatment of dom- estic wastewater. The role of the governor's office of appropriate technology is described. (SWF) Ann Arbor Science Publishers, Inc. P.O. Box 1425
ACCS : AUTHOR: APFIL : TITLE : SOURCE: TEAR : TEAR :	Ann Arbor, HI 48106 L000272 Saito, J.; Fugii, S. Eitsubishi Rayon Engineering Co., LTD., Tokyo, Japan Water Re-Use by Oltra-Filtration in Individual Building Desalination, 23(1,2,3): 183-193 1977 Treatment of wastewater by an ultrafiltration unit was evaluated by a Japanese-based common. The unit was tubular-type, proceeded by a bar
	Screen and a flow equalizer. Results show that ultrafiltration can re- cycle 50 percent of an office building's wastewater without constant operator attendance. A polyacrylonitrile sembrane proved to be quite capable and filtered out suspended solids, colloids, high molecular weight organics, bacteria and viruses. Cost estimates (yen) are in- cluded. (SWP)
ACC4 : AUTHOR: APPIL : TITLE : SOURCE: YEAR : TEXT :	L000273 Bealy, K.A.; Laak, R. Diversity of Connecticut, Storrs, CT Problems with Effluent Seepage Fields Water and Sewage Works, 121(10): 68-67 1974 Connecticut study determined the long-term effluent acceptance rate of the soil interface and evaluated the hydraulic conductivity of the ground at proposed seepage field sites. Results indicate that a succes- sful seepage field must have sufficient soil interface so the acceptance rate does not exceed three gpd/cubic feet and eight gpd/cubic feet for clay and clean sand, respectively. The ground around a seepage field must have enough hydraulic conductivity to absorb effluent faster than it is released. This depends on permeability, the ground water table, and any impermeable boundaries that may exist. Three methods of evalu- ating a site's permeability are discussed. Detailed test results and descriptions are not given, only referenced. (SWF)
ACC4 : AUTHOR: AFFIL : TITLE : SOURCE: TEAR : TEXT :	L000274 Love, S. M/A An Idea in Need of Rethinking: the Flush Toilet Smithsonian, 6(2): 61-66 1975 Review of alternatives to flush toilets, including freeze toilets, methane recovery toilets, clivus multrum, and numerous innovative methods. The average North American family uses 35,200 gal/yr of water for toilet flushing. Even if water is available in abundance, the growing scarcity of emergy resources meeded to support centralized water treatment facilities may impose limits on the flush toilet. (SWF)
CCC : AUTHOR: AUTHOR: APFIL : SOURCE: YEAR : TEXT :	LOGO 275 Sans, E.T. Water Research Centre, Stevenage Laboratory, Elder Way, Stevenage, Hertfordshire, England Sewage Treatment for Small Communities Bavironmental Conservation, 1(2): 145-152 1978. The problems that arise in user-operated small vastewater facilities are discussed, and the range of treatment methods suitable for various requirements are described in this paper. The waste treatment facilities discussed are method in this paper. The vaste treatment facilities discussed are method in this paper. The vaste treatment facilities discussed are method in this paper. The vaste treatment facilities discussed are method in this paper. The vaste treatment facilities discussed are method in this paper. The vaste treatment facilities discussed are method in this paper. The vaste treatment facilities discussed are septic tanks, merobic lagoons, activated sludge treatment, and method is biological filters. fortiary treatment by the Banks clarifier fitted to humus tank, grass plot, and treatment lagoon is described. The use of these systems in Britain is emphasized. (SWF)
ACC4 : AUTHOR: AFFIL :	LOOD276 Hiddleton, B.B. Corps of Engineers, St. Louis District, Design Branch, St. Louis Ho

TITLE : Expanding Waste Water Treatment Considerations at Corps of Engineers Recreation Areas SOURCE: Water Resources Bulletin, 9(1): 155-159 YEAR : 1973 TEXT : The many changes in the wastewater treatment requirements at St. Louis District Corps of Engineers projects over the past few years are dis-cussed. Extended aeration plant, followed by filtration, is the process used in most of the areas. The treatment plant operators have become key members of the project operation team. A discussion of the District's operator training program is presented along with the operator's job requirements. Through a Spring inspection of all treatment plants in the District, a mechanism has been provided for encouraging feedback to the design engineer from the operator. (10) ACC4 : 1000277 AUTHOR: Laak, R.; Healy, K.A.; Hardisty, D.H. APPIL : University of Connecticut, Storrs, CT TITLE : Rational Basis for Septic Tank System Design SOURCE: Ground Water, 12(6): 348-352 **YEAR : 1974** TEXT : Design of septic tank and subsurface seepage systems includes three requisites: sound hydraulics, higher loading rates for leaching fields, and preservation of groundwater quality. A mathematical relationship to predict the required size of a leaching field is presented with its parameters. Heans to achieve reduced pollution potential are proposed. (SW7) ACC# : 1000278 AUTHOR: Popkin, R.A.; Bendixen, T.W. AFFIL : U.S. Public Health Service, Indian Hospital, Suni, NH TITLE : Peasiblity of Isproved Subsurface Disposal SOURCE: ASCE Journal of the Samitary Engineering Division, 94(812): 271-281 YEAR : 1968 TEXT : A modified design for septic tank-soil absorption systems, based on intermittent dowing of septic tank effluent, is suggested in this paper. The design is based on soil evaluation and is independent of home size. The values calculated for the modified system are tabulated and compared with those found in "Hanual of Septic Tank Practice". The comparisons show the modified systems to require less area and to be cost-effective. The expected life of the proposed systems is purported to be longer than that for conventional designs. (SWF) ACC# : 1000279 AUTHOR: Simple, T.F. HFFIL : Town of Hansfield, Assistant Health Officer, Hansfield, CT FITLE : Feasibility of Improved Subsurface Disposal (Discussion) SOURCE: ASCE Journal of the Sanitary Engineering Division, 94(SA6): 1299-1301 YEAR : 1968 TEXT : Reviews and critiques "Feasibility of Improved Subsurface Disposal" by R.A. Popkin (L000278). The author supports Popkin's contention that soil should be eliminated as a design variable and supports his argument with an example. (SWF) ACC# : 1000280 AUTHOR: Stockton, E.L. AFFIL : Mational Samitation Foundation, Ann Arbor, MI FITLE : Biological Oxidation - A Technology Assessment SOURCE: Proceedings of the National Home Sevage Disposal Symposium; 1974; ASAE Publication Proc-175; pp. 17-22 : 1975 TEA R : Aerobic biodegradation is discussed. Past and present research, evalua-FRYP tion and historical data are briefly explained. BOD and SS removal rates by aerobic units are tabulated. (SWP) : American Society of Agricultural Engineers CON 2950 Wiles Boad St. Joseph, HI 49085 LCC# : L000 281 LUTHOR: Vlahakis, J.G. AFFIL : U.S. Army Hobility Equipment Research & Development Center, Fort Belvoir, VA FITLE : A Prototype Ozomation Waste Treatment System for the U.S. Army SOURCE: International Sysposium on Ozome for Water and Wastewater Treatment, First Proceedings, pp. 483-493 : 1975 1275 FERT : An openation waste treatment system consisting of an aerobic digester, osonator, and filter was tested by the U.S. Army's Sanitary Sciences pivision. Results indicate BoD reduction of over 80 percent, a TOC reduction of 70 percent, and a 93 percent reduction of suspended solids when all three units are utilized. Osomation alone is responsible for

removals of 33 percent BOD, 12 percent TOC, 9 percent suspended solids. Potential applications, performance, and problems associated with the oxone system are detailed. (SWF) 201 : International Oxone Institute Waterbury, CT ICC# : 1000282 WTHOR: Winneberger, J.H.T. PPIL : N/A ITLE : Sanitary Surveys and Survival Curves of Septic Tank Systems NUTRCE: Journal of Environmental Health, 38(1): 36-39 IBAR : 1975 INT: : A "survival curve" is presented as a cost comparison method for community severs vs. continued septic tank practices. The survival curve is computed from surveys of failed septic systems by noting if the system failed and, if so, what year after it was installed. A California case study is cited. Instructions for computing a survival curve are provided. (SWP) ICC# : 1000283 NUTHOR: Spies, K.H. NTEL : Oregon Dept. of Environmental Quality, Land Quality Division NTEL : Why We Need Alternative On-Site Systems SOURCE: Compost Science, 17(4): 25 TRAR : 1976 THIT : Oregon is searching for alternative on-site sevage systems because agricultural land is no longer allowed to be developed for housing or consercial sites. Also, is many locations natural barriers are unfavorable to septic tank systems. Currently, only five alternatives have been permitted: evapotranspiration, mound disposal beds, intermittent sand filters, evapotranspiration-absorption, and composting toilets. An experimental program has been set up to study and collect data from field installations of new and different types of sewage treatment and disposal for the homeowner. (SWP) ICC# : 1000284 NTTHOR: 1/A IFFIL : University of Washington, Seattle, WA FITLE : A Study of Wighway Rest Area Wastewater Disposal SOURCE: Public Works, 103(12): 70-74 ISAR: 1972 THIR: 1972 THIR: Present highway rest area disposal systems were evaluated with special attention given to operational problems. Nost problems were found to be either design related or equipment malfunctions. Available waste manage-either design related or equipment malfunctions. sent sethods were also evaluated, including holding tanks, stabilization ponis with spray irrigation, and recirculating chemical toilets. Recommendations pertaining to the operation of road side rest area waste management systems are given by the authors. (SWP) LCC# : 1009285 AUTHOR: Witt, M.; Siegrist, R.; Boyle, W.C. AFFIL : University of Misconsin, Hadison, WI FITLE : Bural Household Wastewater Characteristics SOURCE: Proceedings of the National Home Sewage Disposal Symposium; 1974; 1512 Publication Proc-175; pp. 79-88 VEL 9 : 1975 THIT : Describes the results from monitoring water use and wastewater quality in 11 rural households. Tables reveal frequency and quality of water consumed/family/event, mean wastewater contribution by event mg/cap/day, hacteriological characteristics/event and also includes a comparison of the family descent of the second sec this data with other water usage studies. Graphs depict daily and weekly flow patterns. (SWF) CON : Inerican Society of Agricultural Engineers 2950 Hiles Boad St. Joseph, HI 49085 ACCS : L000286 AUTHOR: Willson, G.B.; Reed, G.A.; Newman, J.O. AFFIL : USDA Agricultural Research Service, University of Haryland, College TITLE : Low Cost Bural Sevage System SOURCE: Proceedings of the Estional Home Sewage Disposal Symposium; 1974; 1518 Publication Proc-175; pp. 231-237 **THAR** : 1975 TEXT : An alternative, low cost central collection system was designed for the 31-home Grady W. Taylor Subdivision in Ht. Andrew, Alabama. Inter-omptor tanks with two compartments and clarifier tubes are used for liquefying the waste. Small diameter PVC pipes transport the waste to a one-third acre lagoon and to an evaporation pond. Centrifugal pumps are used in seven homes where the gravity flow of the wastewater is inadeguate. (SWY)

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CON
          : American Society of Agricultural Engineers
             2950 Niles Road
             St. Joseph, HI 49085
 ACC# : 1000287
 NOTHOR: Witz, R.L.
APPIL: Worth Dakota State University, Pargo, ND
FITLE : North Dakota State University, Pargo, ND
FITLE : Twenty-five Years with the Wodak Waste Disposal System
SOURCE: Proceedings of the Wational Home Sewage Disposal Symposium; 1974; ASAR
              Publication Proc-175; pp. 168-174
        : 1975
 YBAR
 TEIT : The Nodak Waste Disposal System consists of a septic tank, pumping
            chamber and a raised bed of sand and gravel for the disposal field. It
is used where soil conditions are not adequate for a conventional soil
            absorption system. Experience with the system is described; diagrams
showing construction details are included. Criteria for a lagoon as a
         replacement for the drainage field is also given. (SWF)
: American Society of Agricultural Engineers
 COF
            2950 Hiles Road
            St. Joseph, MI 49085
 ACC# : 1000288
 AUTHOR: Wright, J.B.
 AFFIL : Environmental Improvement Agency, Tusuque, NH
TITLE : Water Quality and Solid Waste Problems in Bural New Mexico and Some
            Solutions
 SOURCE: Proceedings of the Bural Environmental Engineering Conference on Water
            Pollution Control in Low Density Areas; 1975; Paper #17; pp. 217-225
 7232
         : 1975
TEIT : Specific problems and solutions associated with water supply, sevage
disposal, and solid wastes in New Mexico are discussed in this present-
ation to the Bural Environmental Engineering Conference. Lack of an
            adequate regulatory process is cited as a sain obstacle to progress.
             (STP)
         : University Press of New England
CON
            Hanover, MH 03755
ACC# : 1000289
 AUTHOR: W/A
AFFIL: National Samitation Poundation, Ann Arbor, MI
TITLE : National Samitation Poundation Proposed Standard No. 40 for Individual
            Aerobic Wastewater Treatment Plants
SOURCE: National Samitation Foundation
YEAR : 1978
TEXT : Presents the National Samitation Foundation's (NSF) proposed revisions
to its Standard No. 40 on individual aerobic wastewater treatment
            plants. Changes include the addition of the MSF's policies relating to
            the use of the MSF seal, inspections and associated reports, test and
test reports, and on-site inspection and service records. A test proto-
            cal for simulating stresses on systems is also included. (SWP)
         : National Sanitation Foundation
CON
           NSP Building
Ann Arbor, HI 48105
ACC# : 1000290
AUTHOR: Lawrence, C.E.
AFFIL : University of Oklahoma Health Services Center
TITLE : Septic Tank Performance
SOURCE: Journal of Environmental Health, 36(3): 226-228
TEAR : 1973
TEXT : Septic tank performance may be limited to phymical treatment when a
           current design is used. Study shows that chemical and biochemical treat-
           ment levels are often lower than generally expected from previous ex-
perience. Two household septic tasks operating under field conditions
were sampled four times per day. The only treatment attributed to the
tanks was a reduction in settleable solids and suspended solids. Author
            suggests use of multi-compartment tanks to enhance biological decomposi-
            tion, increase life span of the entire system and marinize settling.
            (577)
ACC# : L000291 #
AUTEOR: American Society of Civil Engineers
AFFIL : American Society of Civil Engineers, New York
TITLE : Hilvaukee Study Area
SOURCE: HIS Report No. PB-186 003, 99 pages
COST : NC $6.00/HF $3.00
YEAR : 1968
TEXT : Part of an overall research study being conducted by the American
Society of Civil Engineers (ASCE) to determine the feasibility of
           separating combined severage by using a system of pressure conduits to
           convey senitary sevage from individual structures to an existing inter-
           ceptor. Includes a detailed description of plumbing changes required
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to separate sanitary wastes from roof drains, and the work required
            to install a grinder-storage-pump unit in each building capable of
           to install a grinder-scolage-purp unit in each building capable of
discharging comminuted sewage to a pressure collection system located
in the public right-of-way. A cost estimate of two alternative pressure
sever layouts has been made and compared to the cost of accomplishing
           in-house separation and area collection of wastes by the conventional
           gravity sever system. (NT)
        : NTIS
CON
ACC# : 1000292 *
AUTHOR: American Society of Civil Engineers
AFFIL : American Society of Civil Engineers, New York
TITLE : Report on Pressure Severage System. Summer Street Separation Study Area
           Boston, Hassachusetts
SOURCE: HTIS Report No. PB-186 000, 86 pages
COST : NC $6.00/HF $3.00
        : 1968
TELR
TEXT : Result of a study of the 50-acre Summer Street Separation Study Area
           of Boston, Hassachusetts. The main objective of this report is to
           evaluate and compare the conventional gravity separation method (the
           construction of a new gravity sanitary severage system) and pressure
methods (the construction of new pressure sanitary severage systems
           consisting of pumping facilities and force mains). Based upon estimates
           of present and future sanitary sewage flows, the Project Staff prepared
           three sever system designs. The following engineering investigations
were also conducted: a study of revisions necessary on a typical build-
ing to in-house plumbing for separation of stors water and samitary
           sevage both for gravity and pressure separation of stors water and
           sanitary sevage both for gravity and pressure separation and including
a description of the physical problems involved and construction cost
estimates for these revisions; a review of the layouts for the system
of pressure separation of the entire study area prepared by the Project
           staff and the preparation of construction cost estimates for the
           systems. The concept of hanging pressure sanitary conduits within
           existing combined severs also has been evaluated. (NT)
COT
        : NTIS
ACC# : L000293 *
AUTHOR: Bailey, J.E.; Benoit, R.J.; Dodson, J.L.; Robb, J.H,; Wallman, H.
AFFIL : General Dynamics Corporation, Groton, CT
TITLE : A Study of Flow Reduction and Treatment of Maste Water from Households
SOURCE: HTIS Report No. PB-197 599/451, GPO Stock No. 167.13/4-11050PKB,
       168 pages
: EC $8.00/HF $3.00
COST
        : 1969
TEAR
        : The literature on household water quantity and quality requirements
TRIT
           was reviewed, an average water use pattern postulated, and the amount
of water used in various household functions was estimated. Comparisons
           of different water saving devices were made on a cost basis. Water
           quality is considered from three points of view: health, aesthetics,
           and engineering suitability. Waste disposal problems of homes not
connected to central severage systems were discussed. Septic tanks,
           change of phase processes, sembrane processes, electrolytic processes
           and other processes were evaluated, sainly on a cost basis. Most of the sethods considered do not appear to be suitable for individual house-
           holds at this time, but with changes in economic factors and technical
           improvements, some of these methods may be attractive for future use. A
           survey of hoseowners, architects-engineers, plumbers and plumbing equip-
           ment manufacturers was conducted to obtain representative reactions to
           sethods used to control water guality and guantity and wastewater
           treatment processes. (NT)
CON
        : NTIS
        : 1000294 *
1004
AUTHOR: Baungartner, D.J.; Halters, C.Y.
AVTHOR: Baungartner, D.J.; Halters, C.Y.
AFFIL : Arctic Health Research Center, Anchorage, AK
TITLE : Treatment of Undiluted Ruman Maste by the Activated Sludge Process
SOURCE: HTIS Report No. AD-605 257, 2 pages
COST : HC $4.00
TRAR : 1964
        : A laboratory activated sludge system was operated to confirm field
investigations which indicated that a 423 gallom recirculating activated
sludge system could adequately treat the undiluted human wastes from
TEXT
           ten men for at least six months and provide an effluent acceptable for
           use as a flushing fluid. In addition, the level and the effects of high
           pH on odor production was observed, and the importance of pH control
between six and neves was demonstrated. The estimated water savings for
           toilet flushing was estimated at greater than 90 percent. (#T)
CON
        1 1715
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ACC# : L000295 \* ACCV : LOUDZYS -AUTHOR: Bendiren, T.W.; Thomas, R.E.; HoHahan, A.A.; Coulter, J.B AFFIL : Bobert A. Taft Sanitary Engineering Center, Cincinnati, OH TITLE : Effect of Food Waste Grinders on Septic Tank Systems. Report to the Pederal Housing Administration SOURCE: WTIS Report No. PB-229 563/2, 119 pages COST : HC \$9.00/HF \$3.00 YEAR : 1961 : The objectives of this study have been threefold: determination of the effect of ground food wastes on the rates of accumulation of scun and sludge, determination of the effect of ground food wastes on the rate of failure of soil absorption systems, and determination of the effect of ground wastes on the "starting" of digestion in the septic tank. (NT) 1 WTTS ACC# : L000296 \* AUTHOR: Bendixen, T.W.; Thomas, R.E.; Coulter, J.B. APFIL : Robert L. Taft Sanitary Engineering Center, Cincinnati, OH TITLE : Report of a Study Sponsored by the Federal Housing Administration to Develop Practical Design Criteria for Seepage Pits as a Hethod for Disposal of Septic Tank Effluent SOURCE: WIIS Report No. PB-216 931, 252 pages COST : BC \$15.00/HF \$3.00 : 1963 THIT : The study is devoted entirely to the problem of introducing septic tank effluent into the soil. The report determines under what conditions seepage pits are a satisfactory means of disposing of septic tank effluent at individual households, devises practical tests for judging the suitability of soils for seepage pits, and identifies design, con-struction, and administrative control practices desirable for good pit performance. (NT) : XTIS : 1000297 \* AUTHOR: Bendizen, T.W.; Weibel, S.R. AFFIL : Environmental Health Center, Cincinnati, OH TITLE : Study on Septic Tanks and Septic Tank Disposal Systems SOURCE: WIIS Report No. PB-216 760, 24 pages COST : HC 84.00/HF 53.00 VFLD : 1061 : 1951 : Septic tank design, installation, and maintenance, and the soil absorption systems thereof, are discussed in the report. (NT) 1 MTIS ACC# : L000298 # AUTHOR: Bendiren, T.W.; Thomas, R.E.; Coulter, J.B., Sr. APPIL : Robert A. Taft Samitary Engineering Center, Cincinnati, OH TITLE : ROBERT A. THIT SANITARY ENGINEERING CENter, Cincinnati, OH TITLE : Develop Practical Design Criteria for Seepage Pits as a Nethod for Disposal of Septic Tank Effluent SOURCE: HTIS Report No. PC-180 506, 254 pages COST : NC \$10.75/HP \$3.00 : 1963 : This study, to develop practical design criteria for seepage pits, is one of a series of similar studies which include a thorough evaluation of soil absorption systems in actual use. Several thousand families in widespread sections of the country supplied information and permitted the examination of systems at their individual homes. (NT) : NTIS ; L000299 \* AUTHOR: Bennett, B.R.; Linstedt, K.D. AFFIL : Colorado State University, Port Collins, CO TITLE : Individual Home Wastewater Characterization and Treatment SOURCE: NTIS Report No. PC-245 259/75T, 148 pages COST : HC \$7.25/NF \$3.00 YEAR : 1975 : Disposal of wastewater from isolated homes in mountain and rural locations in Colorado presents unique and difficult problems. The purpose of the study was to evaluate the flow and pollution patterns from individual homes and to evaluate existing and potential treatment methods. Field evaluation of home wastewater flow and pollutional characteristics was accomplished. Data for individual fixtures and appliances were obtained with measurement of many pollutional para-meters. A brief evaluation of the home treatment methods was accomplished. (NT) I ITIS

ACC# : L000300 # AUTHOR: Bennett, E.R.; Linstedt, K.D.; Felton, J. AFFIL : University of Colorado, Dept. of Civil & Environmental Engineering, Boulder, CO

TRIT

CON

YEAR

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CON

TITLE : Comparison of Septic Tank and Merobic Treatment Units: The Impact of Wastewater Variations on These Systems SOURCE: WIIS Report Humber PB-240 186/757, 31 pages COST : HC \$4.50/HF \$3.00 YEAR : 1973 TEXT : Water use patterns for individual homes were recorded by function including sinks, shower bath, dishwasher, washing machine, garbage dis-posal and toilets. Plow characteristics were determined by use of a water use chart recorder. Pollution strength characteristics of each of the vastewater discharges are also presented. These include BOD, COD, SS, HBAS, PO4, and temperature. Individual home wastewater treat-ment alternatives of septic tank with leaching field, septic tank with evapotranspiration bed and aerobic systems are evaluated on a cost and efficiency standpoint. (NT) CON : MTIS ACC 4 : L000301 + AUTHOR: Bennett, S.H.; Heidman, J.A.; Kreissl, J.F. APPIL : District of Columbia Department of Environmental Services, Washington, D.C. TITLE : Peasibility of Treating Septic Tank Waste by Activated Sludge SOURCE: WTIS Report No. PB-272 105/85T, 71 pages COST : HC \$5.25/HF \$3.00 TEAR : 1977 THIT : This study evaluated the impact of household septic tank wastes on sunicipal activated sludge treatment plants. Septage addition was evaluated on a continuous basis over a four-month period in a 7500 1/day (1980 gpd) pilot plant. The septage was combined with municipal wastewater primary effluent in a series of increasing loadings to the activated sludge unit. Results were compared to a control unit receiving primary effluent only. Shock load studies were also conducted in the pilot plant system and with a series of batch aeration tests. Septage addition was found to be feasible on a series of batch aeration tests. Septage addition was found to be feasible on a series of Datch averation tests. Septage addition was found to be feasible on either a continuous or intermittent basis. The response during the continuous feeding studies depended upon the organic loading and the septage characteristics. COD loadings below three g COD/g HLVSS/day could be handled without severe upset. Unacclimated systems also responded well when septage was added, and subtantial organic renowals rene obtained within a relatively and substantial organic removals were obtained within a relatively short time. (NT) CON : MTTS ACC# : L000302 \* AUTHOR: BOG, 0.; Halloy, L. AFFIL : Environmental Protection Agency, Region VIII, Denver, CO TITLE : Report on the Plant Evaluation at Old Faithful Wastewater Treatment Plant - Yellowstone Wational Park SOURCE: HTIS Report No. PB-277 743/157 (EPA/908/3-77/004), 14 pages COST : HC \$4.00/HF \$3.00 YEAR : 1977 TEXT : The Natibal Park Service has recently costructed several new wastewater treatment facilities at the Yellowstone National Park. To ensure that their new facilities perform as expected, the superintendent of the Tellowstone National Park requested assistance from the SPA to train park personnel in process control procedures and to provide per-formance evaluations of treatment facilities. Specific techni al assistance was requested for the mitrification-demitrification process at the Old Faithful facility. The report describes the recommendations made to improve the process. (NT) COT ; WTIS 1004 : L000303 + AUCY I LOUDSUS -AUCTHOR: BOO, 0.; Halloy, L. AFFIL : Environmental Protection Agency, Region VIII, Denver, CO TITLE : Report on the Plant Evaluation at Fishing Bridge Wastewater Treatment Plant, Yellowstone Wational Park THE DENVEL DENCE DENCE A 177/1ST (EPA/908.3-77/005), 34 pages SOURCE: WIIS Report No. PB-278 177/1ST (EPA/908.3-77/005), 34 pages COST : HC \$4.50/WF \$3.00 : 1977 TXXT : The National Park Service has recently constructed several new vaste-water treatment facilities at the Yellowstone National Park. To ensure that their new facilities perform as expected, the superintendent of Tellowstone Sational Park requested assistance from the SPA to train park personnel in process control procedures, and to provide per-formance evaluations of treatment facilities for the activated sludge and secondary treatment process. Specific technical assistance was requested for the nitrification-denitrification facility located at Fishing Bridge. Two weeks of troubleshooting on-site technical assistance was conducted and is described in the report. (HT) COM : WTIS

