MONTGOMERY COUNTY ENVIRONMENTAL SANITATION ON-SITE SEWAGE DISPOSAL SYSTEM PERMIT APPLICATION

OFFICE USE ONLY

Received ___/___/___ Approved ___/___/___ Paid $165 on ___/___/___

Expires ___/___/___ Reviewed by: _____ Permit # _____

1. Property Owner/Agent _____ Home Phone (___)_____

Mailing Address _____ Work Phone (___)_____

_____ Email:_____

Site Address _____ Lot # _____ Lot Size _____

_____

Directions to Site (From Montgomery City): Parcel ID # _____

Legal Description : Section _____ Township _____ Range _____

2. Type on Installation: ☐ New ☐ Modification/Repair

Type of Building: ☐ Single-Family ☐ Multi-Family ☐ Business

Number of Bedrooms: _____

Water Supply: ☐ Public ☐ Private

3. Soil Information: ☐ Percolation Test ☐ Soil Morphology/Evaluation

*** Percolation tests and/or soil evaluations must be performed by a qualified person prior to design of designing of the system. Include the results with the completed application and $165.00 permit fee.**

4. Proposed System (Complete only pertinent information)

4A. ☐ Waste Stabilization Pond (Lagoon)

Dimensions (length x width or diameter): _____

Total Water Surface Area (square feet): _____

Working Depth: _____

Distance of: Overflow to property line _____

Nearest property line _____

Nearest neighboring residence _____

Setbacks from residence _____

4B. ☐ Sewage Tank

Type of Tank: ☐ Conventional Tank ☐ Aeration Unit

Manufacturer: _____

Material: ☐ Concrete ☐ Plastic ☐ Fiberglass ☐ Metal ☐ Other

Volume (gallons): _____

Absorption Field: Total Absorption Area _____

if Trenches _____ Trench Width _____ Trench Depth _____

Distance of: Tank to well _____ Tank to residence _____

Field to well _____ Field to residence _____

Field to property line _____ Field to stream or lake _____

Field to water lines _____

4C. ☐ Alternative System

☐ Low Pressure Pipe System ☐ Single Pass Sand Filter ☐ Wetlands

☐ Mound System ☐ Drip Irrigation ☐ Other (Specify) _____

Include engineer design and other supporting information

5. Installer

Name: _____ Phone: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Registered: ☐ Yes ☐ No

***All information contained in and with this application is true and accurate to the best of my knowledge.**

6. Signature of Owner or Agent: _____

Date: ___/___/___

7. Site Layout

1. Show property lines and dimensions to reflect the shape and size of the property.
2. Diagram proposed system. Show appropriate elevations to indicate proper fall for system.
3. Show distances to house, well, water lines, property lines, geological features such as sinkholes, rock outcrops, lakes, ponds, creeks, etc.
4. Show distances to neighbors wells, homes, etc.
5. Show locations of all percolation test holes or soil evaluation test pits.
6. Indicate any known easements that exist for utilities, roads, private driveways, or other easements.

MONTGOMERY COUNTY HEALTH DEPARTMENT
SEPTIC SYSTEM APPLICATION RECEIPT

Permit # _____ **Received** ___/___/___

Receipt # _____ **Expires** ___/___/___

Property Owner/ Agent_____ Phone _____

Mailing Address_____

Site Address_____

Email Adress_____

Directions to Site _____

_____

Please fill out all information on this form. **NO** work may begin on the septic system until a completed application form accompanied by a copy of the soil test is turned into the office of Environmental Services, and the local sanitarian has conducted an on-site evaluation of the proposed system and has given approval of the proposed plans. Further instructions can be found on the cover page of the permit packet, please read these instructions completely. *This receipt is proof that the permit fee has been paid*

Signature of Owner/Agent:_____ **Date** _____

OWTS Septic Installers as of 03/27/26 - Additional installers can be found on the State Health Departments website at:
https://experience.arcgis.com/experience/5c6151e541b74668bbaad632725224fe/page/Page