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ACC# : 1000304 *
AUTHOR: Boogay, H.A.; Crawford, V.I.
AFFIL : Department of the Wavy, Washington, D.C.
TITLE : System for Transporting Wastewater by Vacuum
SOURCE: HTIS Report Number 1D-D004 377/85T
COST : HC $4.00/HF $3.00
YEAR : 1977
TEXT : An apparatus is provided for re-forming wastewater slugs in a vacuum
          transport disposal system. The apparatus comprises a container inter-
          posed into the vastewater transport tube of the disposal system and
having a single inlet and two outlets. The single inlet comprises a
simple opening and is located near the top of one end of the container.
          At the opposite end of the container, one of the outlets is located near
          the bottom and comprises a simple opening while the other outlet is
located near the top and comprises a ball-float valve. (NT)
CON
       . NTTS
ACC# : L000305 *
AUTHOR: Bowen, R.N.; Havens, J.G.
APPIL : American Society of Civil Engineers, New York
TITLE : Final Report to the American Society of Civil Engineers on Task 7 and
          Task 9
SOURCE: MTIS Report Fumber PB-185 992, 59 pages
COST : EC $5.25/HF $3.00
YEAR
      : 1967
TEXT : The scheme under investigation includes the conveyance of sevage from
          special grinder - storage - pump units in individual homes by means of
pressure tubing. In turn, the pressure tubing from each home would dis-
          charge into a public pressure conduit. For large buildings, standard
         consinutor - storage - pump assemblies would discharge through rigid
pipe into a pressurised public conduit. The system would be kept under
positive pressure at all times. (ST)
COM
       2 TTIS
ACC# : 1000306 *
AUTHOR: Brown, R.J.
AFFIL : National Technical Information Service, Springfield, VA
TITLE : Septic Tank and Household Sewage Systems Design and Use (Citations from
         the NTIS Data Base)
SOURCE: HTIS Report Number PS-78/0509/6ST, 134 pages
COST : BC $28.00/HP $3.00
YBAR : 1978
TEXT : The bibliography of Federally-funded research presents abstracts on the design and regulations for septic tanks, as well as non-septic treatment
          systems. Subjects included are soil properties, water pollution, re-
         gulations, and planning for septic systems. (This updated bibliography contains 128 abstracts.) (NT)
       : NTIS
CON
ACC# : L000307 *
AUTHOR: Brown, R.J.
AFFIL : National Technical Information Service, Springfield, VA
TITLE : Septic Tank and Household Sewage Systems Design and Use (Citations from
         the Engineering Index Data Base)
SOURCE: MTIS Report Number PS-78/0510/45T, 157 pages
COST : HC $28.00/HF $3.00
THAR : 1978
TEXT : The bibliography provides worldwide research reports on septic tanks and
         other sewage treatment units used for household sewage systems. Con-
         struction materials, design, service life, and a comparison of systems
are described. The suitability of soils for drainage and adsorption to
         prevent pollution of ground water from bacteria and viruses are dis-
         cussed. Purification processes and the environmental constraints of
disposal systems are included. (This updated bibliography contains 150
         abstracts.) (NT)
       : NTIS
CON
ACC# : L000308 *
AUTHOR: Carlile, B.L.; Stewart, L.W.; Sobsey, H.D.
APPIL : North Carolina State University, Dept. of Soil Sciences, Raleigh, NC
TITLE : Status of Alternative Systems for Septic Wastes Disposal in North Caro-
         11ma
SOURCE: HIIS Report Number PB-272 817/851 (N.C. State University's Report Num-
         ber UNC-SGR-108), 18 pages
      : HC $4.00
COST
YEAR : 1977
TEXT : Dye studies indicate that septic tank systems in the study area contri-
         bute significant contamination to nearby shellfish harvesting waters via
          surface and subsurface flow. Surface ponding of septic tank effluent
         during periods of rainfall constitutes a potential health hazard through
         possible direct contact with these wastes. Continued dependence on con-
         ventional septic tank systems for area waste treatment will result in
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further degradation of area water resources. Studies such as these and from evidence of vast acres of shellfish waters closed, provide convincing evidence that the 'carrying capcity' or use potential of land sites have already been exceeded in many coastal areas of the state. If septic tanks are indiscriminately installed in the area, then a reason-able estimate is that approximately 90 percent will not function properly and will fail to some degree within the first year's use. (NT) COW : WTTS 1004 : L000309 \* AUTHOR: Chan, H.L.; Edwards, J.; Roberts, H.; Stedinger, B.; Wilson, L. AFFIL : Energy Resources Company, Inc., Cambridge, Hassachusetts TITLE : Household Water Conservation and Wastewater Flow Reduction SOURCE: WIIS Report Number PB-265 578-551, 168 pages COST : HC \$8.00/HF \$3.00 TEAR : 1976 TEXT : The report studies the legal and economic aspects of devices and policles to reduce water and wastewater flows. The report examines building and plumbing codes from selected areas to see whether or not they provide constraints on the introduction of water-saving devices and considers state laws to see whether they permit pricing schemes which en-Courage conservation. A computer model is developed, using water demand functions and cost functions from the literature, to determine the benefits to consumers and producers of various pricing systems. Through use of a second computer model, benefits are calculated for various replacement strategies in the adoption of water-saving devices. (IT) CON : NTIS ACC# : L000310 \* AUTHOR: Chan, H.L.; Edwards, J.; Roberts, H.; Stedinger, R.; Wilson, L. AFFIL : Energy Resources Company, Inc., Cambridge, MA TITLE : Wastewater Flow Reduction Study SOURCE: HTIS Report Number PB-257 636/15T, 227 pages COST : HC \$9.50/HF \$3.00 **TEAR** : 1975 : The study investigates the cost-effectiveness of water-saving options TBIT contributing to the reduction of wastewater flows from households. The water-saving options analysed include household water-conserving devices, metering and pricing schemes, as well as local ordinances and national policies. (NT) COT : NTIS 1000 : L000311 \* AUTHOR: Clark, B.D. APPIL : Pacific Northwest Water Laboratory, Corvallis, OE TITLE : Evaluation of Extended Aeration Treatment at Recreation Areas SOURCE: WTIS Report Number PB-208 436 (Pacific Northwest Water Laboratory's Re-port Number PR-8) (Working Paper 68), 94 pages COST : HC \$6.00/HF \$3.00 TEAR : 1970 : The objectives were to define basic waste characteristics from recrea-TTTT tion areas, evaluate existing treatment processes, and to develop a guide for the planning and design of wastewater treatment facilities at recreation areas. The two winter recreation areas included Timberline Lodge on Ht. Hood, approximately 50 miles east of Portland, Oregon, and Crystal Hountain Ski Area mear Ht. Rainier National Park, approximately 50 miles east of Tacoma, Washington. The two summer areas included Sum-set may State Park, also on the Oregon coast, approximately five miles morth of Bandon. The problems of designing these systems are discussed. Such factors as variations in pH and flow present design difficulties. (12) COF : NTIS ACC # : L000312 \* AUTHOR: Clark, B.D. AFFIL : Pacific Northwest Water Laboratory, Corvallis, OR TITLE : Basic Waste Characteristics at Winter Recreation Areas SOURCE: NTIS Report Number PB-208 437 (Pacific Northwest Water Laboratory's Re-Port Fusber PI-7), 88 pages COST : BC \$6.00/HP \$3.00 TEAR : 1969 TEXT : Findings are summarized of surveys at three winter sports areas to det-Graine basic vastevater characteristics and recommend criteria for use in the design of treatment facilities. The three sites selected were Crystal Hountain Ski Area near Ht. Bainier Mational Park, Washington; Fisherline Lodge on Ht. Hood, Portland, Oregon; and Bachelor Butte Ski Area, Oregon. The quantity of various vastevater parameters discharged is a linear function of mumber of full-time employees, and either or both total visitors and overnight guests depending on the facilities. This relationship was verified by sultiple linear regression analysis techniques. Statistically significant but highly variable relations

were developed for COD, BOD-5, suspended solids, total Kjeldahl nitro-gen and total phosphates. Hethods for estimating design organic loading and design solids loading were developed. (NT) CON : NTIS ACC# : L000313 # AUTHOR: Clark, B.D.; Dostal, K.A. AFFIL : Pacific Worthwest Water Laboratory, Corvallis, OR TITLE : Evaluation of Waste Treatment System: Chemava Indian School SOURCE: MTIS Report Mumber PB-208-435 (Pacific Northwest Water Laboratory's Report Number PR-6), 63 pages : HC \$5.25/HP \$3.00 COST TEAR : 1968 : The Bureau of Indian Affairs (BIA) operates a nine month school for 900-TRIT 1,000 Indians at Chemava, approximately two miles month school for 900 Oregon. The waste treatment plant for the school is unique in this area, consisting of a facultative mechanically aerated lagoon followed by a two-acre polishing pond and chlorination. A sampling program was established to determine raw waste load and characteristics; solids and BOD removal in aerated lagoons; sludge accumulation in aerated lagoons; HPN level in aerated lagoons; adequacy of aerator for mixing and oxygenation; effect of polishing pond on BOD, DO, HPN and SS; effect of chlor-ination on BOD, DO, HPN, and SS; and operation and maintenance costs and requirements. (WT) CON : NTÍS ACC# : 1000314 # AUTHOR: Coastal Plains Regional Commission, Washington, D.C. AFFIL : Coastal Plains Regional Commission, Washington, D.C. TITLE : Harine Resources Facility, Dare County, North Carolina SOURCE: NTIS Report Number RIS-NC-73-0155-D, 23 pages COST : HC \$4.00 YBAR : 1973 The project involves construction of a Marine Resource Pacility which will include a single building of 32,000 square feet, a septic tank drain field sewage system, and parking areas for approximately 200 cars, on a 25 acre site. Summary of environmental impacts and adverse TETT environmental effects. (NT) CON : ITTS ACC# : L000315 \* AUTHOR: Coulter, J.B. AFFIL : Robert A. Taft Sanitary Engineering Center, Cincinnati, OH TITLE : Suburban Severage Systems SOURCE: HTIS Report Sumber PB-216 489, 18 pages COST : EC \$4.00/HF \$3.00 YEAR : 1957 TEXT : There are four common solutions to the problems of suburban sewage disposal. Although there is no general agreement on the acceptability of all of these methods, listed in order of usual preference they are: con-nection to an eristing publicly financed severage system, construction of a privately financed community severage system, construction of a treatment system for each house with 'on-lot' disposal of the effluent in, soil and provision for an individual treatment system for each house with displace (ME) with discharge of effluent to storm drainage. (NT) : NTIS CON 1CC# : 1000316 \* AUTHOR: Coulter, J.B. AFFIL : Bobert A. Taft Sanitary Engineering Center, Cincinnati, OE TITLE : Sewage Disposal Systems Applicable to Subdivisions SOURCE: WTIS Report Number PB-217 475, 12 pages COST : HC \$4.00/HF \$3.00 : 1957 TRYB TEXT : Subjects discussed included: individual household systems, community systems, lagoons, and the anaerobic contact process. (NT) CON 1 ITIS : L000317 + ACC. AUTHOR: Coulter, J.B. AFFIL : Robert A. Taft Samitary Engineering Center, Cincinnati, OE FITLE : Septic Tank Design Economic Factors Involved SOURCE: MIS Report Fumber PB-217 276, 20 pages COST : HC \$4.00/HF \$3.00 YEAR : 1955 TBIT : In light of present knowledge, there is no single best design for a septic tank. Acceptable performance can be obtained with a wide range of freedom in design. The report reviews the current design status. (NT) CON : NTIS

ACC# : L000318 \* AUTHOR: Coulter, J.B. AFFIL : Environmental Health Center, Cincinnati, OH TITLE : Septic Tanks and Disposal Fields SOURCE: WIIS Report Number PB-215 199, 27 pages COST : EC \$4.50/HF \$3.00 YEAR : 1953 TRTT : The report describes results obtained from investigations performed to ascertain the effects certain additives - starter cospounds, ground garbage, detergents, water softeners - have on residential septic tanks. (NT) CON : NTTS YCC‡ : L000319 \* AUTHOR: Coulter, J.B.; Kopp, J.F.; Thiemann, D.A. AFFIL : Environmental Health Center, Cincinnati, OH TITLE : Investigation of a Proposed Recirculation System for Toilet Wastes SOURCE: WIIS Report Number PB-216 101, 20 pages COST : HC \$4.00/HF \$3.00 **TEAR** : 1952 TEXT : Two trials of a proposed system for the disposal of toilet-waste were made. The system investigated consisted of three functional units: a grinder-type toilet, a receiving tank and a small pusp. The hydraulically driven grinder was located below the bowl in the base of the tollet. Ly univen grinder was located below the bowl in the base of the tolest. The pump, operating continuously, recirculated the tank contents through the toilet, furnishing power to drive the grinder and the liquid to flush the toilet. Solid particles deposited in the toilet bowl were flushed into the grinder where they were finely ground and carried in the liquid by gravity flow from the toilet to the receiving tank on the floor below. No effluent was discharged from the system. (NT) system. (NT) CON : NTIS ACC# : 1000320 \* AUTHOR: Coulter, J.B. AFFIL : Robert A. Taft Sanitary Engineering Center, Cincinnati, OH TITLE : Septic Tank Research Developments SOURCE: WIIS Report Number PB-214 901, 22 pages COST : HC \$4.00/HF \$3.00 : 1951 YBAR TEXT : Study of the residential sevage disposal system and its parts under various loading and environmental circumstances. With such information, it should be possible to develop recommendations for design standards and servicing procedures which are fundamentally sound. A variety of experiments and investigations have been conducted by the staff at Cin-cinnati. There have been three lines of endeavor: field investigations, soil studies, and studies of septic tanks and related appurtenances. (NT) CON : MTIS ACC . : L000321 \* AUTHOR: Crosby, J.W. III; Johnstone, D.L.; Penton, R.L.; Drake, C.H.; Purves, W. AFFIL : Washington State University, College of Engineering, Research Division, Pullman, WA TITLE : Investigation of Techniques to Provide Advance Warning of Ground-Water Pollution Hazards with Special Reference to Aquifers in Glacial Outwash SOURCE: MTIS Report Number PB-203 748, 208 pages COST : HC \$9.25/MF \$3.00 TEAR : 1971 TEXT : Findings are recorded of a six-year investigation of pollution hazards involved with the use of septic tanks and drainfields in the Spokane Valley of eastern Washington. Geological parameters were investigated by gravimetric and refraction seismic methods. Valley fill materials appear to be almost entirely glaciofluvial sands and gravels. Pre-viously postulated basalt flows and Latah clays are probably not present in significant amounts. Laboratory measurements of soil moisture ten-sion showed all of the soils, at depth, to be in a state of high mois-ture deficiency. Moisture movement was confined to upper soil layers. Infiltration tests substantiated other findings concerning the movement of soil moisture. Extensive sampling and analysis of surface and groundwaters revealed no evidence of groundwater contamination. Surface waters are generally of good quality east of Spokane but are seriously degraded in the immediate Spokane area. (NT) CON : ITTS ACC# : 1000322 \* AUTHOR: Daneker, J.R.; Frazel, W.H. AFFIL : American Society of Civil Engineers, New York TITLE : Control Techniques for Pressurized Severage Systems SOURCE: MIIS Report Number PB-186 007 (TH-11), 31 pages COST : HC \$4.50/HF \$3.00 YEAR : 1968

	TEXT	: The ASCE Combined Sever Separation Project relates to feasibility studies of hypothetical pressure severage systems. This technical men- orandum is one of the reference background inputs for the three system studies under Task 4 covering pressure control for pressurized severage systems. (MT) : WTIS
	ACC .	: 1000323 +
	AUTHOR	Drohny, W.T.
	199TT	. Hover first Projecting Tab. Dort Therese Ci
		, seven of interctic later Supply and Reste Disposed Pacilities, Drac-
	11100	Aless and Braklans
		TICES, AND FIDDIERS. . Marg Banadi Washar ID_617 523 /08_W_708\ 2 saces
	SUUSCE	TIS REPORT BUBBER AD-01/ 555 (IN-N-/VO), 2 Payes
	CUST	
	I BA K	
	TBAT	: Low temperature conditions initiate physical, piological and chemical
		Changes in the environment. Significant problems whist in the design,
		construction and operation of facilities for the distribution of water
		and for the collection, treatment, and disposal of waste. A survey of
		water supply and waste disposal problems at existing united States sta-
		tions in the Antarctic is presented. Problem areas are identified, and
		potential research and development erforts are suggested. (#T)
	CU	I NIIS
	ACC #	
	AUTHOR	East Tennessee Development District, Knowline, Th
	AFFIL S	East Tennessee Development District, Knowille, Th
	TITLE	Water and Wastewater Plan, Anderson, Bloubt, and KBOX Countles, Tennes-
		see. Volume II. Wastewater Collection and Treatment
	SOURCE	HTIS Report Humber PB-212 738 (Rest Tennessee Development District's
		Report Number ET-SA-18-2-72), 1/1 pages
(	COST :	HC \$12.50/HF \$3.00
	YEAR :	1972
4	TBXT :	A report on the planning of collection and treatment facilities to meet
		the wastewater needs in the Knoxville, Tennessee, SHSA through 1990. At
		the present time, wastewater service is available principally within
		municipal limits, in the more densely inhabited areas of certain utility
		districts, and to a few remote industrial sites. General inventories
		of all existing wastewater systems are presented. Hany areas served by
		septic tank installations have soils unsuitable for proper septic tank
		operation. Forecasts indicate that additional collection and treatment
		facilities will be required. Integrated wastewater systems are devel-
		oped for each county in two stages through 1990. Priorities for provid-
		ing the recommended improvements are established, with consideration
		being given to timing and financing of the recommended improvements. (WT)
	:01 :	TIS
	CC :	
	UTHOR:	Environmental Protection Agency, Surveillance and Analysis Division,
		Athens, GA
	FFIL :	Environmental Protection Agency, Surveillance and Analyis Division,
		Athens, GA
	ITLE :	Waste Source and water Quality Studies, Surr City, sorth Carolina and
		Vicinity
	OURCES	HIIS Report Bubber PS-204 9/4//ST, 1/5 pages
	03T :	AC 38.00/AF 33.00
	BAR :	1976
	BIT :	water quality investigations were conducted in the vicinity of Surf
		City, North Carolina to determine the background water quality, sources
		or pacterial contamination of shellfish-growing waters and to evaluate
		the impact of septic tank systems on surface and groundwater guality.
		Study results revealed that Septic tank systems degrade the guality of
		the shallow groundwater and contribute significant Dacterial contamina-
		tion to snelling-growing waters via surface runoir. Surface pointing of
		Septic test leachates ugring periods of rainfail constitutes à Sanitary
	~	nuisende enu a potential nealth nexard. (MT)
	0	JTIS
		× 444 325 4
	OLHOK!	U.S. SAVIONWEREL FOLLOCION AGENCY, MELEY WELLY EEG MOR-POINT SOURCE
		CONTROL DIVISION, WASHINGTON, D.C.
	FFIL 1	U.S. SAVITORMENTAL FROTECTION AGENCY, WATER GALLTY AND SOR-POINT SOURCE
		CONTROL DIVISION, WASHINGTON, D.C.
	ITLE :	Groundwater Pollution from Subsurface Excevations
	DURCE:	HT13 KEPOIT BUBDET PB-257 323/651 (EPA/430/9-73-012), 240 pages
	UST :	NC 84.50/NF \$3.00
	BAR 1	1973
	BIT :	Topic areas cover: source identification and evaluation; control
		sersoas, processes, and procedures (pollution from wells, pollution from
		other subsurrace excavations, such as lagoons, basins, pits, septic
		systems, landfills, severs, tanks, and pipelines). (NT)

**NTIS**
ACC# : L000327 # RUTHOR: Goldstein, S.N.; Wenk, V.D.; Powler, H.C.; Poh, S.S. AFFIL : Hitre Corporation, HcLean, VA FITLE : A Study of Selected Economic and Environmental Aspects of Individual Bone Wastewater Treatment Systems SOURCE: WTIS Report Number PB-209 962 (Hitre Corporation's Report Number 872-45), 224 pages : NC \$9.25/HF \$3.00 COST : 1972 TRAR TEXT : A review of individual home wastewater treatment system technology, enphasizing soil absorption systems, indicates current system design, installation, and operational practices do not reflect what is known about sewage-soil interactions. A reintroduction of individual system techno-logy on a widespread basis where applicable would result in an estimated reduction in the total case of applicable would result in an estimated reduction in the total cost of providing treatment to the new individual home population in the 1970-1990 period. (NT) COL : NTIS ACC# : L000328 \* AUTHOR: Goldstein, S.N.; Wenk, V.D. AFFIL : Hitre Corporation, McLean, VA TITLE : A Beview of On-Site Domestic Sewage Treatment Processes and System Alternatives SOURCE: MIIS Report Musber PB-209 956 (Hitre Corporation's Report Musber HTP-368), 24 pages COST : BC \$4.00/HP \$3.00 **TEAR : 1972** TEXT : Fundamental properties of individual household sevage and sevage treatment processes, including biological digestion, are reviewed. Alteractives for individual domestic wastewater treatment systems are described in terms of their treatment capabilities as well as their physical and economic characteristics. (NT) COF : NTIS ACC# : L000329 \* AUTHOR: Gollan, A.E.; McMulty, K.J.; Goldsmith, R.L.; Kleper, M.H.; Grant, D.C. APPIL : Abcor Inc., Walden Research Division, Wilsington, MA TITLE : Evaluation of Heabrane Separation Processes, Carbon Adsorption, and Oxonation for Treatment of HUST Hospital Wastes SOURCE: WIIS Report Wusher AD-A030 057/487, 456 pages COST : NC \$14.50/HF \$3.00 TELE 1 1976 TEXT : The objective is the development of a compact, 4000 gallon-per-day waste treatment system to process non-sanitary vastes (shower, operating room, kitchen, laboratory, x-ray, and laundry) from the operation of a MUST Army field hospital. The system is to be capable of operating in either of two modes. of two modes: 1) waste treatment for 'reuse' within the hospital com-pler, and 2) 'waste treatment' for discharge to the environment with simultaneous 'water treatment' i.e., desalination of brackish water for use within the hospital complex. The sequence of unit processes sel-ected for evaluation for the 'reuse' mode was: waste equalisation, ultra filtration, reverse osmosis, carbon adsorption, exonation and chlorina-tion. On the basis of these tests it was concluded that the selected sequence of unit processes, carbon adsorption excluded, appeared to be effective in producing water of reuse quality within the system design COnstraints. (NT) CON a MTIS ACC# : L000330 + AUTHOR: Guaring, V.J.; Basbesek, R.A. AFFIL : Cheatric, Inc., Rosesont, IL TITLE : Development and Testing of a Wastewater Recycler and Heater SOURCE: WIIS Report Bunber PB-266 961/257, 106 pages COST : EC 56.50/HF \$3.00 : 1976 7279 : The results of this program have demonstrated the feasibility of an automatic and self-contained appliance that can recover and store usable hot water from waste laundry water, using essentially the same amount of energy as an equivalent capacity water heater. It has been shown that this unit can increase the solids concentration of wastewater from less than two percent to at least 29.3 percent. Economic feasibility, therefore, is not demonstrable at present on a large scale. However, should water cost increase or the cost of the appliance decrease, a viable demand for household water recovery with the appliance would be possible. (NY) CON : ÌTIS ACC4 : L000331 + AUTHOR: Mall, H.W. AFFIL : University of Maine, Mater Resources Research Center, Orono, HE TITLE : Water Quality Degradation by Septic Tank Drainage SOURCE: MTIS Report Number 78-195 307, 9 pages

	COST : YBAB : TBAT :	HC \$4.00/HF \$3.00 1970 Phosphorus retention of Maine soils was studied in the Adams, Plaisted, and Parton soil series. Parameters investigated included pE, tempera-
		the system, and time of exposure. All three soils exhibited a signifi- cant capacity for phosphorus retention, but this capacity could be er- hausted. Therefore, extreme care should be used in locating septic tank drainfield wastewater disposal systems adjacent to lakes or other sur- face waters that may be subjected to cultural eutrophication. Moreover, freezing and thewing may allow phosphorus initally retained in the soil to be more easily leached into surface waters. (ST)
(	CON :	NTIS
	ACCO : AUTHOR: APFIL : TITLE : SOURCE:	L000332 * Hand, T.D.; Williams, R.R. Army Engineer Naterways Experiment Station, Vicksburg, HI The Bole of Sevage Lagoons at Corps of Engineer's Recreation Areas WTIS Report Number AD-A047 633/95T (Army Engineer's Report Number WES- HP-Y-77-5), 58 pages
	COST : YBAR : TEXT :	HC \$5.25/HF \$3.00 1977 A survey was conducted to establish the geographic distribution, the design, performance successes and failures of the more than 200 Corps recreation area lagoons nationwide. Steps are recommended for improving lagoon waste treatment at recreation areas based on current knowledge and areas of needed research are identified. (WW)
	CO# 1	WIS
	ACC 1 AUTHOR: AFFIL :	L000333 + Barrison, B.L. Wational Technical Information Service, Springfield, VA
	SOURCE:	Septic TRAKS. A Bibliography vita Abstracts WIIS Report Humber COM-73-11712/9 (WIIS-WIW-73-062), 61 pages
	YEAR 1	HC \$20.00/HP \$20.00 1973
	TBIT :	The WTISearch bibliography contains 56 selected abstracts of research reports retrieved using the WTIS on-line search system - WITSearch. The abstracts include soil studies, water pollution, planning, and design of septic systems. (WT)
	CON 1	<b>YTIS</b>
	ACC# : AUTHOR: AFFIL :	L000334 + Hellier, N.N., Jr.; Cadman, T.N. University of Haryland, Water Resources Research Center, College Park,
	TITLE : SQURCE:	Transient Analysis of a State Park Extended Aeratics Wastewater Facility WTIS Report Number PB-232 957/1 (University of Maryland Report Number TR-24), 204 pages wc 48 25 (m 43.00
	TEAR :	1973
	TRIT :	Experimental data on the transient operation of the extended meration wastewater treatment plant at Pennsylvania's Prince Gallitzin State Park were collected, and the system has been mathematically modeled. Three mathematical models were developed for the simulation. (MT) WTIS
	1CC 1 1	1000335 *
	AUTBORS	Jenkins, S.R.; Holz, F.J.
	TITLE	Transpiration and Evaporation of Sewage Effluent
	COST :	HC \$6.00/HF \$3.00
	TEXT :	1976 Treatment of liquid wastes from roadside confort stations with relative-
		ly small, transient effluent volumes often involves prohibitive opera- tion and maintenance costs. Also, existing lagoons and septic tanks may be anable to meet new state and federal restrictions on waste dis- charges. Therefore, experiments were conducted to develop practicel, correlischerse procedures for utilizing the embeddemonstration pheno-
		senon to dispose of severe effluent. Two separate experiments sure con- ducted. In the first experiment, impervious evapetranspiration units were constructed in rectangular encavations. Both ray desertic waste and settled domestic waste were pumped into or sprayed onto the units,
		and the evapotranspiration rate was determined through a water balance. In the second experiment, effluent from a two-stage lagoon was sprayed on an area vegetated with grass and shrubs. Results indicate that the operation of a well-designed, lagoon-fed spray irrigation system will be an econopical, ecologically-sound method for disposing of liquid wastes from readeride rest areas. (MT)
	CO <b>N</b> 1	STIS

ACC# : L000336 \* AUTHOR: Jennings, J.L.; Furukawa, D.H. AFFIL : Universal Oil Products Company, Fluid Systems Divison, San Diego, CA TITLE : Reverse Osmonis Study on HUST Wastewater Treatment SOURCE: HTIS Report Number AD-1014 270/357, 103 pages COST : EC \$6.50/HF \$3.00 : 1975 TRAR THIT : Evaluation of reverse osmosis to improve the guality of brackish water, to clean up wastewater to prevent pollution, and to furnish water for reuse is discussed. The major problem is the removal of organics from the final product water. The following methods were tried to remove organics: 1) evaluation of a non-cellulosic membrane with greater or-ganic rejection and wider pH tolerance than commercially available cellulose acetate membranes under simulated field conditions for the MMCM dial benefit of the MS-HUST field hospital system (the non-cellulosic membrane being the MS-100 coated in tubular modules having 1/2 inch diameter tubes); 2) reduced pressure air stripping to remove the volatile organics of low solecular weight which are the least rejected by the membranes; 3) foaming of the waste which carries out some of the organics with the foam; 4) adsorption or absorption or a sethod to the up the organics such that they will be better rejected by the sembrane; and 5) two-stage versus single stage reverse osnosis operation. (WT) CON : WTTS : L000337 + ACC 0 AUTHOR: JORES, R.L.; Lee, G.P. AFFIL : Texas University at Dallas, Institute for Environmental Sciences, Pichardson, TX TITLE : Septic Tank Disposal Systems as Phosphorus Sources for Surface Waters SOURCE: HTIS Report Number PB-276 689/78T, 74 pages COST : NC \$5.25/HF \$3.00 YEAR : 1977 TEXT : A 4-year groundwater monitoring study was conducted in the immediate vicinity of an active septic tank wastewater disposal system in the sandy substrate in Burnett County of northwestern Wisconsin to determine the potential for this method of wastewater disposal to contribute to excessive fertilisation of surface vaters. The results of this study confirm the conclusions, drawn from similar studies in other areas, that phosphores for the studies in other areas, that phosphorus from septic tank wastewater disposal system effluent is usually not readily transported through the groundwater. Therefore, septic tank wastewater disposal systems generally do not contribute significant amounts of phosphorus to surface waters to contribute to their excessive fertilization. (NT) CON 1 MTIS ACC# : L000338 + AUTHOR: Kazienko, E.J. AFFIL : American Society of Civil Engineers, New York TITLE : Develop and Field Test Hethod of Installing Pressure Conduits in Combined Severs (Task 7) SOURCE: MTIS Report Number PB-186 005, 45 pages COST : BC \$4.50/HF \$3.00 TRAR : 1968 : The study discussed in this report concerns the feasibility and design of a hanger system to support semitary sevage pressure conduits suspend-TRIT ed in existing walk-through street severs. (NT) CON : MTIS 1004 : 1000339 \* AVTHOR: Kolega, J.J.; Devey, A.W.; Comenza, B.J.; Leonard, R.L. APPIL : Storrs Agricultural Experiment Station, CT TITLE : Treatment and Disposal of Wastes Pusped from Septic Tanks SOURCE: HIS Report Number PB-272 656/05T, 170 pages COST : NC \$8.00/NF \$3.00 TRAR : 1977 THE : The stady identified methods of treating and disposing of septic tank sludge (septage). Biological, chemical, and physical properties of septage were determined and curves were developed for designing septage treatment facilities. Two processes were tested for treating and dis-posing of septage. A bench and pilot process that reduced BOD-5, COD, and Kjeldahl mitrogen by 93 percent or more consisted of anaerobic digestion-aeration-sand filtration. Consideration was given to treating septage in publicly owned wastewater treatment plants with sunicipal wastewater. Criteria for desirable receiving facilities were developed. (117) COT : NTIS ACC# : 1000340 \* AUTHOR: Kreissl, J.F. APPIL : Washington State University, Pullman, WA TITLE : Waste Treatment for Small Flows SOURCE: MTIS Report Mumber PB-219 950/3, 25 pages

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COST : HC $4.00/HF $3.00
TBAR : 1971
TEXT : The report surveys the problems of waste treatment in rural areas. It
describes various treatment alternatives and gives cost estimates. (NT)
CON
             : NTIS
ACC 8
           : 1000341 #
AUTEOR: Olyapic National Porest, Olyapia, Washington
MFFIL : Olympic National Forent, Olympia, WA
TITLE : Lake Quinault Sewage Collection and Treatment Pacility
SOURCE: STIS Report Sumber BIS-WA-74-0233-F, 80 pages
COST : HC $7.50/HF $3.00
YEAR : 1974
          The Olympic National Porest proposes to construct a sevage collection
and treatment facility to abate pollution emanating from Porest Service
facilities on the South Shore of Lake Quinault. The entire project is
in Grays Harbor County, Washington. The treatment plant and drainfield
site proposed would occupy approximately 5.5 acres of land within the
boundary of the approximately 8,900 acre South Quinault Ridge roadless
TEXT
                 area. Environmental impacts are discussed. (IT)
CON
             : MTIS
ACC# : 1000342 *
AUTHOR: Locksan, J.
AFFIL : Illinois Institute for Environmental Quality, Chicago, IL
TITLE : Pressurized Sever Collection Systems
SOURCE: MTIS Report Number PB-216 166/9, 41 pages
COST : EC $4.50/HP $3.00
YEAR : 1972
TEXT : Review of the current technology of pressurized sever collection system
                using the grinder pump. Design criteria are given, as well as recommen-
dations for further research and development. Tentative guidelines are
                 set for use in pressurised sever collection systems. (NT)
             : WEIS
CON
ACC.
          : L000343 *
AUTHORS: LeGros, P.G.; Drobmy, K.L.
APTHOR: LeGros, P.G.; Drobmy, K.L.
APTHI : Haval Civil Engineering Lab., Port Huchene, CA
TITLE : Virages in Polar Samitation, A Literature Review
SOURCE: HTIS Report Humber AD-645 601, 19 pages
COST : HC $4.00/HF $3.00
THAR : 1966
THAT : The literature was reviewed to collect information on which to base an
                The literature was reviewed to collect information on which to base an
estimate of the threat to the health of polar camp personnel posed by
virages in human waste. It is concluded (1) that the uncontrolled waste
disposal practices characteristic of polar camps make these areas prime
targets for the spread of virus disease, and (2) that the eristing haz-
ards could be significantly reduced by (a) the use of chemical toilets,
(b) waste incineration, and (c) superchlorination of drinking water
followed by dechlorination prior to consumption. (NT)
COT
             : 1715
ACC# : L000344 *
AUTHOR: Lent, D.S.
APPIL : Army Hobility Equipment Research and Development Command, Fort Belvoir.
TITLE : Process Design for Treating Shower Wastewater by Ultrafiltration
SOURCE: HTIS Report Husber AD-A043 716/OST, 177 pages
COST : BC $9.00/HF $3.00
                 ¥A.
YEAR : 1977
           : This report investigates wastewater treatment by ultrafiltration.
TRIT
                 two-part model is proposed where, initially, the system is at unsteady
state caused by the formation of the boundary layer. Later, the system
                state caused by the formation of the boundary layer. Later, the system
comes to a steady state when the rate of the boundary layer formation
and decay reach constant values. The unsteady state portion is describ-
ed by an exponential equation and the steady state portion is describ-
by a linear equation. The model was evaluated on two separate ultrafil-
tration systems with each system utilizing a different membrane config-
uration. These configurations were the spiral-wound configuration which
fit the model as stated and the hollow-fiber configuration which fit
only the unstandy state portion of the model due to deily remeval of the
                 only the unsteady state portion of the model due to daily removal of the
                  boundary layer. (NT)
CON
             : NTIS
1004
            : L000345 *
AUTHOR: Lotse, R.G.
AFFIL : University of Haine, Land and Water Resources Institute, Orono, HE
TITLE : Septic Tank Effluent Hovement Through Soil
SOURCE: MTIS Report Musber PB-261 368/55T, 82 pages
COST : HC $6.00/HF $3.00
YEAR : 1976
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CON 1	The rate and extent of phosphorus and nitrogen movement in selected Maine soils were studied and under continuous and intermittent loading. Conditions approximating those of septic tank adsorption fields were simulated. Septic tank adsorption field systems should have several trenches and a large total length of trench in order to minimize the movement of phosphorus and contamination of groundwater. (NT) NTIS
1004	1000346 ·
AUTHOR:	Luuses - MacKenzie, Y.G.
APPIL :	Environmental Health Center, Cincinnati, OB
TITLE :	Fundamentals Governing Septic Tank Design and Installation
SOURCE:	NTIS Report Number PB-217 582, 19 pages
VEAR 1	mt 34.00/AF 33.00 1950
TRIT :	The report describes criteria and suggested standards for the installa-
CON :	tion and maintenance of household sevage disposal systems. (NT) NTIS
1004 :	1000317 *
AUTHOR:	Habloch, J.L.; Averett, D.E.; Headstreas, H.
AFFIL :	Army Engineer Waterways Experiment Station, Vicksburg, HI
TITLE :	Laboratory and Filot Plant Evaluation of Intermittent Loading on Small
SOURCES	WTIS Report Number AD-A050 751/787. 102 Dages
C05T :	BC \$6.50/HP \$3.00
YEAR :	1977 This shall depend downloaned of a setteration, and the suddict the
IBAT I	Berformance of a completely sived activated sludge system under inter-
	mittent loading conditions, defined for this study as time-dependent
	hydraulic and organic loadings. The model was verified first with lab-
	oratory data from a bench-scale extended aeration system and these transmission field data from a matching extended constitut package treatset plant.
	Parameters used in developing the study included effluent quality, dis-
	solved oxygen uptake, and other performance indicators related to bio-
	mass response to intermittent loading conditions. Results in the labor
	atory phase of this study indicate that an entended under intermittent
	loading conditions. Biological evaluation indicated that the anisal
	populations within the reactor were chiefly responsible for the Fluctua-
CON :	tions in the performance of the system. (P1) HTTS
1004 :	LOOD348 #
AUTEURS AUPTL (	University of Haine, Land and Mater Resources Institute, Orono, HE
TITLE 1	Research Reeds Relating to On-Site Treatment of Donestic Wastes (Sun-
	mary of Workshop Held at the University of Maine at Urono, Mug. 10-11,
SOURCE	1977) • FFTE Benert Humber BR-260 999/587, 18 DEGAS
COST	E \$4.00/HF \$3.00
TELE :	1978
TBIT 1	The purpose of the workshop was to identify research needs with respect to on-site sewage disposal. Principal suggestions made during and fol- lowing the workshop are summarized. This report does not summarize
	state-of-the-art information presented at the workshop, but return out-
	step toward a comprehensive ragional research program, the report is in
	two parts: an outline of topic area/problems/research needs and elabor-
-	ations upon principal research needs. (NT)
CUI	1 MIT2 .
1000	1 1000349 +
VOLBOR	: Hatthey, F.L.; Mesheis, E.E.
TTTL	I BEROARTATION OF A YON-LETCONE Severe Disbosel System
SOURCE	: FEIS Report Sumber PB-231 338/587, 135 pages
COST	1 BC \$7.25/HT \$3.00
TRIF	1 1973 • 1 prototype personal meterator treatment system stillsing recircula-
	ted mineral oil as a collection and transport medius was installed and
	operated at the Houst Rushmore National Memorial, Rapid City, South
	Dakota. During this period, data were collected to determine system
	biological, and chemical content of the flush oil as a function of
	system usage. System operation and reliability were also demonstrated
	during the test period. (NT)
CON	I BILD
<b>JCC</b>	: 1000350 *
AUTHOR	a Mattrav, H.C., Jr.
APPIL	: Geological Survey, Water Resources Division, Tallahassee, FL

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TITLE : Ground-Water Quality in the Davie Landfill, Broward County, Florida
 SOURCE: MTIS Report Number PB-256 522/4ST, 34 pages
 COST : HC $4.50/HF $3.00
           1 1976
YEAR : 1976
TEXT : Groundwater adjacent to a disposal pond for septic tank sludge, oil,
and grease at the Davie Landfill, Broward County, Florida, was tested
for a wide variety of groundwater contaminants. Three wells adjacent to
the disposal pond yielded water rich in nutrients, organic carbon and
many other chesical constituents. Total colifors bacteria ranged from
less than 100 to 600 colonies per 100 millilitres in samples collected
from the shallowest well (depth 20 feet/6 meters). At well depths of
35 and 45 feet (11 and 14 meters), bacterial counts were less than 20
colonies per 100 milliliters or zero. (NT)
 TEAR
                 colonies per 100 silliliters or sero. (FT)
CON
             : NTIS
 ACC# : L000351 #
 AUTHOR: McBride, R.W.
AFFIL : University of Colorado, Dept. of Civil and Environmental Engineering,
                 Boulder, CO
TITLE : Individual Home Aerobic Wastewater Treatment Systems
 SOURCE: MTIS Report Mumber PB-226 478/6, 121 pages
 COST : HC $6.50/HF $3.00
 YEAR : 1972
           : The use of aerobic systems is described including unit functions, types
TRIT
                 of units available, and problems and recommendations for improvement.
Aerobic units under experimental conditions were observed to produce a
                 better effluent than a septic tank. Novever, the performance as claimed
by the manufacturers, could be misleading to homeowners. The results of
tests run on the units located in the field show that the units are
                 meeting the manufacturers standards about 20 percent of the time. These
units average only about 44 percent reduction in BOD. This is assuming
an incoming BOD of 250 mg/liter. In some cases, the tests showed an
influent BOD greater than this. (NT)
CON
             1 1975
 ACC4
            : 1000352 *
AUTHOR: Bancy, W.J., Jr.; Morris, W.K.E.; Stainbrook, G.H.
APPIL : Department of the Interior, Washington, D.C.
TITLE : Underwater Storage Tank
 SOURCE: MIIS Report Number PB-226 991/8; (PAT-APPL-799 454/PATENT-3 572 506).
                 12 pages
COST : HTIS: Not Available; Commissioner of Patents: $0.50
            : 1969
 TEAR
            : The patent relates to a collapsible storage tank used for the temporary
 TRIT
                 holding of sewage in an underwater environment. (NT)
CON
             : NTIS
 ACC .
            : L000353 *
AUTHOR: HcCarthy, J.J.; Chyrek, R.H.
AFFIL : Army Medical Bicongineering Remearch and Development Lab., Fort Detrick,
                 ND.
 TITLE : Evaluation of a Vapor Compression Distillation Unit for Laundry Waste-
                 water Reuse
SOURCE: MTIS Report Number AD-A045 765/557, 45 pages
COST : HC $4.50/HF $3.00
            : 1977
 YEAR
TEXT : A nominal six gallon per hour vapor compression distillation unit (VCDU)
fabricated by Chemtric, Inc., of Rosenont, Illinois, was evaluated. The
unit was designed to distill wastewater using less than 300 watt-hours
                 unit was designed to distill wastewater using less than 300 watt-hours
of energy per gallon of recovered water. The object of the evaluation
was to measure product water quality and energy use rates, and to moni-
tor operation and maintenance over an extended run period. Compared to
tap water, product water quality from the laundry wastewater feed was
lower in turbidity, total solids, and conductivity, but higher in total
organic carbon and chemical oxygen demand. Energy use was very depen-
dent on the operation of the storage tank heater. Energy use rates for
                 the VCDU were high because of intersitient operation of the unit, lack
of adequate operator controls, and saintenance problems. Haintenance
problems proved to be a source of considerable difficulty. Operation of
the VCDU was terminated when form from the concentrated wasterster began
                 to carry-over into the product water. (NT)
CON
             : WTIS
 ACC# : 1000354 #
AUTHOR: HcCarthy, J.J.; Cowen, W.F.; Chian, E.S.K.; Petersan, B.W.
AFFIL : Army Hedical Bicengineering Research and Development Lab., Port Detrick,
                 ND
TITLE : Evaluation of an Air Stripping-Ozone Contactor System
SOURCE: NTIS Report Number AD-A043 082/757, 42 pages
COST : HC $4.50/HF $3.00
YEAR : 1977
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CON	7	A RoBinal one-quarter scale SV-oxone contactor was evaluated at the U.S. Aray Medical Bicengineering Research and Development Laboratory. The contactor, built by Life Systems, Inc., of Cleveland, Ohio, consis- ted of six sparged columns in series preceded by an oxone acrubber or precontactor. Evaluation included defining the fluid regime inside the columns, investigating the effectiveness of pre-stripping, and monitor- ing the oxidation of selected laboratory wastewater components through- out the oxidation process as well as measuring TOC and COD. Effects of OXONE concentration and UV light on the kinetics and mechanisms of or- gabic carbon oxidation were explored. (WT)
ACC#	1	L000355 *
AFFIL TTTLR	3 2 3	Bobert A. Taft Sanitary Engineering Center, Cincinnati, Of Bobert A. Taft Sanitary Engineering Center, Cincinnati, Of Benth of Ground Cover Over Shallow Absorption Systems as an Influence on
SOURCE	•	Septic Tank Soil Performance
COST TEAR	1	BC \$4.75/HF \$3.00
TBIT	1	Is an effort to determine if septic tank absorption system performance is influenced by the depth of ground cover over the system, data from 836 individual septic tank systems have been reviewed. The data encom- pass five climate areas and a variety of soils ranging from the very poorly drained Iredells of Mechlenburg County to the excessively drained Plainfield mands of Michigan. (WT) WTIS
ACC	2	2000356 +
AUTHOR APPIL	1	ScPherson, H.B.; Tscker, L.S.; Hobbs, B.F. American Society of Civil Engineers, New York
SOURCE	2	Bibinum Transport Velocity for Pressurized Sentery (777), 25 pages HTIS Report Humber PB-186 013 (ASCE Report Humber 18-7), 25 pages
TEAR	2	BC \$4.00/HF \$3.00 1967
194 I	Ŧ	final research report is cited in the first part of the text. The first
		report giving general criteria applicable to the design of pressure con-
		second part of this penorandus defines the design criteria being used by the protect staff for the study of three hypothetical pressurized
COM	1	Semitary severage Systems. (ST) WIIS
FCC4	:	L000357 +
VILEON VILEON	11	NCPherson, N.B. American Society of Civil Engineers, New York
FITLE FOURCE		Innovation: A Case Study HTIS Report Humber PB-232 166/9 (ASCE Report Humber TH-21), 66 pages
	1	NG \$5.25/HF \$3.00 1974
TBLI	ĩ	Four urban water resource case statute process of technological innova- elucidating causation inferences on the process of technological innova- tion: San Francisco master plan; Chicago underflow plan; land disposal of maternative and programme water sever systems. All four are in-
		starces where innovation concepts have been successfully applied, and they are all concerned with water guality matters. Consideration is
		given to industrial parallels, the roles of individuals versus groups in innovation, and certain characteristics of some leading innovative local
		government administrators. Also taken into account are related subjects of technology transfer and public technology. (NT)
COM	:	NTIS .
AUTHON	R:	LO00358 + Hekosh, G.; Rasos, D.
PT#7.2	•	adelphia, Pennsylvania Breast of Phoenixville, Pa
SOURC	2:	NTIS Report Number PB-224 456/4, GPO Stock Number EP1.23/2:73-2-70. 71
COST YEAR	:	WTIS HC \$5.25/HF \$3.00; GPO Paper Copy, \$1.00 1973
PBIT	1	A site was selected at the Borough of Phoenixville, Pennsylvania, which provided a maximum variable exercise of a pressure sever system. The
		project proved over a siz-month period that a multiple residence pres- sure sever system can adequately store peak loads of wastewater and
		grind and pump wastewater through small-diameter plastic pipe to the existing conventional gravity newer. During the project, data were
		AATTACLAD ABTOR MEASURE INTOLESCION CODCALUING THE SUBJECTION' OBALS~

tion and maintenance of the system, its technical performance, the var-iations in that performance during the six-month period and the characteristics of the wastewater as delivered to the existing gravity Sever. (NT) COL . ..... ACC# : L000359 # AUTHOR: Bellor, H. APPIL : Cold Regions Research and Engineering Lab., Hanover, NH TITLE : Cold Regions Science and Engineering Monograph 3, Section 12d; Stilities on Permanent Snowfields SOURCE: MIIS Report Number AD-699 337, 43 pages COST : HC \$4.50/HF \$3.00 TEAR : 1969 TEXT : The topics covered in the Bonograph include water supply, waste dis-posal, heating, ventilating and fire protection at installations built on polar ice sheets. The Section on water supply discusses energy requirements, consumption rates, and water quality and treatment, techniques and equipment for selting snow and ice, and water distribution systems. A number of actual water supply systems are described in detail. The section on waste disposal deals with sewage and sewage sinks, latrines, garbage, trash and scrap and radioactive waste. Examples of sanitation systems at polar bases are described in some detail. (NT) CON : MTIS ACC# : L000360 \* AUTHOR: University of Hinnesota, Water Resources Research Center, Hinnespolis, Hissesota APPIL : University of Hinnesota, Water Resources Research Center, Minnespolis. TITLE : Water Pollution by Nutrients-Sources, Effects and Control SOURCE: NTIS Report Number PB-189 794 (WERC-Full-13), 83 pages COST : EC \$6.00/HF \$3.00 TELE : 1969
TELE : 1969
TELE : The Bulletin includes the papers presented at a conference on 'Nutrient
Pollution - Sources, Effects and Control' held in Himmeapolis, Himmesota on Jan. 8, 1969. The papers, all individually abstracted, include the following titles: Nutrients and Other Forms of Pollution, Diagnosing Pollution in Lake Minnetonks, Effect of Extrophication on Fish and Related Organisms, fealth Aspects, Surface and Ground Waters, Animal Waste Disposal Problems and Trends in Minnesota, Ranaging Live-stock Wastes to Control Pollution, Runoff and Sediment as Mutrient Sources, Controlling Mutrients and Organic Toxicants in Funoff, Treatment of Hunicipal Wastes, Septic Tank Effluents, Water Pollution in Re-creational Areas - Sources and Control, Setting Water Quality Standards and Regulating Nutrient Sources, and Implementing Pollution Control. (NT) CON : NTIS 1001 : L000361 + AUTHOR: Mitchell, D. AFFIL : University of Arkansas, Water Resources Research Center, Fayetteville, 12 TITLE : Improving Design Criteria for Septic Tank Systems SOURCE: HTIS Report Number PB-262 006/05T (Pub-42), 47 pages COST : HC \$4.50/HF \$3.00 : 1976 YEAR : This study determined the biodegradation capacity of various sizes and TRIT depths of vashed river gravel. The results of the laboratory analysis of influent and effluent wastewater are discussed as they relate to the establishment of the most efficient biodegradation size and depth of the column. An absorption field with an addition of twelve inches of gravel passing a number 4 sieve with a coefficient of uniformity of 30 and an passing a number 4 slove with a Coefficient of uniformity of 30 and an effective size of D sub 10 of 0.4 micrometers, would provide COD removal of 90 percent or above at minimum dosage rates calculated according to Bulletin No. 9 by the Arkansas State Department of Health. (NT) CON 1 MTIS ACC# : L000362 # AUTHOR: Milne, H. AFFIL : University of California, Water Resources Center, Davis, CA TITLE : Residential Water Conservation SOURCE: HTIS Report Number PB-253 253/95T, 471 pages COST : BC \$14.50/HF \$3.00 : 1976 THAT : A non-technical report is presented for homeowners, builders, develop-TRIT ers, architects, planners, utility company managers, plumbingware manu-facturers, and lawmakers who are seeking ways to reduce residential water consumption. 1 'typical' residential consumption profile is presented, along with a brief history of how water has been used in the home. Four types of constraints must be satisfied before any innovation in vater conservation can be implemented: economic, institutional, sociocultural and technological. The impact of each of these factors

is discussed. Over four dozen consercially available devices which affect water consumption in the home are evaluated. In an attempt to discover future trends, a survey was made of the relevant aerospace technology, including apollo and Skylab systems, as well as the systems installed in connercial jet aircraft, trains, and ships. Recent patent applications were discovered. Four scenarios are laid out to show the homeowner different strategies for reducing water consumption. (NT) CON I HTTS ACC# : 1000363 \* AUTHOR: National Center for Urban and Industrial Health, Cincinnati, Ohio AFFIL : National Center for Urban and Industrial Health, Cincinnati, OH TITLE : Manual of Septic-Tank Practice SOURCE: STIS Report Number PB-216 240, 101 pages COST : HC \$7.50/HF \$3.00 **TEAR : 1967** THIT : Contents: Contents: septic tank - soil absorption systems for private residences; septic tank - soil absorption systems for institutes, recreational areas and other establishments. (NT) COL : WTIS 100 : 1000364 \* NUT NOI: National Park Service, Southwest Region, Santa Pe, New Hexico APPTL : National Park Service, Southwest Region, Santa Pe, NH TITLE : Roads and Utilities. Willow Creek Recreation Site, Heron Reservoir, **Jev Merico** SOURCE: WIIS Report Number EIS-NH-73-0622-F, 75 pages COST : HC \$6.25/HF \$3.00 : 1973 TRAP TEXT : The report describes the proposal to construct roads, parking areas, underground utilities, a comfort station and sewage lagoon at Willow Creek Recreation Site, Rio Arriba County, New Merico. A minor amount of natural vegetation will be destroyed by the construction. The proposal will increase visitation, which, in turn, will have an effect on the economy of the area. (NT) COF : NTIS ACC : 1000365 \* ACCV : LOUDSD5 -AUTHOR: National Park Service, Southwest Region, Santa Fe, New Mexico APPIL : National Park Service, Southwest Region, Santa Fe, New TITLE : Pollution Abatement Project. Carlsbad Carverns National Park, New Herico SOURCE: MTIS Report Number EIS-NH-73-0854-F, 34 pages COST : BC \$4.50/HF \$3.00 TEAR : 1973 : 1973 THIT : The National Park Service proposes to construct a new sewage treatment system for the principal Caverns Use Area of Carlsbad Caverns National Park, New Mexico. The new system will use a portion of the existing sever system; additional sever line will extend the line to four total retention waste treatment lagoons. The major impact from this proposal will be beneficial, in that it will enhance both the natural and social environment of the park through the elimination of visual intrusions, odor and pollution problems. Adverse impacts which cannot be mitigated are the evaporation of 8,000,000 gallons of water per year and the destruction of vegetation at localized sites. (#T) CON : 2773 ACC# : 1000366 + LOTHOR: Mational Rural Water Association, Washington, D.C. AFFIL : Mational Rural Water Association, Washington, D.C. TITLE : Rural Mater and Sever Systems Problems, Meeds, Issues, Opportunities, and Goals: A Report on the Proceedings of the Mational Organizational Conference of the National Bural Water Association (1st) Held in Oklahosa City, Oklahosa, on April 15 and 16, 1976 SOURCE: HTIS Report Humber PB-278 986/557, 47 pages COST : NC \$4,50/NF \$3.00 TRAR : 1976 THIT : This report describes and briefly defines the principal problems, issues opportunities and goals which have a significant impact upon the stabi-lity and growth of rural water and sever systems throughout this coun-try. The source for this material is the series of conference sessions try. try. The source for this measure is the second second in a the held by representatives of eight State Bural Water Associations at the organizational meeting in Oklahoma City. The proceedings were heavily oriented toward water supply systems. (NT) COL 2 2975 : 1000367 + YCC 8 AUTHOR: Malton, J.R.; Silver, L.L.; Graham, J.V. AFFFIL : Maval Civil Engineering Laboratory, Fort Eucneme, CA TITLE : A Flotation Method for the Treatment and Clarification of Tallow Scap-Based Laundry Waste Water SOURCE: WTIS Report Humber 1D-499 551/057, 15 pages