Business/Organization Name	City	Business Phone	Counties Served:	Last Name	First Name	Installer Class Level	Date Of Expiration
Authority Plumbing and Drain	Warrenton	(314) 220-6519	ST LOUIS,ST CHARLES,WARREN,LINCOLN,JEFFERSON,MONTGOMERY	Parker	James	Basic	5/31/2027
B Green Plumbing & Drain Cleaning LLC	Warrenton	(314) 604-5000	WARREN,LINCOLN,ST CHARLES,ST LOUIS,MONTGOMERY,JEFFERSON,FRANKLIN	Meyers	David	Advanced	6/30/2026
Affordable Plumbing LLC	Hermann	(314) 971-3063	FRANKLIN,GASCONADE,MONTGOMERY	Groppe	Brock	Advanced	2/1/2028
Brothers and Sons Contracting	Foristell	(314)-440-2520	BOONE,CALLAWAY,FRANKLIN,JEFFERSON,MONTGOMERY,ST CHARLES,WARREN	Friedly	Dallas	Advanced	1/1/2029
Nick Garrett Digging & Grading LLC	Jonesburg	(314)-852-7658	AUDRAIN,CALLAWAY,LINCOLN,MONTGOMERY,WARREN	Garrett	Nick	Advanced	2/1/2028
Smith Excavating LLC	Mokane	(573) 220-0053	COLE,AUDRAIN,MONTGOMERY,OSAGE	Smith	Toby	Basic	8/31/2027
Integrity Earthworks LLC	Fulton	(573) 220-3507	BOONE,COLE,AUDRAIN,MONTGOMERY,CALLAWAY	Craighead	Dustin	Advanced	9/30/2026
S & A Equipment & Builders	Fulton	(573) 220-3653	CALLAWAY,AUDRAIN,COLE,BOONE,MONTGOMERY,COOPER, MONITEAU	Arrowood	Ryan	Advanced	5/31/2027
Brandl's Construction Services LLC	Fulton	(573) 301-7148	HOWARD,RANDOLPH,MONROE,MONTGOMERY,WARREN,COLE,MONITEAU,OSAGE,RALLS,SHELBY,MACON,LINCOLN,PIKE,JOHNSON,PETTIS,HENRY,BENTON,CALLAWAY,BOONE,AUDRAIN,COOPER	Brandl	Devin	Basic	4/30/2027
Orf Construction Inc	Bowling Green	(573) 324-3552	LINCOLN,WARREN,ST CHARLES,RALLS,MARION,AUDRAIN,PIKE,MONTGOMERY	Orf, Sr.	Les	Advanced	3/31/2026
Turnbull Contracting, LLC	Bowing Green	(573) 324-6922	AUDRAIN,FRANKLIN,LINCOLN,MARION,MONROE,MONTGOMERY,PIKE,RALLS,RANDOLPH,ST CHARLES,WARREN	Turnbull	Darrell	Advanced	3/31/2028
B&J Septic	Silex	(573) 384-5536	ST CHARLES,WARREN,LINCOLN,PIKE,MONTGOMERY,RALLS,MONROE	Menne	Bernard (Butch)	Advanced	3/31/2027
Mick Mehler and Sons Inc	Silex	(573) 384-5978	PIKE,WARREN,ST CHARLES,MONTGOMERY	Vaughn	Leighton	Advanced	12/1/2027
Billy Orf & Sons	Bowling Green	(573) 470-6269	LINCOLN,AUDRAIN,WARREN,PIKE,RALLS,MONTGOMERY	Orf, Jr.	Billy	Advanced	5/31/2026
Siegel Excavating	Montgomery City	(573) 544-3493	AUDRAIN,BOONE,CALLAWAY,COLE,GASCONADE,MONTGOMERY	Siegel	Ty	Basic	3/31/2028
Gilbert & Sons Construction Inc	Montgomery Ctiy	(573) 564-3694	WARREN,MONTGOMERY,CALLAWAY	Gilbert	Donald	Basic	1/31/2027
Flowmaster Construction LLC	Mexico	(573) 581-1004	AUDRAIN,BOONE,CALLAWAY,MONROE,MONTGOMERY,RALLS	Smith	Kevin	Advanced	9/30/2028
Jake's Backhoe and Construction	Hermann	(573) 619-9703	FRANKLIN,GASCONADE,MONTGOMERY,WARREN	Weber	Justin	Advanced	5/31/2028

Barry Maupin Excavating, Inc	Fulton	(573) 642-9348	CALLAWAY,COLE,BOONE,AUDRAIN,MONTGOMERY	Maupin, Jr	Barry	Basic	4/30/2026
J-L Page Excavation	Rhineland	(573) 690-0326	GASCONADE,MONTGOMERY,WARREN,FRANKLIN	Page	Frank	Advanced	6/30/2027
Hackmann Trenching & Backhoe LLC	Chamois	(573) 694-2169	COLE,GASCONADE,CALLAWAY,MONTGOMERY	Hackmann	Aaron	Basic	4/30/2027
Curt's Construction	Fulton	(573) 826-0344	CALLAWAY,BOONE,AUDRAIN,MONTGOMERY	Houchins	Curtis	Advanced	3/31/2028
Brookside General Contracting	Auxvasse	(573) 999-9337	AUDRAIN,BOONE,CALLAWAY,MACON,MONROE,MONTGOMERY,PIKE,RALLS,RANDOLPH,SHELBY	Cunningham	Perry	Basic	2/1/2028
Whalen Services, LLC	Auxvasse	(573)-220-2471	CALLAWAY,AUDRAIN,MONTGOMERY,MONROE,BOONE,RANDOLPH,MACON,RALLS	Whalen	Scott	Basic	9/30/2028
Twitchell Backhoe Service	Fulton	(573)-220-8702	AUDRAIN,BOONE,CALLAWAY,MONTGOMERY,MORGAN	Twitchell	Brian	Basic	6/30/2028
Butcher Construction & Excavation	Fulton	(573)-230-1836	AUDRAIN,CALLAWAY,CAMDEN,COLE,MILLER,MONITEAU,MONTGOMERY	Butcher	William (Billy)	Advanced	3/31/2028
Reliable Septic & Portable Toilet	Hermann	(573)-239-0280	CRAWFORD,FRANKLIN,GASCONADE,MONTGOMERY,WARREN	Hale III	Donald	Advanced	9/30/2027
Proehl's Reliable Plumbing and Septic	Hermann	(573)-298-1851	CALLAWAY,CRAWFORD,FRANKLIN,GASCONADE,MARIES,MONTGOMERY,OSAGE,PHELPS,WARREN	Proehl	Shawn	Advanced	1/1/2029
Right Way Repair	Fulton	(573)-310-1454	BOONE,COLE,AUDRAIN,MONTGOMERY	Nelson	Levi	Basic	12/1/2028
American Htg/Clg/Elect/Plbg	Silex	(573)-384-5803	LINCOLN,PIKE,MONTGOMERY,RALLS	Momphard	Jeff	Advanced	1/1/2029
Henry Excavating	Auxvasse	(573)-466-6016	BOONE,AUDRAIN,MONTGOMERY,RANDOLPH,CALLAWAY,COLE,WARREN,MONTGOMERY	Henry	Corey	Advanced	2/29/2028
Miller Construction Services	Mexico	(573)-473-0829	AUDRAIN,BOONE,CALLAWAY,MONROE,MONTGOMERY	Miller	Russell	Basic	12/1/2028
Kleinsorge Construction LLC	Mexico	(573)-473-8893	AUDRAIN,BOONE,CALLAWAY,MONROE,MONTGOMERY,PIKE,RALLS,RANDOLPH	Kleinsorge	Harrison	Basic	8/31/2028
Second Nature Excavation and Hardscapes	New Haven	(573)-694-8696	CRAWFORD,GASCONADE,JEFFERSON,MONTGOMERY,ST CHARLES,ST LOUIS,WARREN,WASHINGTON	Bland Jr.	Ricky	Advanced	3/31/2028
Custom Power Excavating, Inc	Rosebud	(573)-774-7155	COLE,CRAWFORD,FRANKLIN,GASCONADE,MONTGOMERY,WASHINGTON	Boman	Dan	Advanced	6/30/2028
Robert Conrad Builder, INC.	Warrenton	(573)-881-0097	BOONE,CALLAWAY,FRANKLIN,GASCONADE,JEFFERSON,LINCOLN,MONTGOMERY,PIKE,ST CHARLES,ST LOUIS,WARREN,WASHINGTON	Conrad	Robert	Basic	3/1/2029
M. Turpin Services	Foristell	(636) 262-6230	AUDRAIN,FRANKLIN,JEFFERSON,LINCOLN,MONTGOMERY,PIKE,ST CHARLES,WARREN	Lucas	Lauren	Basic	2/1/2028
LHS Hauling & Grading	Warrenton	(636) 297-7063	ST CHARLES,LINCOLN,FRANKLIN,MONTGOMERY,WARREN	Schaper	Louie	Advanced	4/30/2027
Blackwood Plumbing	Warrenton	(636) 359-5622	WARREN,LINCOLN,MONTGOMERY,FRANKLIN,ST CHARLES,JEFFERSON,ST LOUIS	Dodson	Bobby	Advanced	5/31/2027