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COST : NC $4.00/HF $3.00
YEAR : 1957
TEXT : The method of clarification is based on the formation of aluminum hydro-
                 Tide floc which, on congulating, entraps the waste material in the
water. The floc is subsequently separated from the main body of water
by a flotation process and is finally removed by a mechanical sludge
                 skinner. (NT)
 CON
             . .....
  ACC 0
            : 1000368 *
 AUTHOR: Environmental Protection Agency, Region IV, Atlanta, GA
APPIL : Environmental Protection Agency, Region IV, Atlanta, GA
TITLE : Ocean Outfalls and Other Sethods of Treated Wastewater Disposal in
                 Southeast Florida, Transcript of Proceedings Held in Lake North, Florida
                 January 24, 1973, Siami Beach, Plorida, January 26, 1973, Port Lauder-
dale, Plorida, January 27, 1973
  SOURCE: MTIS Suport No. BIA-FL-73-0491-F-1, 745 pages
  COST : NC $40.00/HF $3.00
 YEAR : 1973
  TEXT : An examination of the impact on man and his environment of tranted
                 Wastewater disposal setbods in Southeast Florida. The stady area is
                 defined as Pals Beach, Broward, and Dade Counties, and their contiguous
                island and coastal waters. Because folderal law requires that secondary
treatment with disinfection be provided for all wastewater discharges,
the report looks at the impact various wastewater disposal aethods will
                have. The methods considered are: discharge to the ocean via ocean
outfalls, discharge to fresh water canals and to estuarine waters,
injection into the shallow and deep groundwater squifers, discharge
into the everglades, and land disposel by irrigation, Spray runoff, and
percolation. In addition, the environmental impact of continued septic
                tank disposal and "no action", in the sense of no improvement in sethods
of disposal over current practices, are presented. The statement takes
into consideration wastewater flows projected by local, state, and
federal agencies as they relate to existing or proposed facilities. (ST)
 CON
             . .....
 ACC# : L000369 *
 AUTHOR: Escambia-Santa Rosa Regional Planning Council, Pensacola, FL
AFFIL : Escambia-Santa Rosa Regional Planning Council, Pensacola, FL
TITLE : Hetropolitan Pensacola Five Year Sever Plan
SOURCE: MISS Report BO. FB-200 132 (ESERPC-71-04), 223 pages
 COST' : BC $9.25/87 $3.00
 YEAR : 1971
 THIT : The report develops a master plan for severage based on rational
planning and pollution control criteria. Critical elements of the master
plan are recommended for construction as an immediate five-year program.
Implementation costs are estimated to be 336.2 million for Samta Rosa
                County. To rectify past short-comings of fragmented systems in the urban
                areas, a single urban utility is recommended. Implementation guidelines
relative to organization, administration, and financing are set forth.
                Isolated individual systems are recommended for outlying developed
                ATOLS. (NT)
COT
            : MTIS
 ACC# : 1000370 *
AUTHOR: Parrell, R.P.
APPIL : American Society of Civil Engineers, New York
TITLE : Advanced Development of Household Pump-Storage-Grinder Unit (Task 6)
SOURCE: MIIS Report No. PB-186 004, 81 pages
COST : BC $6.00/HP $3.00
YEAR : 1968
          : As part of the ASCE Project on Separation of Combined Severs, a con-
TEXT
               tractor has developed and constructed the first prototype of a Pusp-
Storage-Grinder (PSG) unit suitable for intallation in individual homes.
The functions of grinding, pusping and backflow prevention are provided
in an integral assembly which can be lowered into place on a field-
                installed steel or concrete tank. (MT)
CON
            : NTIS
100# : 1000371 +
AUTHOR: Farrell, R.P.
AFFIL : American Society of Civil Engineers, New York
TITLE : Long-Term operation of Wastewater Observation Stations (Task 2)
SOURCE: MILE Report No. PB-185 994, 53 pages
COST : EC $5.25/UP $3.00
THAT : 1968
THAT : The report contains data and summary of observations obtained by
                continuing operation of two custom-built wastevator observation stations
               located at private residences in Louisville, Kentucky. In these stations
all wastewater originating in the bones was ground and pusped under
pressure through 60-foot lengths of small diameter PVC tubing. (#7)
CON
           : ÎTIS
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1CC4 : 1000372 \* ≠SEL AFFIL : Poster-Hiller Associates, Inc., Waltham, MA TITLE : Preliminary Design of a Household Refuse Grinder SOURCE: HTIS Report No. PB-256 503/457, 144 pages COST : HC \$7.25/HF \$3.00 YBAR : 1973 TEXT : A preliminary design for a single-family household refuse grinder was developed during this program as part of an overall study to evaluate the technical feasibility of transporting ground household refuse through existing severs. The grinder reduces most of the components of household refuse into a slurry formed with the non-fecal component of household water and transports it through the house sever lateral to sever where it is mixed with the rest of the water. The system requires a modification in household plumbing and a storage tank to separate and store the non-fecal component of wastewater. (NT) COF : NTIS 1CC# : 1000373 \* AUTHOR: Ford, S.W AFFIL : Army Facilities Eng. Support Agency, Research & Tech. Div., Fort Belvoir, VA TITLE : Feasibility of Necycling Laundry Wastewaters at Hilitary Quartermaster Laundries SOURCE: NTIS Report No. AD-A038 705/0ST (USAFESA-RT-2016), 48 pages COST : EC \$4.50/HP \$3.00 : 1977 7212 : An accompanic analysis of recycling army installation laundry wastewater 2212 is detailed. Usage, costs, designs, comparisons, and assumptions are presented in detail. (NT) CON : YTIS ACC# : L000374 # AUTHOR: Francingues, H.R., Jr.; Green, A.J., Jr. AFFIL : Army Engineer Materways Experiment Station, Vicksburg, HS TITLE : Water Usage and Wastewater Characterization at a Corps of Engineers Recreation Area SOURCE: MIIS Report No. AD-A021 584/857 (WES-SP-Y-76-1), 45 pages COST : HC \$4.50/HF \$3.00 THEN I 1970 TEXT : The U.S. Army Engineer Waterways Experiment Station (WES) conducted a field monitoring study to collect sufficient information on water USANG, Wastewater production, and waste characterizations. The objective of this effort was to develop guidance that will assist CE Districts in optimizing the design and operation of recreation area wastewater HEND demont restore (WES) : 1976 Management systems. (NT) CON : MTIS JCC. : L000375 \* AUTROR: Fried, C.; Ransburg, R.; Butler, S. AFFIL : National Bureau of Standards, Technical Analysis Division, Mashington, D.C. TITLE : A Servey of the Sanitary Conditions of Higrant Labor Camps SOURCE: MTIS Report No. COM-74-10474/6 (National Bureau of Standards Report No. NBSR-73-248), 84 pages COST : NC \$6.00/MF \$3.00 1973 TRAR TEXT : The Community Health Service (CHS) of the Department of Health, 1 Education, and Welfare has been assigned the responsibility of providing boalth care services to migrant farmworkers. Since poor samita-tion can be a major factor in the health of migrants, CHS requested a field survey of the current state of the samitary conditions of migrant housing. Pield visits were made to migrant labor camps in five different regions of the United States. A description of the findings of the survey is provided in both tabular and marrative form. A discussion of the limitations in the procedures used in conducting the survey is also included, and changes are suggested which could be incorporated into future surveys. (NT) CON : WTIS ACC# : L000376 \* AUTROR: Federal Water Pollution Control Administration, Washington, D.C. AFFIL : Federal Water Pollution Control Administration, Washington, D.C. TITLS : & Primer on Wastewater Treatment SOURCE: MIIS Report No. PB-215 846, GPO Stock No. BP2.2:W28/2, 27 pages COST : MIIS: NC 84.50; GPO Paper Copy: \$0.55 YEAR : 1973 THIT : The methods used now and processes being developed for the future to treat sunicipal vastes are explained. This includes topics as: secondary treatment; lagoons and septic tanks; coagulation-sedimentation; adsorption; electrodialysis; blending of treated water; chemical

oxidation; polymers and pollution; and common sevage treatment terminology. (NT) CON 1 1915 ACC# : L000377 \* AUTHOR: Federal Water Quality Administration, Washington, D.C. AFFIL : Federal Water Quality Administration, Washington, D.C. TITLE : Sewage Treatment Facilities for Federal Installations SOURCE: NTIS Report No. PB-215 947, 256 pages COST : HC \$15.00/HF \$3.00 **YEAR : 1970** THIT : A training program is offered to supervisors, engineers, and other federal personnel responsible for design, construction, or management of sewage disposal facilities at federal installations. The course includes waste treatment methods which are applicable to federal installations such as National Parks, Porest Service camps, small military installations, hospitals, schools and prisons. (MT) CON 2 HTIS ACC# : L000378 \* AUTHOR: Goldstein, S.F.; Wenk, V.D.; Powler, H.C.; Poh, S.S. AFFIL : Mitre Corporation, McLean, VA TITLE : A Study of Selected Economic and Environmental Aspects of Individual Hone Wastevater Treatment Systems SOURCE: NTIS Report No. PB-218 047/9 (Mitre Corporation's Report No. 872-45), 263 pages COST : EC \$10.75/HF \$3.00 TEAR : 1972 TEXT : Evaluates the potential effectiveness of individual home waste treatment systems and estimates the cost implications of increased use of systems. A review of previous research into septic tank system failures is summarized. Economic factors which can govern the choice between in-dividual and collective systems are reviewed. The results of several economic analyses of the problem are discussed. A Mitre-developed economic model is used to generate both the time stream and the total present value of future costs of sewage treatment on a mational basis for projected new individual homes. Consideration is given to individual and central systems. (NT) COT : NTIS ACC# : 1000379 \* AUTHOR: Hendricks, G.F.; Rees, S.H. AFFIL : SIECO, Inc., Columbus, IN TITLE : Economical Residential Pressure Sever System with No Effluent SOURCE: MIIS Report No. PB-249 195/931, 76 pages COST : HC \$6.00/HF \$3.00 YBAR : 1975 TEIT : An economical pressure sever system with no polluting effluent was designed, constructed, and monitored for effectiveness. The treatment process, aerobic and anaerobic lagoon storage with subsequent irrigation of the effluent, yielded no more than normal volume of runoff. Operational problems with the pressure system resulted from inefficient home grinder-pump units. These problems were greatly reduced when connercially manufactured home units became available. The treatment process functioned as anticipated. (NT) CON : İTIS ACC# : 1000380 \* AUTHOR: Hobbs, H.F. AFFIL ; American Society of Civil Engineers, New York TITLE : Relationship of Sewage Characteristics to Carrying Velocity for Pressure Severs SOURCE: MIIS Report No. PB-185 991 (ASCE Report No. 8-2598), 102 pages COST : HC \$6.50/HF \$3.00 : 1969 TELR : Binimum carrying velocities for solid phase matter in smooth plastic TRIT two inch, three inch, four inch, six inch, and eight inch pressure pipes at sero slope have been studied for comminated and uncomminated raw sevage. Data from the comprehensive testing of the three inch pressure pipe indicated that the minimum velocity for scenting and the minimum velocity where depositing takes place were essentially the same. The velocities appeared to be independent of the concentration, and size distribution of suspended matter and "sand". However, the velocities appeared to be dependent upon the size distribution of fixed solids, or nore likely the "sand," that accumulated on the bottom of the pipe and was the most difficult to scour and the first to deposit. (NT) CON : NTIS 1CC0 : 1000381 \* AUTHOR: Lawton Metropolitan Area Planning Commission, OK APPIL : Lawton Metropolitan Area Planning Commission, OK

TITLE : Comprehensive Long-Range Severage Plan for the Lawton Hetropolitan 1res SOURCE: MTIS Report No. PB-184 656, 90 pages COST : HC \$6.00/HF \$3.00 YEAR : 1969 TEXT : Contents: Lawton severage collection system; sevage flows and sevage quality; wastes; existing sewage treatment facilities; deficiencies; corrective seasures; and future needs; town and community severage systems; individual sevage disposal units; Fort Sill sevage treatment facilities. (NT) CON : 1775 : L000382 \* ACC# AUTHOR: Florida Department of Community Affairs, Technical Assistance Division, Tallahassee APPIL : Florida Department of Community Affairs, Technical Assistance Division, Tallahassee TITLE : Lake County Florida, Sanitary Wastewater Treatment and Disposal as Related to Development SOURCE: NTIS Report No. PB-207 102, 148 pages COST : HC \$7.25/HF \$3.00 **TELR : 1971** The study was conducted in Lake County, Florida, for the purpose of relating the existing technical data concerning soil, water and develop-ment characteristics to sanitary wastewater treatment and disposal. It is intended, from evaluation of this information, to determine those TRIT areas which are unsuited for septic tank development. (NT) CON 2 11775 : L000383 \* 1004 AUTHOR: University of Nebraska, Water Resources Center, Lincoln, Mebraska APFIL : University of Nebraska, Water Resources Center, Lincoln, MB TITLE : Water Problems in the Hural Environment; Alternative Solutions for Water Supply and Wastewater Disposal. Proceedings of a Conference Held at Lincoln, Webraska, on Wovember 4 and 5, 1976 SOURCE: NTIS Report Humber PB-279 775/15T, 142 pages COST : EC \$7.25/HF \$3.00 YEAR : 1978 TEXT : This conference considered rural water supply and wastewater disposal problems, including both quality and quantity. The socio-economic and technological aspects of alternative solutions to rural water problems and the various impacts involved in changing or improving the current Future research and related needs to solve situation were examined. various rural water problems were outlined. The conference focused on domestic and farmstead use of water and included considerations of supply systems ranging from that required for an individual home to that required for a small community. (NT) CON : TTIS 1004 : L000384 \* AUTHOR: Nevada University System, Mater Resources Center, Reno, Mevada AFFIL : Nevada University System, Mater Resources Center, Reno, MV TITLE : Water Conservation Devices: Residential Water Conservation SOURCE: HTIS Report Number PB-281 499/457, 13 pages COST : HC \$4.00/HF \$3.00 YEAR : 1977 : A consumer-oriented capsule report highlights findings of research pro-jects funded through the Office of Water Research and Technology which THIT Justs rupage through the office of water Research and Technology which treat the significance, economics, and application of water conservation measures and devices, e.g., plastic bottles, toilet inserts, improved ballcocks, dual flush cycle modifications, water saving toilets, faucet aerators, spray taps, flow control devices, pressure reducing valves, water conserving applications, and landscape irrigation equipment are briefly described. The economic advantages of water conservation de-vices are estimated. (NT) CON 1 1715 ACC# : L000385 \* AUTHOR: Olsson, B.; Karlgren, L.; Tullander, V. AFFIL : Mational Swedish Institute for Building Research, Stockholm, Sweden TITLE : Household Waste Water SOURCE: MIIS Report Humber PB-184 598 (Byggforskningen - 24:1968), 161 pages COST : BC 58.00/HF 53.00 TEAR : 1966 TEXT : The quantity and nature of waste water from dwelling houses was investi-gated. The results provide a basis for estimating the loading capa-city of recipients and the necessary sewage treatment procedures as well as the scaling of drainage networks and treatment plants. However, the principal interest was devoted to an analysis of greywater, since infor-

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mation about such water is imperfect. From the results, it is evident that special attention must be paid to greywater, since it is the greywater that supplies such a large proportion of primary (direct) pollution. (NT) CON : NTIS : L000386 \* 1004 AUTHOR: Parker, C.E. AFFIL : VA Eighway and Transportation Research Council, Charlottesville, VA TITLE : Water Reuse at Highway Rest Areas: Evaluation Phase SOURCE: WTIS Report Number PB-278 542/657, 90 pages COST : HC \$6.00/HF \$3.00 : 1977 YBAR TEXT : The limited availability of water and the stringent standards on wastewater effluent at rest areas led to the development of a water recycle-reuse system to treat flush water from water closets. This report describes the evaluation of the water recycle-reuse system installed at the rest area on I-81 at Fairfield, Virginia. (NT) CON : NTIS : L000387 \* ACC . AUTHOR: Patterson, J.W.; Minear, R.A.; Medved, T.K. AFFIL : Illinois Institute for Environmental Quality, Chicago, IL TITLE : Septic Tanks and the Environment SOURCE: STIS Report Number PB-204 519, 105 pages COST : EC \$6.50/HP \$3.00 YEAR : 1971 TEXT : The report reviews and evaluates available literature on septic tanks, The report reviews and evaluates available interature on septic tanks, and influence of septic tanks on public health and environmental qua-lity. The consistently poor performance of septic tanks indicates that other waste disposal methods are necessary in densly populated areas and that more rigorous regulation of design criteria, installation, and operation are required in sparsely inhabited areas suitable for septic tank installations. The report is intended to form the basis for appropriate administrative or legislative action in Illinois. Its bibliography contains 127 items. (NT) 1 TTIS COL : L000388 \* ACC# AUTHOR: Pfeffer, J.T. AFFIL : University of Illinois, Department of Civil Engineering, Urbana-Chanpaign, IL TITLE : Rest Area Wastewater Treatment and Disposal SOURCE: MIIS Report Number PB-246 061/6ST COST : HC \$5.25/HF \$3.00 YEAR : 1974 THIT : The continued development of the interstate highway rest areas has enphasized the need for improved water supply and wastewater treatment systems. In analysis of the rest area usage provided information regard ing the guantity and guality of wastewater as well as the variation in wastewater flow. This information has been used to evaluate potential wastewater treatment systems for rest areas. Process stability under widely fluctuating loadings, simplicity of operation and aesthetic qualities were the major criteria used to evaluate the systems. A summary of the reports on Phases 1 and 2 of this project is presented. (IT) : NTIS COL : L000389 \* ACC AUTHOR: Public Health Service, Water and Sanitation Investigation, Cincinnati, Ohio AFFIL : Public Health Service, Water and Sanitation Investigation, Cincinnati, OHio TITLE : HHFA-USPHS Household Sewage Disposal Project. Report and Appendices SOURCE: HTIS Report Humber PB-260 259/75T, 144 pages COST : EC \$7.25/HP \$3.00 : 1948 TRAR : A second report covering primarily project developments from Aug. 1, 1947, to January 1948 is presented. Progress on 18 objective items is TRIT individually reported. See L000391. (NT) 1 NTIS COI 1004 : L000390 \* AUTHOR: Public Health Service, Water and Samitation Investigations, Cincinnati, Ohio APPIL : Public Health Service, Water and Samitation Investigations, Cincinnati, OH TITLE : Progress Report of MAA - USPES Household Sevage Disposal SOURCE: MIIS Report Mumber PB-260 175/551, 80 pages COST : HC \$6.00/HF \$3.00 YBAR : 1947

TEXT : The Household Sewage Disposal Project, inaugurated in 1946, required emphasis on special testing and investigation work. Specific areas exagined include: literature review; investigation of existing installations; operation of septic tanks and subsurface systems; sampling; lab-oratory investigation of soil clogging; 10- and 20-year cleaning intervals; extreme freezing conditions; effect of tree and shrubbery roots; effects of residential garbage grinding; distribution boxes; investigation of tank proportions; discharge of grease; relationship to sodium and calcium to soil-clogging action; relationships among seepage, evaporation, and transpiration; new methods of disposal; and development of standards. (NT) CON : NTIS ACC # : L000391 \* AUTHOR: Public Health Service, Division of Sanitary Engineering Services, Washington, D.C. AFFIL : Public Health Service, Division of Sanitary Engineering Services, Washington, D.C. TITLE : Hanual of Septic-Tank Practice. Developed in Cooperation with the Joint Committee on Rural Sanitation SOURCE: WIIS Report Number PB-218 226, 96 pages COST : HC \$7.50/HF \$3.00 : 1959 YELR : The Manual on septic tank practices has been prepared for use as a guide TEXT by health agencies, building officials, installers, and others, to meet the need for an authoritative treatise on the subject. (NT) CON : NTIS ACC# : L000392 # AUTHOR: Public Health Service, Division of Sanitation, Washington, D.C. AFFIL : Public Health Service, Division of Sanitation, Washington, D.C. TITLE : Trailer Court Sanitation With Suggested Ordinances and Regulations SOURCE: HTIS Report Number PB-260 121/957, 31 pages COST : HC \$4.50/HF \$3.00 YEAR : 1953 TEXT : Parked trailers can create unsanitary conditions by improper disposal of sevage and refuse. These conditions can endanger the health and safety not only of the trailer occupants, but of residents of adjacent areas as well. This manual incorporates recommendations from a variety of sources, including members of the Conference of State Sanitary Engineers. Areas covered are: site provisions; service buildings; water supply; sevage disposal; refuse disposal; insect and rodent control; electricity and fuel; fire protection, alterations, repairs and additions; restrictions on pets; restaurants; and communicable diseases. Fourteen references are included. (NT) CON : UTIS ACC# : 1000393 \* AUTHOR: Public Health Service, Division of Environmental Engineering and Food Protection, Washington, D.C. AFFIL : Public Health Service, Division of Environmental Engineering and Food Protection, Washington, D.C. TITLE : Environmental Health Guide for Nobile Home Parks With a Recommended Ordinance SOURCE: WIIS Report Number PB-260 084/95T, 39 pages COST : HC \$4.50/HF \$3.00 YEAR : 1966 THAR : 1900 TEXT : The purpose of this guide is to provide the latest environmental health guidelines to persons responsible for or concerned with planning, designing, operating, and maintaining mobile home parks, and for reference sighing, operating, and maintenancy could park , and for regulations in developing federal, state, or local ordinances, laws or regulations applicable to mobile home parks. A companion guide is available entitl-ed "Environmental Health Guide for Travel Trailer Parking Areas." Topics covered include site planning, mobile home stands, water supply, sevage disposal, refuse handling, insect and rodent control, electrical distribution, fuel supply and storage, fire protection and safety, and a suggested ordinance. References are included. (NT) CON : MTIS ACC# : 1000394 \* AUTHOR: Puchtler, B.; Reid, B.; Christianson, C. AFFIL : Corvallis Environmental Research Lab., Arctic Environmental Research Station, College, AK TITLE : Water Related Utilities for Small Communities in Rural Alaska SOURCE: WIIS Report Number PB-259 964/55T (BPA/600/3-76/104), 84 pages COST : BC \$6.00/HF \$3.00 YEAR : 1976 TEXT : The 'Alaska Village Demonstration Projects' were authorized by Section 113, P.O. 92-500 (86 STAT 816), for the purpose of demonstrating methods to improve sanitary conditions in native villages of Alaska. Central

cossunity facilities have been constructed in the native villages of Enmonak and Wainwright to provide a safe water supply; toilets, bathing and laundry facilities; and wsewaye and waste disposal. (WT) CON : MTIS : L000395 \* 1CC AUTHOR: Reid, L.C., Jr. AFFIL : Department of Bealth, Education, and Welfare, Washington, D.C. TITLE : Individual Household Aerated Waste Treatment System SOURCE: MTIS Report Number PB-232 513/2; (PAT-APPL-16 456, PATENT-3 807 563), 6 pages COST : NTIS: Price Not Available; Patent Office Copy: \$0.50 YEAR : 1974 The patent describes a system for the treatment of sewage from houses or small apartments employing an air lift for circulation, agitation, oxy-genation, reduction, and comminution. The biological mass and other solids are separated from the water by the use of inclined plane set-TETT tlers which permit the activated sludge to settle out. (NT) CON : NTIS : L000396 \* ACC I AUTHOR: University of Rhode Island, Water Resources Center, Kingston AFFIL : University of Rhode Island, Water Resources Center, Kingston TITLE : The Rhode Island Water Resources Research Program, Annual Report (7th) SOURCE: NTIS Report Number PB-209 892, 62 pages COST : HC \$5.25/HF \$3.00 : 1971 YBAR TEXT : The report reviews research carried out by the Rhode Island Water Besources Center. Hethods were sought for removing high concentrations of iron and manganese from groundwater. Pollution of a water supply source by groundwater seepage from septic tanks, sewage lagoons and refuse fills has been followed. Social and economic problems of groundwater pollution were studied; groundwater in Phode Island offers a least cost alternative to surface impoundment. (NT) COL : NTIS ACC# : L000397 \* AUTHOR: Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio AFFIL : Robert A. Taft Sanitary Engineering Center, Cincinnati, OH TITLE : Special Study of Sewage Treatment Facilities at Hammoth Cave Fational SOURCE: WTIS Report Number PB-215 092, 23 pages COST : HC \$4.00/HF \$3.00 : 1956 TEAR The report describes a special study of the sewage treatment facilities serving Hammoth Cave National Park. The objectives of this study were to determine the quantity and characteristics of the sewage produced in this heavily used National Park and the efficiency of the units of the TELT sevage treatment plant. (NT) : ITIS CON ACC# : L000398 \* AUTHOR: Rothenberg, J.H.; Mixon, W.R.; Boegly, W.J. AFFIL : Oak Ridge Mational Laboratory, Oak Ridge, TM TITLE : Integrated Waste Hanagement Systems: Onsite HIUS Applications SOURCE: NTIS Report Number COMP-751107-9, 19 pages COST : HC \$4.00/HP \$3.00 : 1975 YEAR TEIT : Bach of the major utility subsystems of the Modular Integrated Utility System (HIDS) were examined with respect to both the potential for inte-gration with other subsystems and the advantages resulting from such integration. The conclusions represent a current summary of results from evaluation studies of major components and subsystems applicable to HIUS, systems analyses comparing HIUS to conventional utilities serving identical consumer models, and assessments of impacts from application of the HIUS concept. (NT) CON : NTIS ACC# : L000399 \* AUTHOR: Bothenberg, J.H.; Hixon, W.R.; Boegly, W.J., Jr. AFFIL : Oak Bidge National Laboratory, Oak Bidge, TW TITLE : Integrated Waste Hanagement Systems: Onsite HIUS Applications SOURCE: HTIS Report Number CONF-751216-1, 27 pages COST : HC \$4.50/HF \$3.00 : 1975 TEAR TEXT : The Department of Housing and Urban Development (HUD) is conducting the Hodular Integrated Utility System (HIUS) Program devoted to development and demonstration of the technical, economic, and institutional advan-tages of integrating the systems for providing all or several of the utility services for a community. Possible utility services include the provision of potable water, and liquid and solid waste treatment and disposal. The objective of the HIUS concept is to provide the depired

utility services in a way that is consistent with reduction in the use of critical natural resources, protection of the environment, and min-imization of cost. A HIUS might be sized to accommodate several hundred or a few thousand multifamily dwelling units, nearby single-family hous-ing, and associated commercial facilities. It uses a complex of small, on-site combined package plants, each sized to meet demands of the development served. The HIUS is modular in that it can be installed near appropriate users in phase with the actual desands of community development or redevelopment. It uses an integrated systems approach whereby some resource requirements of one service are net by utilizing the effluent of another. Each of the major utility subsystems of HIUS are examined with respect to the potential for integration with other subsystems and the advantages resulting from such integration. The conclusions presented represent a current summary of results from evaluation studies of major components and subsystems applicable to HIUS system analyses comparing HIUS to conventional utilities serving identical consumer models, and assessments of impacts from applicaton of the HIUS concept. (NT) CON : TTIS ACC# : L008400 \* AUTHOR: Sack, W.L.; Phillips, S.L. AFFIL : West Virginia University, Department of Civil Engineering, Horgantown, UV TITLE : Evaluation of the Bio-Disc Treatment Process for Summer Camp Application SOURCE: MIIS Report Number PB-225 126/251 (GPO Stock Number EP1.23:670-022), 78 pages COST : NTIS HC \$6.00/HF \$3.00; GPO Paper Copy: \$1.05 TRAR : 1973 TEXT : The bio-disc wastewater treatment process was evaluated during operation for one summer at a recreational camp. The bio-disc section consisted of four stages, each of 22 polystyrene discs 1.98 m (6.5 ft) in diameter, and was preceded by a septic tank that served to handle both the primary and the biological sludge produced. Evaluation of the plant included time required for start-up, organic removal efficiency, response to flow variations, nutrient removals, aesthetic impact, and required maintenance and operation attention. Overall organic removals reached essentially full efficiency by the end of the first week of operation. However, removals across the bio-disc section continued to increase somewhat till about the fifth or sixth week of operation. (NT)-COM : TTIS 1004 : L000401 \* AUTHOR: Sack, W.A.; Phillips, S.A. AFFIL : West Virginia University, Horgantown, West Virginia TITLE : Evaluation of the Bio-Disc Treatment Process for Summer Camp Application 23/2:670/2-73-0221 SOURCE: HTIS Report Number PB-227 633/5 (GPO Stock Number EP1. 23/2:670/2-73-022) 80 pages : NTIS HC \$6.00; GPO Paper Copy: \$1.05 COST YEAR : 1973 TEXT : The bio-disc wastewater treatment process was evaluated during operation for one summer at a recreational camp. The bio-disc section consisted of four stages, each of 22 polystyrene discs 1.98 m in diameter, and was preceded by a septic tank that served to handle both the primary and the biological sludge produced. Evaluation of the plant included time required for start-up, organic removal efficiency, response to flow varia-tions, nutrient removals, aesthetic impact, and required maintenance and operation attention. (NT) COT 2 NTTS : 1000402 \* 1004 AUTHOR: Sargent, F.O. APPIL : University of Vermont, Department of Agricultural and Resource Econo-mics, Burlington, VT TITLE : Land Use Patterns, Eutrophication, and Pollution in Selected Lakes SOURCE: NTIS Report Number PB-263 501/957, 50 pages COST : EC \$4.50/HF \$3.00 TEAR : 1976 TEAR : The principal contributions of this project were development of: (1) a lake vulnerability classification system, (2) a lake basin land use in-tensity index, and (3) a survey of literature concerning techniques of lake management and rehabilitation. The lake vulnerability index is de-signed to indicate the extent of the lake's vulnerability to accelerated cultural eutrophication. The lake basin land use intensity index is de-signed to indicate the relative level of lakeshore and upland use and abuse with reference to water quality. (NT) CON : NTIS ACC# : L000403 \* AUTHOR: Scalf, M.R.; Dunlap, W.J.; Kreissl, J.F. AFFIL : Robert S. Kerr Environmental Research Laboratory, Ada, OK