A & M Contracting Services LLC	Warrenton	(636) 359-7917	WARREN,LINCOLN,MONTGOMERY	Ford	Brian	Basic	9/30/2027
Wehmeyer Farm	Moscow Mills	(636) 368-8264	WARREN,ST CHARLES,LINCOLN,MONTGOMERY	Cannon	Kyle	Advanced	8/31/2027
Chartette Creek Excavating LLC	Marthasville	(636) 390-3811	FRANKLIN,GASCONADE,JEFFERSON,LINCOLN,MONTGOMERY,ST CHARLES,ST LOUIS,WARREN	McDonald	Elias	Advanced	1/1/2028
Big D Pipe LLC	St Charles	(636) 399-7495	FRANKLIN,LINCOLN,MONTGOMERY,ST CHARLES,ST LOUIS,WARREN	Duffy	Beau	Basic	5/31/2028
Creason Contracting LLC	Troy	(636) 528-3609	LINCOLN,ST CHARLES,WARREN,PIKE,MONTGOMERY,CAMDEN	Creason	Greg	Advanced	4/30/2026
Dempsey Investment LLC	Jonesburg	(636)-235-8181	FRANKLIN,GASCONADE,JEFFERSON,MONTGOMERY,OSAGE,ST CHARLES,WARREN	Dempsey	Christopher	Basic	5/31/2028
Fischer Excavating LLC	Truxton	(636)-237-3370	AUDRAIN,BOONE,CALLAWAY,LINCOLN,MONTGOMERY,PIKE,ST CHARLES,WARREN	Fischer	Chris	Advanced	3/1/2028
Mike's Septic & Dirtwork LLC	Foley	(636)-295-0465	BOONE,CALLAWAY,GASCONADE,LINCOLN,MONTGOMERY,PIKE,ST CHARLES,ST LOUIS,WARREN	Strunk	Michael	Advanced	5/31/2028
KC Land & Lawn	Warrenton	(636)-359-5126	AUDRAIN,CALLAWAY,FRANKLIN,LINCOLN,MONTGOMERY,ST CHARLES,WARREN	Kemry	Casey	Advanced	8/31/2028
Starks Excavating LLC	Warrenton	(636)-456-3718	FRANKLIN,LINCOLN,MONTGOMERY,WARREN	Starks	Rick	Advanced	1/1/2029
Jeff Roderfeld Const. LLC	St. Charles	(636)-459-1706	WARREN,LINCOLN,ST LOUIS,ST CHARLES,MONTGOMERY,JEFFERSON	Roderfeld	Jeff	Advanced	7/30/2028
Poeling Construction	Foristell	(636)-463-2437	ST CHARLES,WARREN,LINCOLN,MONTGOMERY,ST LOUIS	Poeling	Shane	Advanced	4/29/2029
Meyerott Enterprises, LLC	St. Charles	(636)-485-1215	CALLAWAY,FRANKLIN,GASCONADE,JEFFERSON,LINCOLN,MONTGOMERY,PHELPS,ST CHARLES,ST LOUIS,WARREN	Meyerott	Andrew	Advanced	5/31/2028
Flynn Drilling Co.	Troy	(636)-528-6137	ST CHARLES,WARREN,PIKE,MONTGOMERY,LINCOLN	Coin	Chris	Basic	12/1/2028
C.Taylor Contracting LLC	Hermann	(636)-584-9077	AUDRAIN,CALLAWAY,CRAWFORD,FRANKLIN,GASCONADE,JEFFERSON,LINCOLN,MARIES,MONTGOMERY,OSAGE,PHELPS,PIKE,ST CHARLES,ST LOUIS,WARREN,WASHINGTON	Taylor	Colin	Advanced	3/31/2028
Mike Henry Excavating, LLC	Silex	(636)-775-0811	LINCOLN,MONTGOMERY,PIKE,ST CHARLES,WARREN	Henry II	Michael	Advanced	6/30/2028
Fleer Excavating	Hermann	(636)-900-1772	CALLAWAY,FRANKLIN,GASCONADE,MONTGOMERY,OSAGE,ST CHARLES,WARREN	Fleer	Jonathan	Basic	7/31/2028
Carter Backhoe	Wentzville	(636)-980-6115	ST CHARLES,LINCOLN,WARREN,MONTGOMERY	Carter	Alan	Advanced	1/31/2029

Soil Evaluators - as of 03/27/26

Business/Organization Name	City	Date Of Expira	Counties Served:	Business Phone	Last Name	First Name
Gaines Soil Consulting	Worden	3/31/2026	AUDRAIN,CALLAWAY,FRANKLIN,GASCONADE,LINCOLN,MONTGOMERY,PIKE,ST CHARLES,ST LOUIS,WARREN,WASHINGTON	(636) 947-1221	Gaines	Douglas
Kelley Soil Services		3/30/2029	AUDRAIN,BOONE,COLE,COOPER,GASCONADE,HOWARD,MILLER,MONITEAU,MORGAN,MONTGOMERY,OSAGE,PETTIS,PHELPS,CAMDEN,CALLAWAY	(573) 619-6997	Kelley	Wyn
On-Site Soils	Chesterfield	3/30/2029	FRANKLIN,JEFFERSON,LINCOLN,MONTGOMERY,PIKE,ST CHARLES,ST LOUIS,WARREN,GASCONADE,CRAWFORD,STE GENEVIEVE, WASHINGTON, STFRANCOIS	(314) 341-3888	Roth	Matt
Elijah's Brook, Inc	Taylor	3/31/2026	ADAIR,CALLAWAY,CLARK,CHARITON,GRUNDY,KNOX,LEWIS,LINCOLN,LINN,LIVINGSTON,MACON,MARION,MERCER,MONROE,MONTGOMERY,PIKE,PUTNAM,RALLS,RANDOLPH,SCHUYLER,SCOTLAND,SULLIVAN,SHELBY,	(573) 541-7645	Wegman	Scott
Kerry M. Clark	New Bloomfield	4/30/2028	BOONE,CALLAWAY,COOPER,GASCONADE,MONTGOMERY,WARREN,COLE AUDRAIN,MONROE	(660) 351-4696	Clark	Kerry
All Missouri Soils, LLC	Columbia	12/1/2027	ADAIR,AUDRAIN,BOONE,CALLAWAY,CAMDEN,CARROLL,CHARITON,COLE,COOPER,MACON,MILLER,MONROE,MONTGOMERY,MORGAN,OSAGE,PETTIS,SALINE		Mayhan	Bryan
Doll Environmental Services	Tebbetts	6/30/2027	COLE,CALLAWAY,BOONE,MILLER,OSAGE,MORGAN,CAMDEN,MONTGOMERY	(573) 418-5488	Doll	Travis
On-Site Soils	Chesterfield	6/30/2026	ST CHARLES,JEFFERSON,FRANKLIN,WARREN,LINCOLN MONTGOMERY,PIKE,STE GENEVIEVE	(888) 878-1461	Mann	Evelyn
Home and Farm Soil Consulting	Saint Louis	6/30/2026	AUDRAIN,CALLAWAY,CRAWFORD,DENT,FRANKLIN,GASCONADE,IRON,JEFFERSON,LINCOLN,MADISON,MARIES,MONROE,MONTGOMERY,OSAGE,PERRY,PHELPS,PIKE,PULASKI,RALLS,ST CHARLES,STFRANCOIS,ST LOUIS,ST LOUIS CITY,STE GENEVIEVE,TEXAS,WARREN,WASHINGTON	(573) 225-2344	Meinert	Joseph
Benjamin Mocarski	Columbia	5/31/2028	AUDRAIN,BOONE,CALLAWAY,COOPER,HOWARD,MARIES,MILLER,MONITEAU,MONROE,MONTGOMERY,OSAGE,RANDOLPH	(630) 699-2435	Mocarski	Benjamin

MONTGOMERY COUNTY HEALTH DEPARTMENT
HOME HEALTH AGENCY

400 Salisbury Street▪ Montgomery City, MO 63361
Phone: 573 564-2495 ▪ Fax 573 564-5059 ▪ Web: www.montgomerycountyhealth.org

Public Health