TITLE : Environmental Effects of Septic Tank Systems

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SOURCE: HTIS Report Number PB-272 702/257 (BPA 60013-77/096), 43 pages
COST : BC $4.50/HF $3.00
YEAR
        : 1977
TEXT : Although the percentage of newly constructed homes utilizing septic
tanks is decreasing, the total number continues to increase. Prope:
                                                                                                   Properly
           designed, constructed, and operated septic tank systems have deson-
           strated an efficient and economical alternative to public sever systems,
practicularly in rural and sparsely developed suburban areas. However,
            because of their widespreed use in unsuitable situations, they have also
            desonstrated the potential for contamination of ground and surface
            waters. (MT)
0
        : 1775
ACC# : L000404 *
AUTHOR: Segall, B.A.
APPIL : Risenhover Consortium for Western Environmental Forestry Research, Port
Collins, CO
TITLE : The Impact of Vacation Homes on National Forest Water Resources
SOURCE: MIIS Report Mumber PB-253 732/25T (Bisenhower Consortium Bull-3), 23
            pages
        1 HC $4.00/HP $3.00
COST
IEAR : 1976
       : The investigation showed that sevage flow rates are dependent on home
TRTT
            occupancy and fluctuate widely in comparison with suburban and urban
areas. This sporadic waste discharge is deleterious to package plant
           type treatment systems. Dispersed, well designed and maintained soil
disposal systems are preferred in a forest environment. Conventional
severage systems and treatment plants concentrate wastewater flows, par-
            tially treat waste materials, and are less desirable. (NT)
COT
         2 WTIS
ACC# : L000405 *
 AUTHOR: Sharpe, W.B.; Fletcher, P.W.
AFFIL : Pennsylvania State University, Institute for Research on Land and Water
            Resources, University Park, PA
TITLE : Proceedings of Conference on Water Conservation and Sevage Plow Reduc-
            tion with Water-Saving Devices, Held at Pennsylvania State University on
April 8, 9, 10, 1975
SOURCE: HTIS Report Number PB-250 999.087, 212 pages
COST : NC $9.25/HF $3.00
        : 1975
 TRYE
 TIXT
         ; These proceedings are a current state-of-the-art assessment of water-
            saving device technology in the United States. The papers address them-
selves to the major questions associated with vater-saving device devel-
            opment and use. The gaps in current knowledge are enumerated and the
            information necessary to fill the gaps is identified. The information
contained in these proceedings will be of benefit to a broad spectrum of
concerned individuals from the researchers to the facilities manager.
             (TT)
 CON
          1 NTIS
 ACC# : 1000406 *
 AUTHOR: Small, H.; Wurs, C.
APFIL : Brockhaven National Laboratory, Upton, New York
TITLE : Data Report: Headow/Harsh/Pond System
 SOURCE: WTIS Report Number BNL-50675, 33 pages
 COST : HC $4.50/HF $3.00
 YBAR : 1977
 TEXT : The Headow/Harsh/Pond is one of two natural sewage-treatment systems
            constructed at Brookhaven Mational Laboratory. This and a Marsh/Pond
system have been in various modes of continuous operation since 1973 and
            will continue in the future. Both systems remove nutrients and contan-
imants from sevage without the use of conventional hardware or the gen-
eration of sludge for separate disposal. They are economical to build
and operate. They are attractive systems, free of disease vectors,
serosols and objectional odors. Then sufficient land is available, the
             Headow/Harsh/Pond appears superior for renovating blends of septage and
             yeak sevage to ground-water recharge quality. (NT)
 COT
          1 NTIS
 ACC# : 1000407 *
 AUTHOR: Smith, D.B.; Scott, D.H.
 AFFIL : Pala Beach County Area Planning Board, West Pala Beach, PL
TITLE : Comprehensive Severage Plan. Part 1. Data Summary: Public Severage
             Systems
 SOURCE: WIIS Report Number PB-184 677, 57 pages
COST : NC $5.25/HF $3.00
          : 1968
 TRAP
         : Expenditure of nearly $3,000,000 annually ranks Pala Beach County fifth
 # # # #
             out of 67 Plorida counties in total construction of public severage
facilities. Public severage facilities include 115 separate systems in
             Pala Beach County, 34 of which are considered expandable. Sep c tank
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or other private systems serve nearly 20 percent of the county popula-tion. Approximately 10.5 million gallons of severage system effluent discharge each day into the county's fresh water resources. Clusters of small, privately-owned severage systems and septic tank areas indicate the need for additional public sever construction. Hunicipal and private utility companies operate the public severage systems. The Florida Public Service Conmission and/or the Palm Beach County Board of County Commissioners grant and control franchises of the 25 private severage utility companies in the county. (NT) 01 2 MTIS ACC# : L000408 # AUTHOR: Smith, J.H. AFFIL : Environmental Protection Agency, Washington, D.C. TITLE : Wastewater Disposal System SOURCE: MIIS Report Number PB-226 625/3ST (Patent Application Number PAT-APPL-685 569), 16 pages COST : NC \$4.00/NF \$3.00 : 1976 TEAR TEXT : This patent application pertains to a septic tank system located in non-percolating soil or in highly sloped terrain. A method of, and system for, disposing of septic tank effluent (wastewater) by evaporation into the atmosphere are disclosed. Wastewater from the septic tank is temporarily stored in an equalization tank below ground level, and then pumped to an evaporation trough mounted above the septic tank at the surface of the ground. A plurality of vertical discs are mounted in the trough on a common axis parallel to the surface of the vastevater. The discs are partially innersed in the wastewater; and upper portion of the discs is exposed to the atmosphere. The discs are rotated at a speed of rotation sufficient to establish a film of wastewater on the surface of the exposed upper portion of the discs for continuous evaporation of wastewater into the atmosphere. (NT) CON : NTIS ACC# : L000409 \* AUTHOR: Smith, K.E.; Springer, L.H.; Stephens, J.D. AFFIL : Virginia Polytechnic Institute and State University, Water Resources Research Center, Blacksburg, VA TIFLE : Interest Group Perceptions of Development Issues in Tidewater, Virginia SOURCE: HTIS Report Number PB-265 662/757 (VPI-VWBRC-Bull-101), 103 pages COST : NC \$6.50/HF \$3.00 TIAR 1 1977 TEXT : Bural areas of coastal Virginia face increased exurban development as the appeal of 'country' living, lower taxes, and better accessibility lead to rapid growth beyond the urban fringe. This study examined the potential social and environmental consequence of this study examined the potential social and environmental consequence of this trend in Hiddle-mer County, Virgiaia. Since many portions of this county have high water tables and inefficient soils for wastewater treatment using con-ventional septic tank systems, future growth will create water polltuion problems affecting not only the shellfishing industry but also human health. (NT) COT : 1118 ACC# : L000410 + AUTHOR: Snoevink, V.L.; Markus, P.I.; Shin, B.S.; Love, C.W. AFFIL : University of Illinois, Urbana, IL TITLE : USAF Hobility Program Wastewater Treatment System SOGRCE: MILS Report Number AD-747 025, 220 pages COST : NC \$9.25/NF \$3.00 THE : 1972 THE : 1972 THE U.S. MIT FORCE Bare Base Mobility Program involves a highly mobile force of 1,000 to 6,000 mem who can be moved any place in the world on a very short motice. The support systems for this force include a vestewater treatment system which can treat wastewaters to the required the support of the support systems for this force include a vestewater treatment system which can treat wastewaters to the required degree prior to discharge to the environment. The wastewaters which are generated at a bare base include photographic, aircraft and vehicle washrack, human, shower and lawatory, hospital, dising room, kitchen and laundry wastewaters. A waste treatment system which involves (1) separate collection and incineration of human waste, and (2) treatment of all vastewaters except concentrated photographic wastes in a system which includes chemical clarification, flotation, filtration, activated carbon adsorption and chlorination is recommended. The sludge, concentrated photographic waste and the skinnings from the aircraft and vehicle washrack wastes are incinerated, and the ash from the incinerator is disposed of on land. (NT) COI : TTIS ACC# : 1000411 # / MTSOR: Sponagle, C.B.

AFFIL : Environmental Protection Agency, Office of Water Program Operations, Cincinnati, OE

TITLE : Selection and Operation of Small Wastewater Treatment Pacilities-Training Manual SOURCE: NTIS Report Number PB-224 266/7 (BPA-430/1-73-005), 117 pages COST : NC \$6.50/HF \$3.00 YEAR : 1973 TEXT : The training manual consists of a series of outlines used as a base of instruction. Subjects covered include characteristics of the water envrionment: pollution from sumicipal and industrial sources; methods of sastewater treatment; consideration of specific types of small treat-ment plants, including septic tanks, package plants, and lagoons; and control tests, sampling, and inspections associated with maintaining effective treatment plant operation. (NT) CON : NTIS ACC# : 1000412 # AUTHOR: Springborn Labs., Inc., Enfield, Connecticut AFFIL : Springborn Labs., Inc., Enfield, CT TITLE : Wash Water Waste Pretroatment System SOURCE: MIIS Report Musber M77-34048/75T (MASA-CE-151513), 66 pages COST : HC \$5.25/HF \$3.00 TERT : 1977 TERT : Investigations were completed on wash waters based on each candidate personal cleansing agent. Evaluations of coagulants, antifoan agents, and the effect of promising antifoans on the chemical precipitation were included. Based on these evaluations two candidate soaps, as well as their companion antifoan agents, were selected for further work. Open ating parameters included the effect of soap concentration, ferric 0007chloride concentration, duration of mixing, and pore size of depth fil-ters on the degree of scap removal. The effect of pressure on water flow through filter cartridges and on the rate of decline of water flow was also investigated. Gives recommendation of a pretreatment concept based on chemical precipitaton followed by pressure filtration. (FF) I NTIS CON ACC# : L000413 \* AUTHOR: Stewart, J.H. AFFIL : North Carolina Water Resources Research Institute, Raleigh, MC TITLE : Proceedings of Worth Carolina Conference on Water Conservation, Meld at Royal Villa, Raleigh, N.C., on September 3-4, 1975 SOURCE: NTIS Report Number PB-268 900/85T, 138 pages COST : HC \$7.25/HF \$3.00 YEAR : 1975 TEXT : This conference explored ways of making better use of existing water supplies and reducing the cost of wastewater management through conservation and more efficient practices. Thirteen presentations are in-cluded on residential, food processing, pulp and paper, and textile vater conservation. Papers also were presented on water saving devices and conservation in suburban Maryland and in Pennsylvania. Innovative approaches to rate-making and rate structures were topics for three presentations. (WT) : WTIS COL 1001 : L000414 \* AUTHOR: Stone, R. TITLE : Disposal of Sewage Sludge Into a Samitary Landfill SOURCE: WTIS Report Number PB-258 680/88T, 462 pages COST : HC \$14.50/HF \$3.00 YEAR : 1974 AFFIL : Oceanside, CA THAT : The report describes the results of a three-year desonstration study of the disposal of liquid sevage sludge and septic tank pumpings into molid waste at a sanitary landfill. Bench-mode inheratory studies were con-ducted to determine the soleture-threading empirity of typical folit waste constituents and to establish disputarizing of efficience with various sludges. The composition and quantity of solid vante produced in the City of Oceanside were determined by quarterly wante samplings and waste collection vehicle weighings. Pilot plant lysimeters were employed to investigate the effects of sewage and septic tank sludges on solid vaste temperature, decomposition, leachate, settlement, insects, odor and gas characteristics. (NT) 1 BTIS COL ACC4 : L000415 \* AUTHOR: Sykes, R.H. AFFIL : Ohio State University, Engineering Experiment Station, Columbus TITLE : Blodegradation of Disposable Disper Components in Septic Tanks SOURCE: MTIS Report Number PB-247 815/457, 30 pages COST 1 HC \$4.50/HF \$3.00 YEAR 1 1974 THIT : The biodegradablity of the cellulose fiber wadding and resin headed, non-woven rayon fabric in 'Paspers' disposable diapers was inversigated using laboratory scale septic tanks. It was shown that the cellulose

fibers were nearly completely decomposed in the tanks with only a very small increase in the rate of sludge accumulation. The rayon fabric, however, decomposed very slowly, requiring about four months for complete degradation. (NT) CON : 1775 ACC# : L000416 # AUTHOR: Sylvester, R.O.; Seabloom, R.W. AFFIL : University of Washington, Department of Civil Engineering, Seattle TITLE : Rest Area Wastewater Disposal SOURCE: HTIS Report Number PB-208 522, 82 pages COST : HC \$6.00/HF \$3.00 YEAR : 1972 TEXT : Research was concerned with developing alternative methods of wastewater disposal in Highway Department safety rest areas. Existing and planned rest area installations were studied to establish critical operating parameters and relative effectiveness of existing waste disposal systems. State-of-the-art systems and various additives were examined and tested to determine if system efficiency can be increased. Reconmendations were made as to disposal systems which are suited to the conditions existing in rest areas including the desirable and undesirable features of each system considered. (NT) COL 1 TTIS ACC# : 1000417 \* AUTHOR: Tague, D.F.; Lauff, G.H. AFFIL : Michigan State University W. Kellogg Biological Station, Mickory Corners TITLE : Gull Lake: Past, Present, Future SOURCE: HTIS Report Number PB-237 530/1SL, 30 pages COST : NC \$4.50/HP \$3.00 YEAR : 1973 TEXT : A brochure outlines the cultural causes of eutrophication of one of Hichigan's large lakes and the alternative to corrective management of the lake and surrounding areas. Gull Lake in southwestern Michigan has been suffering from accelerating deterioration of water quality since at least 1965. The principal cause of this degradation is phosphorus enrichment originating from septic systems and excessive lawn fertilization. Hanagement practices proposed are replacing septic tank systems with a sewage system and reduction in fertilization of lawns. (WT) CON : NTIS : 1000418 + 1001 AUTHOR: Tilstre, J.R.; Halueg, R.W.; Powers, C.F. AFFIL : Pacific Northwest Environmental Research Lab., Corvallis, OR TITLE : A Study on Disposal of Campground Wastes Adjacent to Waldo Lake, Oregon SOURCE: WIIS Report Number PB-253 331/357 (Pacific Northwest's Report Number) (Working Paper-7-Oreg), 27 pages 1 HC \$4.50/HF \$3.00 COST **TEAR** 1 1973 t The study site was a new campground septic tank treatment and disposal TRIP system at Islet Campground, adjacent to Haldo Lake, Oakridge Hanger District, Willamette Mational Forest, Oregon. The primary objectives were to introduce expedient methods for characterising the groundwater flow regime in areas either considered for or actively used for disposal of septic tank effluents by soil absorption, and to determine the effec-tiveness of a rocky volcamic soil upon the breakdown and retention of phosphorus and mitrogen from a septic tank effluent. (NT) : ITIS COL ACC 4 : 1000419 \* AUTHOR: Tilsworth, T. AFFIL : University of Alaska, Institute of Writer Resources, College, AK TITLE : The Characteristics and Ultimate Didposal of Waste Septic Tank Sludge SOURCE: HTIS Report Number PB-241 488/637 (University of Alaska Report Number INE-56), 36 pages COST : HC \$4.50/HF \$3.00 YEAR : 1974 TRIT : Individual household treatment of domestic sevage has been accomplished, in part, by the use of septic tanks. These treatment units are still being videly used in urban and rural areas where severs and sevage treatment facilities are momenistent. Periodic removal of vaste septic tank sludge can result in environmental damage unless adequate provision has been made for processing this sludge for ultimate disposal. Septage samples were obtained from the Fairbanks, Alaska, locale and were characterized as to BOD, COD, solids and others. Several experi-ments were performed on the septic sludge including aeration and digestion studies. Hethods of treatment and ultimate disposal were discussed as well as cost analyses. (NT)

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ACC# : 1000420 \* AUTHOR: Tucker, L.S. AFFIL : American Society of Civil Engineers, New York TITLE : Pressure Tubing Field Investigation SOURCE: NTIS Report Number PB-186 011 (ASCE Report Number TH-5), 34 pages COST : HC \$4.50/HF \$3.00 TEAR : 1967 TEAR : 1967 TEAT : The work reported in this technical memorandum is pursuant to Contract Sumber 14-12-29 between ASCE and the Federal Water Pollution Control Administration, U.S. Department of the Interior. Task 7 of that contract relates to special field-trial installations of tubing and con-duits for the purpose of determining the nature and extent of practical difficulties that might be encountered in passing various tubing through a building sever, in suspending or otherwise attaching a pres-sure conduit in the street sever and in making tubing-to-conduit con-This technical memorandum covers that portion of Task 7 connections. cerning tubing field-trial installations. (NT) CON : WTIS ACC# : 1000421 \* AUTHOR: Valley Regional Planning Agency, Ansonia, CT AUTHOR: Valley Regional Planning Agency, Amsonia, CT TITLE : Proposed Hunicipal Plans and Programs for Pollution Control. Volume II SOURCE: MTIS Report No. PB-185 139, 68 pages COST : BC \$5.25/HP \$3.00 YEAR : 1968 The report presents the severage plans and programs prepared by con-sultants to the four Valley Region municipalities in compliance with orders issued to the municipalities by the Connecticut Mater Resources Commission. Presented on a region-wide basis are the service areas, TETT system components, and construction and operating costs resulting from the individual sunicipal plans and programs. The proposed plans include municipal collection and treatment of domestic and connercial wastes from urbanized areas; private subsurface treatment and disposal in rural areas; collection and treatment by the municipalities of all manitary and some process wastes from industries. (NT) CON : NTIS ACC# : 1000422 AUTHOR: Vlabakis, J.G. AFFIL : Army Hobility Equipment Research & Development Center, Fort Belvoir, VA TITLE : Studies on HUST (Hedical Unit, Self-Contained Transportable) Field Hospital Wastewater Treatment SOURCE: MIIS Report No. AD-A008 963/157, 61 pages COST : EC \$5.25/HF \$3.00 YEAR : 1974 TEAM : The report investigates the applicability of using polyelectrolyte-aided-carbon cosgulation as a pretreatment in combination with a high-recovery reverse osnosis (RO) system to treat a synthetically prepared medical unit, self-contained, transportable (HUST) hospital wastewater with variable characteristics. The five-source hospital waste contained I-ray, operating room, laboratory, shower, and kitchen waters. A 10,000-gpd pilot plant was tested on a 200-hour basis, 100 consecutive hours per run. The system involved polyelectrolyte-aided-carbon coagulation, upflow clarification, diatomaceous earth filtration, and demineraliza-tion by spiral-wound RO. The MUST wastewater was adequately treated by this process. (NT) : WTIS CON : L000423 \* ACC + AUTHOR: Waller, D.H. AFFIL : American Society of Civil Engineers, New York TITLE : Experience with Grinding and Pumping of Sewage from Buildings SOURCE: WTIS Report No. PB-185 997 (ASCE Report No. TH-3), 97 pages COST : NC \$6.00/HF \$3.00 : 1967 YEAR TEXT : The combined sever separation concept envisions the installation, in each building complex that is served by an existing combined severage system, of equipment that will grind building sevage and discharge it under pressure to a pressure sanitary severage system. The elements of the system that serves a building will therefore comprise a means of grinding raw building sevage, a method of pumping ground sevage, a method of preventing backflow, and discharge tubing or pipe connected to the pressure severage system. (NT) CON 1 MTIS : L000424 + 1001 AUTHOR: Waller, D.H. AFFIL : American Society of Civil Engineers, New York TITLE : Experience with Grinding and Pumping of Sewage from Buildings (Concluded) SOURCE: HTIS Report No. PB-185 998 (ASCE Report No. TH-3A), 51 pages

COST :	HC \$5.25/HF \$3.00
TEXT :	The general concept on which the ASCE Combined Sever Separation Project is based involves the discharge of comminuted or ground sewage from buildings and/or building complexes, via relatively small pressure tubing, into new pressure sanitary severs. The new pressure sanitary severs would discharge into existing interceptors that would convey the sanitary sewage to treatment works; storm water would be conveyed in what were formerly combined severs. The objectives of the project are to determine the physical feasibility and limitations of the scheme and to arrive at measures of cost for comparison with the traditional sethed of separation. (NT)
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ACC# : AUTHOR: APFIL : TITLE : SOUBCE: COST :	L000425 * Waller, D.H. American Society of Civil Engineers, New York Won-Hechanical Considerations Involved in Implementing Pressurized Severage Systems HIIS Report No. PB-186 008 (ASCE Report No. TH-12), 30 pages HC \$4.50/HP \$3.00
COL :	The general concept involves the discharge of comminuted or ground sewage from buldings and/or building complexes, via relatively small pressure tubing, into new pressure sanitary sewers. The new pressure sanitary sewers would discharge into eristing interceiptors that would convey the snaitary sewage to treatment works; storm water would be conveyed in what were formerly combined sewers. The basic objectives of the study were to determine the physical feasibility and limitations of the system and to arrive at measures of cost for comparison with the traditional method of separation for evaluation of investment feasibili- ty. (NT)
ACCV : AUTHOR: APFIL : TITLE : SOURCE: COST :	LOUDW26 * Waller, D.H. American Society of Civil Engineers, New York Am Examination of the Benefits and Disadvantages with Respect to the Disposal of Solid Wastes WTIS Report No. PB-186 006 (ASCE Report No. TH-10), 55 pages HC \$5.25/MF \$3.00
TBAR : TBIT :	1968 The ASCE Project concept envisions the installation of new systems of pressure manitary mevers as a method of diverting manitary mevage from existing combined severs. The possibility of obtaining synergistic benefits by adapting the project scheme to the disposal of solid wastes was recognized early in the project program. The purpose of this memorandum is to examine considerations that are important to an evalua- tion of the feasibility and benefits of adapting the project scheme to solid wastes disposal. Nost of these considerations apply to any system of sanitary severs. Considerations common both open channel and pressure manitary severs are discussed first, followed by an examination of considerations peculiar to adaptation of the project scheme to the disposal of sclid wastes. Buch of the discussion herein is speculative - a review of possibilities that depend on the results of needed research and on the development of suitable devices and processes for handling solid wastes in sewage disposal systems. (WT)
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ACC: : AUTHOB: APPIL : TITLE : SOURCE: COST : IBAR : TEXT :	L000427 * Waller, R.; Hallory, C.W. Hittman Associates, Inc., Columbia, HD System Study, Vacuum Sevage Collection HTIS Report No. AD-744 339 (HIT-510), 114 pages HC \$6.50/HF \$3.00 1971 An effectiveness/cost comparison was made between gravity sever systems
	and vacuum sever systems for use in Mavy advanced bases. The vacuum systems considered were single pipe system where vacuum toilets are Connected directly to a vacuum sever while the remaining wastes drain by gravity to a building vacuum valve which interconnects to the vacuum sever; dual pipe system in which the wastes from vacuum toilets are conveyed in a separate vacuum sever from the other wastes; and combined system where conventional firtures are used and all wastes drain to a building vacuum valve and then are transported in a vacuum sever. Designs and layouts were prepared for both gravity and vacuum sever systems for the same base configurations and other design conditions.
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ACC# : 1000428 \* AUTHOR: Waltz, J.P. AFFIL : Colorado State University, Department of Barth Resources, Fort Collins, CO TITLE : A System for Geologic Evaluation of Pollution Potential at Hountain Dwelling Sites SOURCE: NTIS Report No. PB-240 810/25T, 63 pages COST : HC \$5.25/HF \$3.00 YEAR : 1975 TEXT : Development of mountain homesites is accelerating in the Rocky Hountains of central Colorado. These homesites often require individual water well and sevage disposal systems. Unfortunately, the widely used septic tark-leach field systems generally is not suited for use in the nountainous terrain where soils are thin or missing. Although current federal regulations call for six feet or more of soil at the leach field site, many of the individual sevage disponal systems now in operation in the Rocky Hountain Region of Colorado fail to meet this requirement. Sevage offluent at these sites may directly enter bedrock fractures and travel large distances without being purified. As a consequence, contamination of streams, lakes, and groundwater from these malfunctioning leach fields has become a problem of increasing magnitude. Investigations of geologic, topographic, and hydrologic condi-tions at over 100 homesites in the Rocky Hountains of morth central Colorado have resulted in the development of objective criteria for evaluating pollution potential at mountain homesites. (NT) CON : WTIS ACC# : 1000429 \* AUTHOR: Wang, L.K. AFFIL : Calspan Corp., Environmental Systems Department, Buffalo, WY TITLE : Investigation of Hethods for Determining Optimum Powdered Carbon and Polyelectrolyte Dosages in Hilitary Wastewater Treatment Systems SOURCE: NTIS Report No. AD-773 633/3 (CALSPAN-ND-296-H-5), 126 pages COST : HC \$10.50/HF \$3.00 : 1973 YEAR TEXT : Physical and chencal characteristics of wastewaters generated by typical field laundries, showers, and kitchens were compiled. Previous in-vestigations of the use of carbon and polymers in the treatment of vastewaters with characteristics similar to those generated at military bases were surveyed and assessed. Laboratory investigations were conducted to optimize the controlling parameters of a wastewater treatment system involving powdered carbon adsorption, polymer coagulation and diatomite filtration. The mechanisms of the treatment system were also researched and presented. Analytical studies were conducted to develop the methods and a field test kit necessary for determining the nature and concentration of pollutants likely to be present in wastewate generated at field laundries, showers, and kitchens. (WT) CON : WTIS ACC# : L000430 \* AUTHOR: Ward, J.C. AFFIL : Colorado State University, Environmental Resources Center, Fort Collins, CO TITLE : Evaporation of Wastewater from Hountain Cabins SOURCE: WTIS Report No. PB-266 712/9ST, 143 pages COST : HC \$7.25/HF \$3.00 YEAR : 1977 TEXT : Presented are the results of a study of wastewater evaporation and a comparison of this technique with other alternatives for the disposal of wastewater from second homes located in mountainous areas. The wastewater evaporation unit is covered with a transparent (to solar radiation) precipitation interceptor that also serves to reduce long vave radiation heat losses. Several experimental and one full-scale wastewater evaporator were installed at fear elevations ranging from 5,200 to 10,665 feet. These units were observed for a period of three years. Following this observational period, the experimental data were analyzed to obtain design and cost data as a function of elevation, latitude, and longitude. Analysis of the experimental data showed that wastewater evaporation is a technical and economically viable alternative for elevations up to about 11,000 or 12,000 feet in Colorado. (NT) CON : WTIS ACC# : L000431 \* AUTHOR: Watson, W.B. AFFIL : National Research Council of Canada, Div. of Bldg. Research, Ottawa, Canada TITLE : Opening Unserviced Lots to Building by Use of Septic Tank SUTRCE: WTIS Report No. AD-675 354 (National Research Council's Report No. HW-27), 6 pages COST : HC \$4.00/HF \$3.00

YEAR : 1966

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TEXT : The value, construction, maintenance, and operation of septic tanks in isolated areas are discussed, along with problems and hazards. (NT) COF : ITIS ACC# : L000432 # AUTHOR: Weibel, S.R. APPIL : Robert A. Taft Sanitary Engineering Center, Cincinnati, OH TITLE : Septic Tanks: Studies and Performance SOURCE: NTIS Report No. PB-217 632, 15 pages COST : NC \$4.00/HF \$3.00 TRAR : 1954 : The studies discussed were aimed primarily at unsewered urban fringe TEXT areas. Progress in transportation and electrification which has enabled aodern living in fringe areas has brought modern living to the farm. The Common system is a septic tank followed by subsurface application to the soil by either shallow trenches or deeper pits. (NT) COT : WTIS ACCA : L000433 \* AUTHOR: Wenk, V.D. AFFIL : Mitre Corporation, HcLean, VA TITLE : & Technology Assessment Hethodology. Volume IV. Water Pollution: Domestic Westes SOURCE: WIS Report No. FB-202 778-6 (Mitre Corporation's Report No. HTR-6009-6) 331 pages : NC \$12.00 COST TEAP : 1971 THIT : A general technology assessment methodology is used to determine the ispacts of videspread use of individual home sevage treatment technology during the 1970-1989 time period. The effects of varying rates of diffusion of this technology are analyzed in terms of selected measures of economic and environmental impact. Social and institutional impacts are discussed. Various action options available to identified interest groups are analyzed in terms of their effect upon technology diffusion rates and specific impact areas. The normative nature of this technology assessment called for the use of a dynamic interactive model of the technology diffusion process. (NT) CON : NTIS ACC# : 1000434 + AUTHOR: Winneberger, J.H.T.; HcGauhey, P.H.; Orlob, G.T. AFFIL : University of California, Sanitary Engineering Research Lab, Berkeley, C1 TITLE : A Study of the Biological Aspects of Failure of Septic Tank Percolation Systems STORCE: HTIS Report No. PB-180 500, 85 pages COST : HC \$6.00/HF \$3.00 TEAR : 1958 TEXT : Results of extensive research in the recharge of groundwaters with sevage, and on the underground travel of pollution, made by the Sanitary Engineering Research Laboratory of the University of California, suggest that biological phenomena are the cause of failure of percolation fields involving soils which would, by the ordinary percolation tests, be judged to be well suited to receive septic tank effluents. The principal purpose of the investigation, therefore, is to determine the effect of organic loading on percolation fields, particularly seepage pits, and the manner in which it may place on the soil limitations not discernable by the methods commonly used in judging soil suitability. Specific objectives of the investigation include: determination of the factors which govern the clogging of permeable soils of various characteristics under intermittent dowing with septic tank effluents; observation of the effects of oxygen depletion in soil on the growth of soil slimes, relating of organic loading and soil characteristics to the rate of soil clogging, exploration of procedures for maintaining or restoring in-filtrative capacity of soils; determination of the conditions under which irretrievable clogging of soil occurs. (NT) COT 1 BTIS 1004 : 1000435 \* AUTHOR: Minneberger, J.H.T.; HoGaubey, P.H. AFFIL : University of California, Sanitary Engineering Research Lab, Berkeley, Ċì TITLE : A Study of Hethods of Preventing Failure of Septic-Tank Percolation Piel4s SOURCE: HTIS Report No. PB-180 499 (University of California Report No. SERL-65-16), 58 pages COST : NC \$5.25/NP \$3.00 TELL : 1965 THIT : The overall purpose of the investigation was to discover the basic causes of failure of septic-tank percolation, or leachng, systems and

to provide information necessary to formulate design criteria and operational measures which might preclude such failure or forestall it for a considerable period of years. (NT) . ..... CON ACC# : 1000436 \* AUTHOR: Winneberger, J.H.T.; Lee, F.; Klein, S.A.; HcGauhey, P.H. APFIL : University of California, Sanitary Engineering Research Lab, Berkeley, TITLE : Biological Aspects of Failure of Septic-Tank Percolation Systems SOURCE: NTIS Report No. PB-180 501, 133 pages COST : HC \$7.25/NF \$3.00 YRAR : 1960 TEXT : The investigation was designed to determine the effects of organic and hydraulic loadings on percolation systems and to discover the phenomena which may place on the soil limitations not discernible by the methods consonly used in designing a percolation system. Specific objectives of the investigation included: determination of the factors which govern the clogging of permeable soils of various characteristics under intermittent dosing with septic tank effluents; observation of the effects of aerobic and anaerobic conditions in the soil on the growth of slimes; relating organic loading and soil characteristics to the rate of soil clogging; exploration of procedures for maintaining or restoring in-filtrative capacity of soils; determination of the conditions under which irretrievable clogging of soil occurs. (NT) COM : NTIS ACC# : 1000437 \* AUTHOR: Withee, C.C. APFIL : University of California, Dept. of Civil & Environmental Eng., Boulder, CO TITLE : Segregation and Beclamation of Household Wastewater at an Individual Residence SOURCE: MIIS Report No. PB-268 810/957, 309 pages COST : HC \$11.75/HF \$3.00 : 1975 722 R : Disposal of wastewater from isolated homes in mountainous and rural TRIT locations in Colorado presents usigns and difficult problems. The pur-pose of the study was to evaluate the flow and pollution patterns from individual homes and to evaluate existing and potential treatment methods. Field evaluation of home wastawater flow and pollational characteristics was accomplished. Data for individual fixtures and appliances were obtained with measurement of many pollutional para-meters. A brief evaluation of the home treatment methods was accomplished. Laboratory bench scale studies were made to evaluate methods for treatment of the scap-related wastes in the home for reuse as toilet flushing water. (NT) CON · HTTS 1CC# : L000438 \* AUTHOR: Wright, H.D.; York, S.B., III; Bill, R.H.; McKnight, J.S. APPIL : Research Triangle Inst., Applied Ecology Dept., Research Triangle Park, **IC** TITLE : Study of Crisis Utilization of Lage Shelter Space SOURCE: WIIS Report No. AD-A046 061/8ST, 130 pages COST : HC \$7.25/HP \$3.00 YEAR : 1977 TEXT : This study consisted of an investigation into the options available for utilizing large, special facilities such as tunnels, government installations, and large industrial buildings for nuclear fallout shelters in CRP host areas. Technical consideration was given to the shelters in CHP host areas. Technical consideration was given to the provision of lightag, ventilation, water and senitary systems for large groups of people. This task was accomplished by first establishing the existing availability of these services and then identifying uppe of augmenting the existing services. An investigation was also take of the possibilities of suitable close-in shelter for her workers. All of the analyses were made using existing data already collected, and erasple problems are included as an appendix. (NT) CON : WTIS ACC# : L000439 \* AUTHOR: Large, D.W. AFFIL : Economic Research Service, Washington, D.C. TITLE : Land Application of Wastewater and State Water Law; An Overview (Volume SOURCE: NTIS Report No. PB-277 120/2ST, 71 pages COST : NC \$5.25/NF \$3.00 YEAR : 1977 TEXT : This research project analyzes the state water rights law in order to determine its possible impact on sytems of land application of vaste-vater. It was determined that most states do not have regulations specifically controlling land application of vastevator, and that

analysis would have to be undertaken of basic state water law principles which, for the most part, have been developed with entirely different uses of water in mind. For the most part, state water rights faw was found to contain enough flexiblity through its emphasis on encouraging "reasonable" uses of water, to enable land application systems to operate free from legal uncertainty. (NT) CON . WTIS ACC# : L000440 \* AUTHOR: Tucker, L.S. APPIL : American Society of Civil Engineers, New York TITLE : Hydraulics of a Pressurized Severage System and Use of Centrifugal Pumps SOURCE: NTIS Report No. PB-186 012 (ASCE Report No. TH-6), 41 pages COST : HC \$4.50/HF \$3.00 TRYS : 1967 : The ASCE Combined Sever Separation Project is supported by Contract TETT Yumber 14-12-29 with the Federal Water Pollution Control Administration. Task 4 of the contract relates to feasibility studies of hypothetical pressure severage systems. This technical memorandum is one of the reference background inputs for the three system studies under Task 4, covering the general hydraulic requirements for both street severs and pumping from larger buildings. (NT) CON \* MTIS ACC# : L000441 \* AUTHOR: Tucker, L.S. AFFIL : American Society of Civil Engineers, New York TITLE : Sewage Flow Variations in Individual Homes SOURCE: NTIS Report No. PB-15 996 (ASCE Report No. TH-2), 78 pages COST : HC \$6.00/HF \$3.00 YEAR : 1967 TEIT : The general concept for separation of combined severage systems involves discharging comminuted or ground sewage from individual buildings and/or building complexes through relatively small pressure tubing laid in existing building connections, and thence into new pressure conduits suspended in existing street severs. The new separate sanitary sevage pressure conduits would then discharge into existing interceptors that would convey the sanitary sewage to treatment works. Storm water alone would be carried in what were formerly combined sewers. The most comparable alternative to meet the same objective is traditional, complete separation by means of new sanitary severs and attendant separate sanitary and drainage building connections. (NT) CON I MTIS ACC# : 1000442 AUTHOR: Sikora, L.J.; Converse, J.C.; Keeney, D.R.; Chen, R.C. AFFIL : University of Wisconsin, Hadison, WI TITLE : Field Evaluation of a Denitrification System SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 202-207 : 1977 TELR The use of a denitrification tank packed wth limestone medium for treating nitrified septic tank effluent was tested. Mitrate removal rates were found to be over 80 percent during 24- and 12-hour retention TEIT times. Methanol was added as an energy source. The system was operated for two years in the laboratory, and the pilot plant evaluations were performed for seven months. Tabulated results of nitrate removal and schematic diagrams of the denitrification system are included. (SWP) : American Society of Agricultural Engineers COL 2950 Wiles Road St. Joseph, HI 49085 : L000443 VCC‡ AUTHOR: Kormank, R.A.; Cravens, J.B. AFFIL : Envirex Inc., a Rexnord Company, Hilwaukee, WI TITLE : Remove Algae through Microscreening SOURCE: Water and Wastes Engineering, 15(11): 72-74 YEAR : 1978 TEIT : The use of a one-micron polyester microscreening unit to remove algae from lagoon effluent proved to be cost effective. The unit removed substantial amounts of BOD associated with suspended solids and algae. It is designed to improve lagoon effluent that does not meet the 30/30 (BOD/SS) limits. The microscreen can structurally withstand up to two feet in headloss and has a backwash system which includes chlorine addition. Chlorination for slime control is possible because the microscreen is polyester and not stainless steel. Performance is not affected by chlorination. A pre-coat of algae entraps Chorella species which are predominant in ponds and which measure less than one micron in size. (SWP)

ACC# : 1000444 AUTHOR: HCGimpsey, W.J. AFFIL : O'Brien & Geer Engineers, Inc., Syracuse, MY TITLE : Are Relaxed Lagoon Standards too Relaxed? SOURCE: Water and Wastes Engineering, 15(8): 44-48 YEAR : 1978 TEXT : Tests show that efficient solids removal systems are available to pro-duce a consistent secondary effluent without sacrificing the simplicity of lagoons. Present lagoon-type wastewater systems have not net the federal secondary treatment standards because of their inability to consistently meet the suspended solids limitation. Algae in the effluent during warm months is the major cause of inconsistency. Pilot and full-scale tests with inclined plate separators and rotary drum microstainers were performed. Both proved to be cost-effective as long as controlled polymer addition, for algal coagulation, was included in the microstraining unit. Removal results are included. (SWP) ACC# : L000445 AUTHOR: Jacobson, A.R. AFFIL : Illinois State University, College of Applied Science & Technology TITLE : Wastewater Lagoon as an Irrigation Source SOURCE: Public Works, 109(9): 140 YEAR : 1978 TEXT : Crop irrigation is supplemented by a city's waste stabilization lagoon in Vandalia, Hissouri (Population 3,200). Only domestic sewage without chemical additives enters the lagoon. Crop production has increased and the city maintains sero outflow. The 18-acre lagoon has minimal operation and maintenance costs. (SWF) ACC# : L000446 AUTHOR: Goluecke, C. APPIL : N/A TITLE : Bural Wastewater Disposal Alternatives SOURCE: Compost Science, 19(3): 28 TEAR : 1978 TEXT : Discusses a report, "Rural Wastewater Disposal Alternatives", directed by the Califorria State Water Resources Control Board. The study was initiated because of California's need to deal with the problem of onsite wastewater treatment. Three basic needs were found: 1) indentify and evaluate new on-site alternatives; 2) improve understanding of behavior and performance of traditional on-site systems; and 3) develop better public management methods to handle the operation of such systems. The key points are that on-site systems are not self-operating at all times; they require regular care, and the effluent quality is dependent on that care. (SWF) : Office of Public Affairs CON State Water Resources Control Board P.O. Box 100 Sacramento, CA 95801 ACC# : 1000447 AUTHOR: Brever, W.C.; Lucas, J.; Prascak, G. APFIL : Wright State University, Dept. of Biological Sciences, Dayton, OH TITLE : An Evaluation of the Performance of Household Aerobic Sewage Treatment Units SOURCE: Journal of Environmental Health, 41(2): 82-84 YEAR : 1978 TEXT : Study involving 54 on-site aerobic wastewater systems in Ohio has evaluated the mechanical and component operation and the relationship of operation to treated effluent quality. On-site inspection determined that 33 percent of the units malfunctioned and exhibited poor effluent quality. Eight parameters were used to characterize the effluent. In all cases the cause of poor quality effluent was equated to inoperative or malfunctioning equipment. Results indicate that properly maintained equipment produces an acceptable effluent and that a performance survey is needed on a regular basis. (SWP) ACC# : 1000448 AUTHOR: Hutzler, M.J.; Waldorf, L.E.; Fancy, J. APPIL : Appalachian Regional Commission, Washington, D.C. TITLE : Peformance of Aerobic Treatment Units SOURCE: Proceedings of the Second National Bone Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 149-163 : 1977 TRAR TEXT : Discusses the performance of single-family aerobic treatment units. Reviews the use of the units for home wastewater disposal, outlines their normal performance and identifies the effluent characteristics. Successful performance of the aerobic unit is dependent upon design, installation, and operation. Proper and periodic maintenance must be

assured for dependable operation. The effluent quality can be variable because of periodic upsets, but it is generally low in solid and organic matter. The cost of aerobic treatment units is tabulated. (SWP) : American Society of Agricultural Engineers CON 2950 Wiles Road St. Joseph, HI 49085 ACC# : 1000449 AUTHOR: N/A APPIL : N/A TITLE : Directory of Composting Systems SOURCE: Compost Science/Land Utilization, 20(1): 22-25 YEAR : 1979 THIT : This is a directory of some of the composting and shredding equipment THIT : This is a directory of some of the composting and shredding equipment systems which are currently available. American and European firms that include this equipment among their products are alphabetically listed. Each listing is accompanied by a short descriptive paragraph and the manufacturer's address. A brief list of composting consultants is included. (SWF) : L000450 1004 AUTHOR: Fay, S.C.; Leonard, R.E. AFFIL : Northeastern Forest Experiment Station, Durham, WH TITLE : Composting Privy Wastes at Recreation Sites SOURCE: Compost Science/Land Utilization, 20(1): 36-39 YEAR : 1979 THIT : An inexpensive system for managing privy vastem at remote shelter sites has been developed by the U.S. Forest Service's Northeastern Forest Experiment Station at Durham, WH. The Bin Composter, a 24 cubic foot fiberglass-coated, solar heated box fitted with aeration tubes was built at a total cost of \$100. Human waste is collected in a leak-proof container placed below a conventional privy seat, and is periodically transferred to the bin where it is combined with hardwood bark. After two weeks of composting, the product can be disposed of on the forest floor. Design criteria, maintenance procedures and conditions necessary for the destruction of human pathogens are described. (SWF) ACC4 : 1000451 AUTHOR: Siegrist, R.L. AFFIL : Small Scale Waste Hanagement Project, University of Wisconsin, Madison, TI TITLE : Waste Segregation to Pacilitate Onsite Wastewater Disposal Alternatives SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 271-281 TEAD : 1977 TEXT : Segregated wastewater characteristics and treatment strategies are described. A year-long laboratory study found that a four cubic meter (1000 gallons) septic tank was more effective than a two cubic meter (500 gallons) tank in reduction of BOD-5 and COD in greywater. Sand filters receiving greywater operated twice as long and removed 140 percent more BOD-5 and 60 percent more suspended solids than filters receiving combined wastewater. (SWF) : American Society of Agricultural Engineers COT 2950 Hiles Boad St. Joseph, HI 49085 ACC# : 1000452 AUTHOR: Brown, R.W.; Slowey, J.F.; Wolf, H.W. APPIL : Texas & 6 H University, College Station, TI TITLE : The Hovement of Salts, Sutrients, Fecal Coliform and Virus Below Septic Leach fields in Three Suils SOURCE: Proceedings of the Second National Home Sewage Treatment Symposium; 1977; ASAE Publication 5-77; pp. 208-217 YEAR : 1977 TEXT : The movement of contaminants through three soils was studied at Texas 1 5 H University. Results from lysimeter tests indicate fecal coliforns were eliminated when passed through 100 cm. of each of the soils. Though viruses moved rapidly through soil, lateral movement was limited and downers movement was limited and downward movement below 120 cm. was rare. Heavy metals accumulated adjacent to the introduction point. Phosphates and ammonia moved most rapidly through sandy soils. Large amounts of mitrates formed in aerobic soils and leached rapidly into the groundwater. The field study lasted two years. The soils tested were Lakeland, Norwood, and Hiller. (SWP) : American Society of Agricultural Engineers CON 2950 Tiles Road St. Joseph, HI 49085 ACC# : 1000453 AUTHOR: N/A APPIL : N/A TITLE : Design Standards for Small Septic Tank Systems SOURCE: West Virginia Department of Health, Charleston, WV

TEXT : Describes the minimum design, construction and installation standards for septic tank-soil absorption systems as established by the West Virginia State Department of Health. Graphs and drawings are included. (SUP) ACC# : 1000454 AUTHOR: Brandes, H. AFFIL : Ontario Binistry of the Environment, Canada TITLE : Characteristics of Effluents from Gray and Black Water Septic Tanks SOURCE: Journal of the Water Pollution Control Federation, 50: 2547-2559 TEAR : 1978 TEXT : The chemical and bacteriological characteristics of septic tank effluents from two separate septic tanks used by one house (which used phosphorus-free detergents) for greywater and black (toilet) wastewater treatment were studied for nine months. The concentrations of total phosphorus and total Kjeldahl mitrogem in the greywater septic tank effluent were 1.4 and 11.3 mg/l respectively, which is ten times lower than in the toilet wastewater septic tank effluent. However, the average concentrations of the total and fecal coliform organisms in effluent from the greywater septic tank were higher than in the effluent from the toilet septic tank. Sludge accumulation rates and characteristics and the effect of soil filters on removal of chemical and bacteriological contaminants from the septic tank effluents were also discussed. (AU) ACC# : 1000455 AUTHOR: Bahe, T.H.; Hagedorn, C.; HcCoy, E.L.; Kling, G.P. AFFIL : Oregon State University, Corvallis, OR TITLE : Transport of Antibiotic-resistant Eshcerichia coli Through Western Oregon Hillslope Soils under Conditions of Saturated Flow SOURCE: Journal of Environmental Quality, 7(4): 487-493 TEAR : 1978 TEXT : Field experiments using strains of antibiotic resistant Escherichia coli were conducted to evaluate the events which would occur when a septic tank drainfield became submerged in a perched water table and fecal bacteria were subsequently released into the groundwater. Three recal bacteria were subsequently released into the groundwater. Three separately distinguishable bacterial strains were innoculated into three horizontal lines installed in the A, B, and C borizons of two westers Oregon hillslope soils. Transport of E. coli differed at both sites with respect to movement rates, zones in the soil profiles through which major translocation occurred, and the relative numbers of cells transported over time. The strains of E. coli survived in large numbers in the soils examined for at least 96 hours and appeared to be satisfactory as tracers of subsurface water flow. The concept of partial displacement (or turbulent flow through macropores) is discussed as an explanation of the rapid movement of substantial numbers of microbial cells through saturated profiles. (AU) ACC# : 1000456 AUTHOR: N/A APPIL : N/A TITLE : Septic Tanks Currently Limited for Federal Clean Water Program SOURCE: Water and Sevage Works, 126(4): 79-80 YEAR : 1979 TEXT : This editorial statement cites reasons for not increasing reliance on septic tanks. Septic tanks are often improperly sited and maintained. The contamination of drinking water supplies has resulted from malfunctioning septic tanks. No enforcement mechanism exists to ensure septic tank maintenance. Centralized sevage facilitis could treat much of the eight million pounds of BOD currently discharged into the ground-water. (SWP) ACC# : 1000457 AUTHOR: Krause, A.B.; Peters, G.O.; Sebian, D.J. AFFIL : SPA Region V, BIS Preparation Section TITLE : Wastewater Facilities Planning and Private Sewage Disposal SOURCE: Proceedings of Fourth Annual Illinois Private Sewage Disposal Symposium; 1979; 18 pages : 1979 YEAR TEXT : U.S. BPA Region V commissioned WAPORA Inc. to conduct an environmental impact statement' (BIS) in each of seven lakefront communities in order to investigate the environmental impact of relying on individual on-site or cluster vastevater systems. At that time, each of the communities was in the planning stage of the construction grant process and shared the following characteristics: involved total or partial severing of rural lakeshores, had a substantial seasonal population, proposed systems were unusually expensive in terms of financial cost and en-

vironmental impact, and had only casually considered the role of private

**YEAR : 1975** 

systems. Preliminary results indicate that alternative systems are significantly less expensive to build and operate. They tend to have less negative human impact and should be used wherever environmentally and technically feasible. (SWP) ACC# : 1000458 AUTHOR: Staats, E.B. AFFIL : U.S. Comptroller General TITLE : Public Management Makes Septic Systems Viable SOURCE: Water and Sewage Works, 126(3): 90-91 TERE : 1979 TEXT : Poor operation and maintenance of septic systems is a prime cause leading to their failure. Though states set regulations on the design and construction of individual systems, the responsibility of operating and maintaining the system is up to the home owner. In addition, local governments have enforcement problems because of inadequately trained sanitarians, lack of resources and political pressure. The author cites several cases where public management of individual systems has been established and provides an explanation of their authority. Public management of individual systems appears to provide a vay to ensure the proper operation and management of on-site systems. (S#F) ACC# : 1000459 AUTHOR: Conkling, P.W. APPIL : M/A TITLE : When the Cadillac Hits the Fan SOURCE: Blair & Ketchum's Country Journal, 6(4): 80-86 TERE : 1979 TERE : 1979 TERT : Conkling describes Glenville, Haine's attempt to develop and then survive the consequences of an unfortunate equipment selection for a centralized primary, secondary and tertiary treatment system for their 1900 residents. A strong case is provided for the need for less complex alternative waste disposal technologies. After seven years and a series of design errors and mechanical breakdowns, Glenville has a sewage treatment waste of 1000 mechanical breakdowns, Glenville has a sewage treatment system for 1000 users at a total cost of \$9 million dollars. The tertiary system never functioned as designed and has been replaced with a land application system. (SWF) ACC# : 1000460 AUTHOR: Tufts, N., Jr. APPIL : M/A TITLE : Alternative Systems at Reasonable Cost SOURCE: Blair & Ketchum's Country Journal, 6(4): 87 YEAR : 1979 TEXT : The legal, economic, technical and administrative dilemmas confronting small communities lacking acceptable wastewater systems are described. Some relief from high-cost, energy dependent sevage treatment plants is being provided by 1978 congressional modifications and amendments to the Federal Water Pollution Control Act. New regulations encourage non-structural, innovative solutions and the employment of alternative technologies. The merits of well designed land treatment systems are described as non-offensive, less expensive and sore reliable and tolerant than conventional centralized systems. (SWF) ACC# : L000461 AUTHOR: Sharpe, W.E. APPIL : Pennsylvania State University, University Park, PA TITLE : Why Consider Water Conservation? SOURCE: American Water Works Association Journal, 70(9): 475-479 **YRAR : 1978** TEXT : Water conservation is being promoted through legislation, regulations, codes, ordinances and appliance standards on the local, state and national level. As a result, water utilities will increasingly have to deal with conservation in the future. Conservation efforts in Gettysburg, Pa., and Springettsbury Township, Pa., demonstrated that water and sewage utilities should coordinate their conservation and pricing policies. Water conservation increases the hydraulic life of sewage treatment plants, limits the need for water and sewage treatment capacity, saves money for the consumer and does not impose as much a threat to utility revenue stability. (SWP) ACC# : L000462 AUTHOR: Bice, I.H.; Shaw, L.G. APPIL : Dallas Water Utility, Dallas, TX TITLE : Water Conservation - A Practical Approach SOURCE: American Water Works Association Journal, 70(9): 480-482 YEAR : 1978 TEXT : Describes an alternative to the Water Resources Council's proposed strategy of public education and performance standards as inducements for water conservation. The Dallas solution uses pricing policy as the basis for their water conservation program. The three essential elements

of an effective water conservation program are 1) knowledge of customer

use, 2) customer understanding of rate structure and 3) customer ability to assess econcaic impact of conservation measures. Dallas added surcharges for residential water service reversing the effect of a declining block structure. Preliminary results indicate they were successful at decreasing the average residential use and peak demands for water. (SWF) ACC# : L000463 AUTHOR: Beck, A.F. AFFIL : Raymond L. Goodson, Jr. Inc., Dallas, TX TITLS : Evapotranspiration Bed Design SOURCE: ASCE Journal of the Environmental Engineering Division, 105(EE2): 411-#15 : 1979 YEAR TEXT : Sizing and design criteria are presented for evapotranspiration beds. Applicable equations are presented and explained. Operating and climato-logical considerations are discussed with respect to evapotranspiration bedg. (SWP) ACC# : L000464 AUTHOR: Bggener, C.L.; Tomlinson, B.G. AFFIL : Anchorage Water and Sever Utilities, Anchorage, AK TITLE : Temporary Wastewater Treatment in Remote Locations SOURCE: Journal of the Water Pollution Control Federation, 50(12): 2643-2656 YEAR : 1978 TEXT : Article deals with treatment of wastewater from construction camps in Alaska. Treatment plants used physical-chemical treatment and were preceded by extended aeration. Flow diagrams, design parameters, chemical dosing data, operational problems and requirements as well as plant modifications are presented and fully discussed. Capital, operation and maintenance costs for the systems were presented with an evaluation of applicability to small wastewater flow. (SWP) ACC# : 1000465 AUTHOR: Otis, R.J.; Converse, J.C.; Carlile, B.L.; Witty, J.E. AFFIL : University of Wisconsin, Hadison, WI TITLE : Effluent Distribution SOURCE: Proceedings of the Second National Home Sevage Treatment Symposium: 1977; ASAE Publication 5-77; pp. 61-85 YEAR : 1977 TEXT : Article reviews various methods of effluent distribution for soil absorption systems including continuous ponding, dosing and resting, and uniform applicaton without ponding. Soil properties are considered, and loading rates for various soil and site conditions are included. Discussion of distribution network design is supported with a number of diagrams and tables. An example illustrates design procedure for a pressure distribution network. (SWP) : American Society of Agricultural Engineers CON 2950 Wiles Road St. Joseph, HI 49085 ACC# : 1000466 AUTHOR: Loich, H.H. APPIL : M/A TITLE : Severless Sanitation: Regional Agency Tests Aerobic Systems SOURCE: Compost Science/Land Utilization, 19(3): 32 YEAR : 1978 TEXT : In Boyd County, Kentucky, the Appalachian Regional Commission has tested four types of aerobic systems for on-site disposal of household waste-Four types of aerodic systems for on-site disposal of household waste-water where septic tanks and outhouses have proved unsatisfactory. Results emphasize the need for a public sanitary district to be re-sponsible for equipment operation and maintenance, since home owners cannot perform these functions properly. Results also indicate the need for reliable on-site aerobic equipment, as this was a major problem identified by the study. High quality effluent was discharged in all cases as long as the equipment was functioning properly. This article is a discussion of L000448. (SWP) ACC# : 1000467 AUTHOR: Gaines, F.R.; Phillips, K.J.; Copper, W. AFFIL : Weston Environmental Consultants-Designers, Westchester, PA TITLE : Design of a Septage Disposal Facility SOURCE: Sevage Works, 125(12): 33 **YEAR : 1979** TEXT : Article discusses the development of an on-lot management program for septage, including collection of wastes (by truck) on a regularly scheduled basis and transportation to a central treatment facility. Four alternative septage treatment schemes were studied: physicalchemical, aerobic, anaerobic/aerobic and line stabilization/sand bed dewatering. A table showing the present worth analysis for each of the four treatments is included. (SWF)

ACC# : 1000468 AUTHOR: N/A AFFIL : California State Water Resources Control Board, Sacramento, CA TITLE : Alternative Wastewater Hanagement Systems SOURCE: Public Works, 110(3): 75-76 TRAE: 1979 TEXT : On-site alternatives were studied by the California Governor's Office of Appropriate Technology in 1976. On-Site Wastewater Hanagement Zones were created in 1978 to inspect home owner's systems and require the home owner to make necessary repairs. User charges could also be levied in order to control overhead. In alternative system was examined as to the cost/benefit of using low-pressure severs versus conventional gravity sever systems. (SWF) : California State Water Resources Control Board Office of Public Affairs CON P.O. Box 100 Sacramento, CA 95801 1004 : L000469 AUTHOR: Otis, R.J.; Plews, G.D.; Patterson, D.S. AFFIL : University of Misconsin, Hadison, WI TITLE : Design of Conventional Soil Absorption Trenches and Beds SOURCE: Proceedings of the Second Bational Bone Sevage Treatment Symposium; 1977; ASAE Publicatin 5-77; pp. 86-99 TRAR 1977 TEXT : Article discusses various facets of soil absorption systems. Trench and bed design are discussed in depth. Necessary soil and site character-istics as well as sizing, loading and percolation parameters are listed and developed in detail. Problems associated with system operation and construction are discussed. Recommendations for system improvement are also offered. (SWF) : American Society of Agricultural Engineers COT 2950 Wiles Road St. Joseph, HI 49085 ACC# : 1000470 AUTHOR: Williams, T.C. AFFIL : Williams & Works, Inc. TITLE : Pond and Irrigation Sysems Offer Economy and Flexibility SOURCE: Water and Sewage Works, 122(12): 44-45 TEAR : 1975 TEXT : Experiences in operating pond and irrigation systems are presented. Small but important items that might result in operation and maintenance problems are discussed. The fleribility of irrigation systems are briefly examined. (SWF) ACC4 : L000471 AUTHOR: Micolle, M.P. ATTIL : N/A FITLE : Experiences in Operating Small Package-Type Sewage-Treatment Units SOURCE: Water Pollution Control, Paper No. 7, Part I, 1978, pp. 112-115 YEAR : 1978 TEXT : Operation and maintenance problems that arise in small community wastewater treatment facilities are discussed. The majority of problems are caused by clogging because of a lack of regular and complete cleaning of screens, filters and weirs. (SWP) ACC# : 1000472 ADTHOR: Uhlmann, D. AFFIL : Sektion Wasserwesen, Technische Universitat, DDR 8027 Dresden, GDR TITLE : BOD Removal Bates of Waste Stabilization Ponds as a Function of Loading, Retention Time, Temperature and Hydraulic Flow Pattern SOURCE: Water Besearch, 13(2): 193-200 TEAR : 1979 TEXT : This study evaluates the influence of loading, detention time and tenperature on the first order BOD removal coefficient K-1. Numerical values of K-1 are derived from semi-continuous-flow laboratory units of sewage ponds and introduced into the design formula for a multi-stage continuous flow reactor. There was a good correlation (r=0.92) between the computed BOD removal rates and the empirical results obtained from three large-scale sulti-stage pond systems. (AU) ACC# : 1000473 AUTHOR: Stutz-HcDonald, S.E.; Williamson, K.J. AFFIL : Oregon State University, Corvallis, OR TITLE : Settling Rates of Algae from Wastewater Lagoons SOURCE: ASCE Journal of the Environmental Engineering Division, 105(EE2): 273-282) YBAR : 1979 THIT : Rock filters can be used to remove algal accumulations in aerobic lagoon effluent. Discusses research to determine the significance of

various factors on the gravitational mettling of common algal species. It was found that the settling rates vary between species and are influenced by temperature. (SWF) ACC4 : 1000474 AUTHOR: Taylor, J.H.; Sikora, L.J.; Tester, C.F.; Parr, J.F. APPIL : ARS USDA, Beltsville, HD TITLE : Decomposition of Sewage Sludge Compost in Soil: II. Phosphorus and Sulfur Transformations SOURCE: Journal of Environmental Quality, 7(1): 119-123 YEAR : 1978 TEXT : Undigested, lime-stabilized sewage sludge was mixed with three types of Haryland soil by the Beltsville Aerated Pile Method. The mixture was composted and tested for pheophate and sulfate mineralization. It was found that the composted material had increased water holding capacities along with increased levels of extractable phosphorus and sulfur-bearing compounds. It was postulated that this composted material could be used to correct phosphorus or sulfur-deficient soils. (SWF) : 1000475 ACC # AUTHOR: Qasin, S.R.; Shah, A.K. APPIL : University of Texas, Dept. of Civil Engineering, Arlington, TI TITLE : Cost Analysis of Package Wastewater Treatment Plants SOURCE: Water and Sewage Works, 122(2): 67-69 YEAR : 1975 TEXT : A survey of manufacturers of wastewater treatment plants was conducted to determine the cost of package plants. Process modification, size and capacity variations, and total unit costs for package plants are explained. Charts and sample problems are used to show how to estimate the cost of an individual package plant, based on plant capacity. (SWF) ACC# : 1000476 AUTHOR: Hillard, W.H. AFFIL : Williams 6 Works, Inc. TITLE : Operating Small Water and Sever Systems SOURCE: Water and Sevage Works, 122(2): 60-63 YEAR : 1975 TEXT : Discusses operation and maintenance of wastewater and water systems. Stresses the operational requirements of wastewater systems, such as: keeping repair manuals, plans for the sewage system, keeping records of complaints, development and use of a maintenance checklist, and the importance of making regular reports to the governing body. A sample maintenance checklist for lift stations and a sample operator's report are included. (SWF) ACC# : 1000477 AUTHOR: Saxton, G.B.; Zeneski, J.H. AFFIL : Anderson-Wichols & Co., Inc., Boston, MA TITLE : Prediction of Septic-System Failures SOURCE: ASCE Journal of the Environmental Engineering Division, 105(RE3): 503-509 YEAR : 1979 TEXT : To conduct a cost-effective analysis for on-site wastewater disposal systems, a computer model was developed to predict the number and temporal distribution of single-family residential septic tank failures. The model can predict failures for the next 20 years and can be used as input for value and economic assessments, estimating sanitarian work loads, and predicting water guality. (SWF) ACC# : 1000478 AUTHOR: Wilson, G.E.; Huang, J.Y.C.; Tchobanoglous, G.; Wheeler, G. AFFIL : Euteck, Inc., Process Development and Engineering, Sacramento, CA TITLE : Managed On-Site Disposal in Unsevered Areas SOURCE: ASCE Journal of the Environmental Engineering Division, 105(EE3): 583-596 YEAR : 1979 TEXT : Objective cost-effectiveness evaluations of on-site disposal systems for wastewater management are difficult because of the absence of information on operational reliability and treatment peformance. In addition, limitations are imposed on these systems by site-specific. geological and hydrological conditions. A case study illustrates the procedures for cost-effectiveness evaluation of on-site disposal systems. Based on chemical and bacteriological parameters monitored, properly designed and maintained on-site disposal systems are adequate in meeting the water quality criteria established. Therefore, a well managed on-site disposal system would provide a feasible wastewater management alternative in unsevered areas. (SWF) 100 : L000479 AUTHOR: Irvine, B.L.; Hiller, G.; Bhanrah, A.S. AFFIL : University of Notre Dame, IN TITLE : Sequencing Batch Treatment of Wastewaters in Bural Areas

SOURCE: Journal of the Water Pollution Control Pederation, 51(2): 244-254 YEAR : 1979 TEXT : This paper discusses a low-cost treatment system that does not allow algae growth and satisfies effluent limitations expected in 1983 on BOD-5, suspended solids, amonia, and, if possible, nitrate. The batch system selected was a single tank with a minimum mixed liquor suspended solids concentration of approximately 1,500 mg/l. The bench-scale batch tanks experiments met BOD-5, suspended solids, and annonia limitations over a wide range of temperatures with crude tank sizing and little or no sophistication of operation. Denitrification, however, requires care-ful tank sizing and control of mixing and aeration and appears to depend strongly on the soluble fraction of the BOD-5 in the waste. (SWF) ACC# : 1000480 AUTHOR: Bowles, D.S.; Hiddlebrooks, E.J.; Reynolds, J.H. AFFIL : Utah State University, Logan, UT TITLE : Coliform Decay Rates in Waste Stablization Ponds SOURCE: Journal of the Water Pollution Control Federation, 51(1): 87-99 YEAR : 1979 TEXT : A mathematical model was applied to obtain values for the first-order fecal coliform decay rate in two northeastern Utah wastewater stabilization lagoon systems under summer and winter conditions. Flow within the lagoon systems was represented by a simple plug-flow submodel cali-brated with results from dye studies. Inter-pond flows were estimated with an interactive flow-balance scheme. Effective volumes in the ponds were adjusted until retention times matched those obtained from dye studies. Values for the decay rates obtained by calibration of the model to the lagoon systems are 0.50/d for summer conditions and 0.03/d during the winter period. Curves are presented for use in design and operation of waste stabilization lagoons in locations climatically similar to northeastern Utah, to satisfy given effluent coliform discharge standards without disinfection. (AU) ACC# : L000481 AUTHOR: GOTONSZY, H.C. AFFIL : State Pollution Control Commission, Sydney, Australia TITLE : Intermittent Operation of the Extended Aeration Process for Small Systems SOURCE: Journal of the water Pollution Control Federation, 51(2): 274-287 YEAR : 1979 TEXT : Print : Principles and details of single-vessel treatment of wastes using the intermittently operated extended-aeration variant of the activated sludge process are presented. In this system the spacial arrangement of unit operations and processes of continuous conventional treatment are incorporated into a program or cycle of timed sequences whereby a single vessel is operated alternately as an aeration and as a settlement vessel. Final effluent is discharged by means of a moving weir, with no interruption to the inflow to the vessel. Inlet and outlet arrangements are positioned to prevent bypassing of untreated wastewater. The rate of effluent withdrawal is determined so that settled solids are not entrained. Aeration is by diffused or mechanical means. The system is most suited to the treatment of widely fluctuating loads normally associated with small-scale treatment. Both shallow ring shape and deeper rectangular vessel configurations are described. (AU) ACC# : 1000482 AUTHOR: Flanigan, L.J.; Cadmik, C.A. AFFIL : Battelle Laboratories, Columbus, OH TITLE : Pressure Sever System Design SOURCE: Water and Sevage Works, Reference Mumber, 1979, pp. 8-25-8-34, 8-87 YEAR : 1979 TEXT : Aids for proper selection of parameter values affecting the operation of a pressure sever system and guidelines for pump selection are presented. Suggested design flow tables and pump selection figures are included. (SWF) ACC# : L000483 AUTHOR: Niedringhaus, L. APPIL : Warren & Van Praag, St. Louis, HO TITLE : Home in on Wastewater Treatment SOURCE: Water and Wastes Engineering, 16(6): 32-34 **YBAR : 1979** TEXT : Inexpensive home computers can benefit operators of small wastewater treatment facilities by performing complicated calculations, storing maintenance information, and extending the knowledge of the operator. (SW7) ACC# : L000484 AUTHOR: Landine, R.C.; Viraraghavan, T. APPIL : ADI Limited, Fredricton, New Brunswick, Canada TITLE : Lagoon Aerator - Not Just a Fair Weather Friend SOURCE: Water and Wastes Engineering 16(6): 28-29

YEAR : 1979 TEXT : Lagoon aerator with submersible motor makes aeration possible in cold weather without freezing the mechanism. Tabulated results from the use of the device at six Canadian locations are presented. (SWF) : L000485 ACC # AUTHOR: Repeau, R.B., Jr. AFFIL : Virginia Polytechnic Institute and State University, Blacksburg, VA TITLE : Changes in Concentrations of Selected Chemical Pollutants in Wet, Tiledrained Soil Systems as Influenced by Disposal of Septic Tank Effluents SOURCE: Journal of Environmental Quality 8(2): 189-196 YEAR : 1979 : The relationship between soil properties, distance traveled, and season-al variation and the changes undergone by chemicals after leaving the TRIT septic tank were investigated. Results indicate chemical concentrations were lowered to acceptable levels by the time effluent was intercepted by the tile drains. (SWF) ACC# : 1000486 AUTHOR: Feaches, R. AFFIL : University of Birmingham, Dept. of Civil Engineering TITLE : Appropriate Sanitation SOURCE: New Scientist, January 8, 1976, pp. 68-69 YEAR : 1976 TEXT : with only 28 percent of urban dwellers in developing countries served by waterborne severage, the greatest environmental health problem is the treatment and disposal of excreta and refuse from high-density, low-income communities. Five drawbacks of water borne severage are high cost, high consumption of water, complex construction, condemnation of land required for sever laying and susceptibility to blockage. The World Health Organization does not appear to be sensitive to the real problems of developing countries. Research and development of low-cost alternatives to waterborne severage are desperately needed. (SWP) ACC# : 1000487 AUTHOR: Ayars, J.E.; Brodie, H.L.; Holtan, H.W. AFFIL : University of Maryland, College Park, HD TITLE : A New Concept for Residential Wastewater Disposal SOURCE: 1978 Annual Heeting of North Atlantic Region, American Society of Agricultural Engineers, Paper No. NA78-212, 18 pages YEAR : 1978 TEXT : Investigates the potential for disposal of pretreated wastewater in suburban areas with a subsurface land application system (DOSST). The wastewater is returned to lawns, parks and other grassy areas according to the capacity of each soil type to absorb it. A watershed hydrology model was used to calculate the effects of disposal on runoff and soil moisture status, and on the effects of drainage, evapotranspiration and evaporation on disposal capacity. Four hypothetical soil types and depths of drain tile placement were used. Results indicate the system has potential for light textured soils. Beneficial effects and research needs are identified. (SWP) : American Society of Agricultural Engineers CON P.O. Box 410 St. Joseph, MI 49085 ACC# : 1000488 AUTHOR: Hopkins, G.J.; Meel, J.K. APPIL : Department of Health, Education, and Welfare, Kansas City, HO TITLE : Raw Sewage Lagoons in the Hidwest 207 YEAR : 1956 TEIT : A discussion of lagoons in midwestern states, circa 1956. Basic design, costs, maintenance, operation, performance and application concerning lagoons are included. A listing of raw sewage lagoons in the Hissouri basin is included. (SWF ACC# : L000489 AUTHOR: Bilau-Adams, R.; O'Brien, J. AFFIL : Mational Center for Appropriate Technology, Butte, MT TITLE : Alternative Waste Systems, Bibliography SOURCE: National Center for Appropriate Technology YEAR : 1978 TEXT : An annotated bibliography of 32 books, pamphlets, periodical articles, technical publications and plans concerning alternative waste systems. (SWP) : National Center for Appropriate Technology CON P.O. BOX 3838 Butte, MT 59701 ACC4 : L000490 AUTHOR: N/A AFFIL : Environmental Samitation Information Center
TITLE : Environmental Sanitation Abstracts - Low Cost Options SOURCE: Environmental Sanitation Information Center, Vol. 1., Number 1 YEAR : 1979 TEIT : International bulletin of abstracts covering subjects limited to conventional and non-conventional methods of collection, treatment, reuse, and disposal of domestic wastewater and human wastes. (SWP) : Environmental Sanitation Information Center CON Asian Institute of Technology P.O. Box 2754 Bangkok, Thailand : L000491 1004 AUTHOR: N/A AFFIL : Tucson Community Development/Design Center TITLE : The Privy Project SOURCE: Tucson Community Development/Design Center TRAD . 1 TEXT : Efforts by Tucson, Arizona to improve sanitation by removing privies and upgrading kitchen and bathroom facilities are described. Profiles of the people participating in the privy project are included along with site and floor plans of the participants' housing. The upgrading program was restricted to owner/occupants and not to renter/occupants. Problems and shortcomings of the project involving 100 homeowner/participants are also discussed. (SWF) : Tuscon Community Development/Design Center CON 316 S. Convent TUCSOD, 12 85701 ACC# : 1000492 AUTHOR: W/A APPIL : California State Water Resources Control Board TITLE : Action Plan for Alternative Wastewater Hanagement Systems Investigation Implementation in California SOURCE: California State Water Resources Control Board TELE : 1978 : This report presents certain actions that will be taken by the Cali-fornia State Water Resources Control Board, the California Regional TETT Water Quality Control Boards, and other agencies to investigate and consider of alternative wastewater management systems in the state Specific tasks relating to each component in the overall Action Plan are described. (SWF) CON : California State Water Resources Control Board P.O. Box 100 Sacramento, Ch ACCA : L000493 AUTHOR: Nichols, H.W. APPIL : N/A TITLE : Analysis of Bacterial Populations in the Final Product of the Clivus Hultrum SOURCE: Center for the Biology of Watural Systems, Washington U., St. Louis, NO YEAR : 1976 TTTT : This article discusses the Clivus Hultrun composting toilet and compares it to a garden compost pile. Some advantages of the system are: elimination of a carrier fluid (water), reduction of environmental impact and use as a soil amendment. Results of standard bacteriological analyses on samples taken from two units in the United States and seven units in Sweden show that the Clivus Hultrum end product is similar to that of soil. Bacterial populations, both pathogenic and non-pathogenic, were similar to those found in normal soil populations. No Escherichia coli were found in any sample of product from the Clivus Hultrum composting toilet. (SWF) CON : Center for the Biology of Matural Systems Washington University Saint Louis, MO ACC# : 1000494 AUTHOR: Sharpe, W.E. APPIL : Pennsylvania State University, College of Agriculture, University Park, TITLE : 23 Ways to Save Water in an Emergency SOURCE: Extension Service, Pennsylvania State University, Special Circular 199 TELE TEXT : 1 brief listing of 23 ways to conserve water by modifying everyday living habits. (SWP) CON : Pennsylvania State University 1008 230 Agriculture Administration Building University Park, PA 16802 **ACC#** : L000495 AUTHOR: Grisser, D.P.; Schlickelman, H.

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AFFIL : Appropriate Technology Research, Santa Pe, NH
TITLE : A Simple Low-Cost Bural Compost-Privy
SOURCE: Appropriate Technology, 4(13): 20
TEAR : 1977
TEXT : A low-cost aerobic compost privy that collects fecal material in a tub
is described. A wooden building rests upon stilts and is ventilated
              from beneath by a fine-mesh screen. An airtight hinged lid and seat are
              constructed over a tub and heavy-gauge plastic covers the ground be-
neath the tub. Periodically the contents of the tub must be emptied
into a compost bin where they undergo further decosposition. (SWP)
           : Appropriate Technology Research
COT
              1938 Sano Road
              Santa Fe, New Mexico 87501, U.S.L.
          ; 1000496
1004
AUTHOR: Minpuno, K.
AFFIL : Formerly the Ministry of Natonal Education, Dar es Salaan, East Africa
TITLE : Excreta Disposal Without Water
SOURCE: Appropriate Technology 3(4): 28-29 (1976)
SOURCE: Appropriate recursion, for a contrast of the second system compositing-type prive, is described. This two-celled system composts all organic household wastes. Excreta is deposited in a cell that contains leaves and sand, which trap particulates; crushed limestone and ashes, which neutralize the acids; and charcoal, coarse sands and perforated stone slab that filter the remaining fluid out into a source pit. When one cell is full it is closed and anaerobic com-
               posting begins while the previously closed cell is opened.
              posting begins while the previously closed cell is opened. The numue
is removed and used as fertilizer, and a new filtering media is in-
stalled. Reported advantages of this system are that the excreta is
inaccessible to insects and anisals and that the compost is a valuable
               by-product. (SWF)
 ACC4 : L000497
 AUTHOR: Watt, S.D.
 AFFIL : Intermediate Technology Design Group
 TITLE : Village Sanitation Improvement Scheme,
                                                                                  India
 SOURCE: Appropriate Technology, 2(4): 15-16 (1975)
TEAR : 1975
TELE : 1975
TELE : The construction of a water seal privy which controls flies and odor, in
combination with a cesspool, has improved the sanitation in remote
Indian villages. Construction and maintenance methods are outlined.
               Hygiene education of users is stressed. (SWP)
 ACC# : L000498
 AUTHOR: Friedman, L.L.; Peaks, D.L.; Michols, R.L.
AFFIL : Tennessee Technology University, Department of Civil Engineering,
               Cookeville, TH
 TITLE : Algae Separation from Oxidation Pond Effluents
 SOURCE: Journal of Water Pollution Control Federation, 49(1): 111-119 (1977)
 TEAR : 1977
 THIT : The effects of various chemical coagulants on the removal of algae from
               oxidation pond effluent was evaluated. Laboratory and field studies
               were performed and data were collected on flotation and medimentation of
algae and congulant mixtures. Results indicate alum is an effective
               coagulant in both sedimentation and floatation in a pH range from 5 to
9. Line raises the pH to allow magnesium hydroxide to precipitate.
               synthetic organic polyelectrolytes were ineffective when used alone or
               in conjunction with line or alus. (SWF)
 ACC# : 1000499
  AUTHOR: Winneberger, J.H.T.
 AUTHOR: WINNEDStyle, const.
APPIL : PhD. Consultant, Individual Sanitation Systems, Berkeley, California
TITLE : Hansal of Grey Water Treatment Practice (Part I and Part II)
SOURCE: Ann Arbor Science Publishers, Inc., P.O. Box 1425, Ann Arbor, Hichigan
  YBAR 1 1974
  TEIT : (Part I) On-site treatment of greywater and subsurface disposal are the
               main areas of discussion. Percolation tests, septic tanks, disposal
               fields, serial distribution, disposal trenches, pits, and beds are ex-
asized with regard to design criteria, equipment meeds, building sater-
ials and construction considerations. Haintenance of these systems is
               also discussed. Tables, figures, and sample calculations necessary for
sixing and designing the individual systems are included. (SWP)
(Part II) Quantity and strength of greyvater from various fixtures in
the household are presented in tables. Physical, chemical and sicro-
                biological characteristics of greywater are likewise included. Use of
               soil mantle for the parification of greyvater is discussed in detail.
Removal of biclogical and chemical constituents as well as pathogens
                from greywater is discussed. (SWP)
            : Ann Arbor Science
  CON
                P.O. Box 1425
                Ann Arbor, Michigan 48106
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ACC# : L000500 AUTHOR: COnverse, J.C. AFFIL : University of Wisconsin, Hadison, WI TITLE : Design and Construction Hanual for Wisconsin Hounds on Slowly Permeable Soils with or without High Water Tables; Shallow Perseable Soils over Creviced Bedrock; Permeable Soils with High Water Tables SOURCE: Small Scale Waste Hanagement Project, University of Wisconsin, Hadison, TT **YEAR : 1978** TEXT : The design principles of mound systems with regard to slowly permeable soil, shallow perseable soil with creviced or porous bedrock and permeable soil with high water tables are explained. Soil and site re-quirements that restrict sound systems and general mound design are discussed. The individual components of the mound system are described fully. Construction techniques and considerations are explained. Design examples and plans for various types and components of mound systems are given. (SWP) ACC# : L000501 AUTHOR: Hellen, W.L. AFFIL : Sevage Program, Lake County Health Department, Waukegan, IL TITLE : Site Evaluation for Seepage Fields SOURCE: Proceedings of Illinois Private Sevage Symposium, 1978, pp. 1-8 **THAP** : 1978 TEXT : Soil suitability and seepage area requirements for the absorption of septic tank effluent are discussed. The use of color as an indicator of soil suitability is also discussed. The percolation test and procedures for performing it are described. Four general considerations are presented for design of seepage fields: 1) seasonal high water tables aust be identified 2) impervious strata sust be identified 3) percolation test should be in the correct range 4) slope should be sufficient to shed as much water as possible. (SWF) ACC# : 1000502 AUTHOR: Russelman, H.B.; Zurn, H.P. AFFIL : Illinois State University, Mormal, IL TITLE : Hemagement of Septic Tank Solids SOURCE: Proceedings of the Illinois Private Sewage Disposal Symposium, 1978, pp. 9-17 TEAR : 1978 TEXT : The nature of septage and its environmental impact are briefly discussed. Current septage handling and disposal practices in Illinois are discussed with land application as the dominant form of disposal. Problems and shortcomings of the Illinois Private Sewage Disposal Licensing Act and Code have prompted local and state response. Several reconnendations are presented to rectify the situation. Reconnends establishment of a data base by local and state regulatory agencies that will: 1) persit the evaluation of septage disposal practices, 2) encourage and test methods, 3) characterize the volumes and costs associated with disposal practices. (SWP) ACC# : 1000503 AUTHOR: Andrews, W.F. APFIL : USDA Soil Conservation Service TITLE : Soil as a Hedia for Sevage Treatment SOURCE: Proceedings of the Illinois Private Sevage Disposal Symposium, 1978, pp. 18-20 TRAR : 1978 t Discusses soil as a media for disposing septic tank effluent. Soil TRXT characteristics that affect its pollution abatement potential are dis-cussed. The progress of the soil survey program in Illinois is pre-sented along with the reasons for having such a program. (SWP) ACC# : 1000504 AUTHOR: Tusick, H.; Bickman, K.; Lucia, J. AFFIL : Cleveland State University, Environmental Health Program TITLE : An Evaluation of Evaporation Transpiration Sewage Systems Installed in Lake County Since 1973 SOURCE: Proceedings of the Illinois Private Sewage Disposal Symposium, 1978, pp. 21-36 : 1978 TRAR : The success rate for evapotranspiration beds installed in severe soil in Lake County, Illinois, was found to be ninety-five percent. Sixty-four homes were surveyed. Of the three failing systems, two were caused by TRIT improper construction and the other was caused by an overloaded system. Only one-third of the dual systems were being alternated by homeowners. (STŽ) 1001 : L000505 AUTHOR: Ralph, D.; Vanderholm, D. AFFIL : University of Illinois at Urbana-Champaign, Agricultural Engineering Department

TITLE : Design, Construction and Costs of Recirculating Sand Filters SOURCE: Proceedings of the Illinois Private Sevage Disposal Symposium, 1978, pp. 37-51 YEAR : 1978 TEXT : Design and construction considerations for a recirculating sand filter system consisting of a septic tank, a recirculation tank and pump, and a sand filter are presented. Diagrams of the system are also included. Estimated costs for a three bedroos house using a recirculating sand filter system were tabulated. (SWF) : L000506 ACC 4 AUTHOR: Neusann, H.G. AFFIL : Illinois Department of Public Health, Champaign, IL TITLE : Private Sevage Treatment - An Overview SOURCE: Proceedings of the Fourth Annual Illinois Private Sevage Disposal Sympomium, 1979, pp. 5-35 : 1979 YEAR TEXT : This general survey of on-site sewage treatment and disposal methods presents information, history, public health aspects, site evaluation, selection and design of sewage systems and alternative systems. (SWP) ACC# : 1000507 AUTHOR: Drake, A.R. AFFIL : DeKalb County Health Department, Environmental Health Division, DeKalb, TL TITLE : The Use of Soils in Regard to the Installation of a Subsurface Sevage Disposal System SOURCE: Proceedings of the Fourth Annual Illinois Private Sevage Disposal Sysposium, 1979, pp. 36-42 YEAR : 1979 THIT : This marrative details the steps leading to an anendment to the DeKalb County, Illinois, Disposal Ordinance regarding subsurface disposal system construction. The anendment incorporates soils information as the only basis restricting installation. (SWF) 1CC4 : L000508 AUTHOR: Weigand, R.G. AFFIL : Wood County Health Department, Parkersburg, SV TITLE : Alternative On-Site Sewage Systems in Wood County, West Virginia - A Field Survey SOURCE: Fourth Annual Illinois Private Sewage Symposium, 1979, pp. 43-65 **YBAR : 1979** TEIT : In West Virginia it has become the practice to install a conventional septic tank leach-field system wherever site conditions are adequate. However, since April 1972 approximately 73 alternative systems have been installed in Wood County. The different designs included two types of evapotranspiration mounds, shallow trench and dual bed leach fields, evapotranspiration bedw, Wisconsin (fill) mounds, and filter beds. A total of 65 systems were field surveyed to determine comparative failure rates and causes. Site characteristics and system characteristics are compared among failing and functioning systems, and causes of failure are examined for each system type. The data suggest nore stringent supervision of installation and maintenance practices and show a need for greater emphasis on proper site selection. (AU) ACC# : L000509 AUTHOR: Mellen, W.L. AFFIL : Lake County Health Department, Division of Environmental Health, Individual Sevage Program, Waukegan, IL TITLE : The Aerobic Treatment of the Septic Field SOURCE: Proceedings of the Fourth Annual Illinois Private Sevage Disposal Symposium, 1979, pp. 66-76 ; 1979 TELL TEXT : An aerating tube system for insertion into piping of a serial distribu-tion absorption field was tested and described. The aeration system releases 1000 small bubbles per minute per orifice into the discharged effluent of the septic tank. After 23 days operation the BOD dropped from 199 to 47. Problems encountered are described and modifications are suggested. (SWP) ACC# : L000510 AUTHOR: Cameron, J. APPIL : Lake County Health Department, Waukegan, IL TITLE : Hydrogen Peroxide Treatment of Failed Seepage Trenches SOUNCE: Proceedings of Fourth Annual Illinois Private Sevage Disposal Confereace, 1979, pp. 77-87 YEAR : 1979 TEXT : Review of the paper "Causes and Remedy of Failure of Septic Tank Seepage Systems", See 1000032. (SWF)

ACC# : L000511 AUTHOR: Leinicke, J.E. AFFIL : Illinois Environmental Protection Agency, Division of Water Pollution Control, Planning and Standards Section TITLE : Grants for Private Sewage Disposal Systems SOURCE: Proceedings of the Fourth Annual Illinois Private Sevage Disposal Sysposium, 1979, pp. 88-94 1 1979 TEAR TEXT : Steps for obtaining government grants for on site systems are presented with regulatory requirements and restrictions. The items that are covered by grants are discussed and specific limitations are expressed. Problems that arise in communities seeking grant assistance are briefly discussed. (SWF) ACC# : 1000512 AUTHOR: Converse, J.C. AFFIL : University of Misconsin, Hadison, WI TITLE : Housd Systems for On-Site Disposal for Problem Soils TITLE : Housd Systems for On-Site Disposal for Problem Soils SOURCE: Proceedings of the Illinois Private Sevage Disposal Symposium; 1978; pp. 112-143 TRAR : 1978 TEXT : This is a sussary of L000500. (SWP) : American Society of Agricultural Engineers COM 2950 Miles Road St. Joseph, MI 49085 ACC# : L000513 AUTHOR: Cannon, D.E. AFFIL : Illinois Department of Health TITLE : Private Sevage Disposal Haulers and Septage Disposal SOURCE: Proceedings of the Fourth Annual Illinois Private Sevage Disposal Syn-posium, 1979, pp. 112-121 THAR : 1979 TEXT : The problems associated with septage handling and disposal and ways to alleviate them are discussed. The problems mentioned are discussed pre-vention, water pollution, disposal, site availability and lack of public education. The need for cooperative action by the three groups respon-sible for solving these problems; the decision makers, the monitors, and the implementors is stressed. The author calls for improved research, planning and public avareness. (SWF) ACC4 : L000514 AUTHOR: N/A AFFIL : Emergy and Environmental Analysis, Inc. TITLE : Evaluation of Wastewater Treatment Alternatives for Small Communities SOURCE: Mational Utility Contractors Association, Washington, D.C. TEAR : 1979 TEAR : 1979 TEIT : Process descriptions, advantages, disadvantages, restrictions on the process, performance, reliability, and cost analyses for each system are discussed in detail. Conventional gravity sever systems, when followed discussed in detail. Conventional gravity sever systems, when followed by wastewater treatment ponds or package plants, were found to be cost-effective over the on-site alternatives applicable to small communities. Capital costs for the systems were similar, but operation and maintenance costs were such higher for alternative systems. (SWP) : National Utility Contractors Association 815 15th Street N.W., #835 CON Washington, D.C. ACC# : 1000515 AUTHOR: DEmanack, R.; Hiller, W. AFFIL : New Jersey Institute of Technology, Department of Civil and Environmental Engineering TITLE : Current Trends in Packaged Wastewater Treatment Pacilities (Part I) SOURCE: Water and Sewage Works, 122(5): 60-63 YEAR : 1975 TEXT : The article discusses the advantages, disadvantages, and process variations for packaged wastewater treatment plants. The operation of con-tact stabilisation and completely mixed activated sludge systems are discussed. A process description, supplemented with disgrams, is provided: (SWP) ACC# : 1000516 AUTHOR: Dresnack, R.; Hiller, W. AFFIL : New Jersey Institute of Technology, Department of Civil and Environmental Engineering TITLE : Current Trends in Packaged Wastevater Treatment Facilities (Part II) SOURCE: Water and Sewage Works, 122(9): 96-99 **TEAR : 1975** TEXT : The advantages, disadvantages, process variations and cost variables for packaged wastewater treatment processes are discussed. Package plant

versions of the bio-disc, chemical, and Oasis Process (a variation of the activated sludge system) systems are explained. Companies that mar-ket these systems are listed. (SWF) : L000517 JCC 8 AUTHOR: Dresnack, R.; Hiller, W. AFFIL : New Jersey Institute of Technology, Department of Civil and Environmental Engineering TITLE : Current Trends in Packaged Wastewater Treatment Pacilities (Part III) SOURCE: Water and Sewage Works, 122 (10): 98-101 **YEAR : 1975** TEXT : Physical-chemical and chemical-biological treatment processes are discussed with respect to their application for packaged wastewater treat-ment plants. Operational problems, performance data, and maintenance of the package plant are given. Illustrations and a list of manufacturers are included. (SWF) ACC4 : 1000518 AUTHOR: Dresnack, R.; Biller, W. APPIL : New Jersey Institute of Technology, Department of Civil and Environmental Engineering FITLE : Current Trends in Packaged Wastewater Treatment Facilities (Part IV) SOURCE: Water and Sevage Works, 122(11): 66-67 FILT : 1975
FEXT : The article discusses pertiment considerations in the design of package
plants. Pactors considered are: vastewater characterization, process
variation, design criteria, site selection and layout, and equipaent : L000519 ICC# LUTHOR: Troyan, J.J.; Morris, D.P. WFFIL : BPA Technology Transfer Program, Cincinnati, OH FITLE : Cost Effectiveness Analysis - Alternatives for Small Wastewater Treatnent Systems SOURCE: EPA 625/4-77-011 TBAR : 1977 TEXT : This : This cost-effectiveness analysis evaluates alternative vastewater systems for municipalities. Includes problem conditions, description of alternatives in cost-effectiveness analysis, and procedures for evaluating alternatives. Supplies five detailed case histories. (SWP) ICC# : 1000520 WTHOR: Kriessl, J.F.; Cooper, I.A.; Rezek, H. IFFIL : EPA Technology Transfer Program MITLE : Pressure Severs/Vacuum Severs - Alternatives for Small Wastewater Treatment Systems IOURCE: IPA 625/4-77-011 IBAR : 1977 TIT : A comprehensive treatment of pressure severs and vacuum severs. Contains design alternatives, construction considerations, operation and maintenance procedures, codes, and cost considerations. Illustrated. (SWP) ICC# : 1000521 ITTHOR: Otis, R.J.; Boyle, W.C.; Converse, J.C.; Tyler, S.J.; Cooper, I.A.; Rezek, J.W. IFFIL : EPA Technology Transfer Program TTLE : On-Site Disposal/Septage Treatment and Disposal - Alternatives for Small Wastewater Treatment Systems DURCE: BPA 625/4-77-011 IBAR : 1977 TEXT : An in-depth handbook of alternatives for on-site septage treatment and disposel systems. Clearly documented and illustrated. (SWP) ICC# : 1000522 UTHOR: Caldwell, D.H.; Parker, D.S.; Unte, W.R.; Stenguist, R.L. FFIL : SPA Technology Transfer Program ITLE : Upgrading Lagoons OUBCE: SPA 625/4-73-0016 'EAR : 1977 : Describes types of lagoons and their operating problems. Includes up-TIT grading lagoons through both process modification and algae removal. Contains examples of upgrading lagoons. (SWF) CC# : 1000523 OTHOR: Eblen, J.E.; Clark, L.K. FFIL : Municipal Environmental Research Laboratory, Cincinnati, OH ITLE : Pressure and Vacuum Sever Demonstration Project - Bend, Oregon OURCE: EPA 600/2-78-166 ELR : 1978

TEXT : COF :	A pressure sever system collecting domestic septic tank effluent and a vacuum system collecing raw domestic sewage were constructed in Bend, Oregon. Both systems collected sewage from eleven houses and discharged into existing gravity sewer mains. Groups of one, two and three houses were served by single collection sump/vacuum valve or by collection sump/pump combinations. The systems were operated and monitored for a period of approximately one year. The systems were evaluated for con- struction costs, operation and maintenance costs, reliability, operating characteristics, and chemical characteristics of collected sewage and septic effluent. (SWP) Humicipal Environmental Research Laboratory Office of Research and Development U.S. Environmental Research Laboratory Cimcinnati, Ohio 45268
ACC4 : AUTHOR: APPIL : TITLE : SOURCE: TEAR : TEAR :	L000524 W/A Hunicipal Environmental Research Laboratory, Cincinnati, OH Hunagement of Small Waste Flows EFA 600/2-78-173 1978 Compilation of laboratory and field investigations conducted at the Wniversity of Wisconsin since 1971. The research program was to con- ceive, evaluate and develop satisfactory methods for the on-site treat- ment and disposal of Wastewaters, regardless of the site constraints. The studies included characterization of household and commercial waste- waters, assessment of Wastewater treatment alternatives, evaluation of soils for treatment and disposal of wastewater, estimation of infiltra- tive capacities of soils, design and operation of alternative systems dependent upon soil design and operation of alternative systems not dependent upon soil, management of on-site disposal systems. This report covers the period from July 1971 to June 1977 and work is continuing. (SWP)
CON :	Huniciapal Environmental Research Laboratory Office of Research and Development U.S. Environmental Protection Agency Cincinnati, Obio 45266
ACC# : AUTHOB: AFFIL : TITLE : SOURCE: YEAR : TEXT :	1000525 Van der Byn, S. <u>Parallones Institute</u> , CA The Tollet Papers Capra Press, 631 State Street, Santa Barbara, California 93101 1978 This book was designed to serve as a guide for treating and recycling human waste in a manner that is inexpensive, conserves resources and poses no health risk. A historical and cross-cultural view of human waste treatment and disposal is provided in contrast to the current practice of mixing human waste with perified water. Emphasis is placed on the practical design, operation and construction of home-built dry toilets and greywater treatment. Describes conventional and less costly alternative wastewater treatment systems. Gives tips for getting ap- proval from local health officials. Additional features include an annotated bibliography and numerous diagrams of the systems discussed. (SWP)
ACC4 : AUTHOR: APFIL ; TITLE : SOURCE: IMAR : TEXT ;	L000526 Office of lppropriate Technology Governor's Office, State of California Bural Wastewater Disposal Alternatives, Final Report - Phase I State Water Resources Control Board, California 1977 This report assesses the status of on-site waste disposal methods in California with particular emphasis on waterless toilets and greywater treatment. The five topics dealt with are types of systems, health criteria, research, regulatory practices and on-site wastewater manage- ment. Appendices include guidelines for pit privy construction and greywater disposal, public health consideratons of on-site waste dis- posal systems and a summary of the Farallones compost privy project. Over 70 references are cited. (SWF)
ACC4 : AUTHOR: APPIL : TITLE : SOURCE: YEAR : TEXT :	L000527 Sickefoose, C.; Bayes, R.B. Stevens, Thompson and Bunyan, Inc., Portland, OR Anaerobic Sludge Digestion Operations Manual Office of Water Program Operations, U.S. EPA, Washington, D.C. EPA 430/ 9-76-001 1976 Three considerations for anaerobic digester operation and maintenance
	are covered in this flip-through manual. It provides a troubleshooting guide useful in identifying and solving present digester problems and

in eliminating future digester problems. Boutine operational techniques for process control and maintenance are presented along with a plant checklist for comparing plant and lab records with the "average". Gen-eral background information for readers unfamiliar with the anaerobic sludge digestion process concludes the sanual. (SWP) ACC# : L000528 AUTHOR: Stoner, C.H., editor AFFIL : Rodale Press TITLE : Goodbye to the Flush Toilet SOURCE: Rodale Press, Enmans, Pennsylvania, 285 pages YEAR : 1977 TEXT : This book discusses alternatives to cesspools, septic tanks and severs that enhance the conservation of resources through reducing water consumption, minimizing environmental impact and recycling wastes. Topics include a history of human waste collection, treatment and disposal, a review of conventional and alternative wastewater systems, the principles of composting, the design and operation of composting privies, com-mercial and owner-built composting toilets, the treatment and disposal of greywater, methods of conserving water and a discussion of the acceptance of alternative waste systems. Charts and diagrass provide exten-sive design information. Sources of hardware are included for alterna-tive wastewater treatment systems, low-flush and waterless toilets, greywater treatment and devices for water conservation. (SWP) LCC# : L000529 AUTHOR: Asplen, S.W. AFFIL : Dorchester County Health Department, Dorchester County, HD TITLE : Evaluation of Donestic Waste Disposal by Berned Infiltration Ponds 1971-1975 SOURCE: Environmental Health Administration, Division of General Samitation, Haryland State Department of Health and Hental Hygiene TEAR : 1976 TEXT : Fars ponds, as a method of dispersing household sewage pretreated by home aeration units, were evaluated. Field sampling and laboratory analyses of pond influent and effluent, groundwater and pond water were made. The farm pond receiving the household wastes erhibited similar BOD, 55, Coliform and Fecal Coliform results as a control pond receiving only surface runoff. Two single-family residences introduced waste daily for over four years without causing any bacterial or chemical con-tamination in any of the observation wells. (SWF) ACC# : 1000530 AUTHOR: N/A AFFIL : Illinois Department of Public Health, University of Illinois Cooperative Extensive Service, University of Illinois Office of Continuing Education and Public Services TITLE : Proceedings of the Fourth Annual Illinois Private Sevage Disposal Sysposi un SOURCE: Proceedings of the Fourth Annual Illinois Private Sevage Disposal Symposium YEAR : 1979 TEXT : The Proceedings of the Fourth Annual Illinois Private Sevage Disposal Symposius held in Champaign, Illinois, Pebruary 26-28, 1979, contains: "Private Sewage Treatment - An Overview" (LO00506), "The Use of Soils in Regard to the Installation of a Subsurface Sewage Disposal System" (L000507), "Alternative On-Site Sewage Systems in Wood County, West (L000507), "Alternative On-Site Sevage Systems in wood County, West Virginia, A Field Survey" (L000508), "The Aerobic Treatment of the Septic Field" (L000509), "Bydrogen Peroxide Treatment of a Failed Seep-age Trenches" (L000510), "Grants for Private Sewage Disposal Systems" (L000511), "Wastewater Facilities Planning and Private Sewage Disposal" (L000457), "Private Sewage Disposal Baulers and Septage Disposal" (L000513), and "Design Criteria Pumping Septic Tank Effluent". The enclosed number following the title indicates the accession number of the article abstracted by SWF Clearinghouse. (SWF) ACC# : L000531 AUTHOR: N/A APPIL : Tilinois Department of Public Health; University of Illnois Cooperative Extension Service; University of Illinois Office of Continuing Education and Public Service TITLE : Proceedings of the Illinois Private Sevage Disposal Symposium, 1978 SOURCE: Star : 1978
TEXT : The Proceedings of the Illinois Private Sewage Disposal Symposium held
in Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February 13-15, 1978, contain: "Site Evaluain Chappaign, Illinois on February tion for Seepage Fields" (L000501), "Hanagement of Septic Tank Solids" (L000502), "Soil as a Hedia for Sewage Treatment" (L000503), "An Evaluation of Evaporation Transpiration Sewage Systems Installed in

Lake County Since 1973" (L000504), "Design, Construction and Costs of

 Recirculating Sand Filters" (L000505), "Design of Conventional Soil Absorption Trenches and Beds" (L000469), "Cost-Effective Evaluation of On-Site Wastewater Hanagement Systems in Unsevered Areas" (L000130), "Hound Systems for On-Site Disposal for Problem Soils" (This is a summary of L000500), and "Effects of Water Softener Use on the Permeability of Septic Tank Soil Absorption Fields" (L000190). The enclosed number following the title indicates the accession number of the article abstracted by the Small Wastewater Flows Clearinghouse. (SWF)
 COW : American Society of Agricultural Engineers 2950 Wiles Road

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1.1.1	Very low flush toilets	1000029,1000177,1000294
1.1.2	Water conservation	L000064,L000101,L000108,L000133,L000151, L000169,L000177,L000192,L000230,L000264, L000272,L000294,L000310,L000362,L000413, L000462,L000494
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1. 2. 2	Greyvater treatment	L000020,L000030,L000036,L000047,L000064, L000075,L000150,L000177,L000184,L000300, L000329,L000330,L000336,L000344,L000353, L000354,L000367,L000373,L000364,L000365, L000410,L000422,L000454,L000499
1.2.3	Toilets	L000002, L000003, L000020, L000037, L000072, L000080, L000092, L000099, L000100, L000107, L000125, L000129, L000134, L000135, L000138, L000139, L000141, L000147, L000149, L000151, L000192, L000225, L000230, L000234, L000251, L000257, L000259, L000264, L000270, L000272, L000274, L000284, L000300, L000309, L000319, L000349, L000359, L000364, L000388, L000394, L000416, L000429, L000450, L000493, L000495, L000496, L000497, L000528
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3. 1. 1	Septic tank-soil absorption system (ST-SAS)	L000309, L000310, L000312, L000313, L000326 L000001, L000007, L000008, L000039, L000042, L000023, L000029, L000032, L000039, L000042, L000043, L000044, L000048, L000052, L000067, L000058, L000060, L000065, L000089, L000095, L000096, L000107, L000102, L000111, L000112, L000113, L000114, L000115, L000117, L000123, L000124, L000126, L000130, L000132, L000137, L000144, L000148, L000152, L000153, L000156, L000158, L000159, L000161, L000152, L000163, L000175, L000186, L000191, L000193, L000195, L000198, L000200, L000205, L000207, L000208,

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		L000310,L000428,L000460
5.5.2	State	1000008.1000009.1000011.1000028.1000064.
		1000098 1000100 1000116.1000142.1000156
		L000170, L000211, L000242, L000201, L000202, L0000202, L000202,
		T000503'T000503'T00030''T000433'T000433'
		L000468
5.5.3	Local	1000011,1000096,1000142,1000156,1000176,
		1.000211.1.000261.1.000262.1000269.1000283.
		1000310-1000458-1000507
5.6	201 programs	L000009,L000019,L000079,L000262,L000263,
	-	1000457.1000511
	•••	
5./	208 programs	L000009,L000029,L000220,L000262,L000263
6.0	BBV(TOBBODTA) Tabaat	
	and the second s	
		T000381'T000403'T000430'T000431'T000208'
		1000514,1000526,1000528
6.1	Eusan health effects	1000064,1000071,1000075,1000103,1000114,
		1000118 1000127 1000135 1000164 1000170
		1000180 1000223, 1000239, 1000285, 1000293
		1000308,2000343,2000343,2000303,2000300,
		2000373, 2000302, 2000372, 2000393, 200043, 2000433, 200043, 200043, 2000423, 200042, 200042, 2000042, 2000042, 200000000, 200042, 20000000000
		F000421 F000460 F000431 F000433 F000212
		1000524,1000528
6.2	Physical environmental effects	1000007.1000032.1000033.1000042.1000043.
		1000049-1000050-1000051-1000053-1000054
		1000056,1000058,1000059,1000060,1000061
		1000067 1000071 1000075 1000082 1000086
		1000195, 2000101, 2000103, 2000111, 2000112, 1000130
		2000773, 2000727, 2000723, 2000724, 2000730, 2000730, 2000730, 200074000000000000000000000000000000000
		LUUUZUU, LUUUZU3, LUUUZU6, LUUUZU9, LUUUZI7,
		LUUU219,LUUU222,LUUU224,LUUU228,LUU0232,
		L000236,L000237,L000243,L000252,L000277,
		L000285,L000288,L000293,L000295,L000296,
		L000301,L000302,L000303,L000307,L000308,
		L000314,L000320,L000323,L000325,L000326,
		L000331,L000333,L000334,L000337,L000350,
		L000360,L000381,L000382,L000385,L000398,
		L000399,L000402,L000404,L000410,L000413,
		1000414,1000417,1000418,1000419,1000428,
		L000431,L000433,L000434,L000436,L000452_
		L000457

- 7.2 BPA Region
- 7.3 State

L000492