Prevent. Promote. Protect.

Please read the important information below and on the back of this page BEFORE completing the on-site sewage system permit application.

1. The role of the Environmental Services as the assigned administrator of County Sewer Ordinance is to provide:
   a. Information
   b. Permit application review
   c. A preliminary on-site inspection to verify the permit application information and compliance with local regulations
   d. A final installation inspection.

   For registered contractors **a TWENTY-FOUR**-hour notice is required before backfilling trenches. Please contact the Environmental Health Program to arrange an inspection of your sewage system.

2. The permit fee is one hundred sixty-five dollars ($165.00 check or money order, only), please make payable to the Montgomery County Health Department. The application will not be reviewed unless the permit fee is received. The permit fee covers the services mentioned in statement one. Any person requesting additional inspections or consultation after the permit is approved will be charged at the rate of twenty-five dollars per hour ($25.00/hour) or any portion of an hour thereof including travel time.

3. The Environmental Services does not design on-site sewage systems. **Homeowners may install their own system if they attend and pass the OWTS classes.** Alternative systems are required to be designed by a licensed professional engineer. The Montgomery County Health Department does not warranty or guarantee the installed system.

4. THE APPLICANT IS RESPONSIBLE FOR FULLY COMPLETING THE PERMIT APPLICATION AND PROVIDING ANY DOCUMENTATION REQUESTED BY THE ENVIRONMENTAL SERVICES. ALL INFORMATION MUST BE ACCURATE. ANY PERMIT APPLICATION WHICH IS INCOMPLETE OR INACCURATE SHALL NOT BE APPROVED.
   The application must include: the diagram of the system location (complete with distances to structures, water sources and property lines), and the application must be signed by the owner or agent of the owner.

5. Undeveloped lots must meet all the minimum setback acreage requirements. There shall be no exceptions. Developed lots existing prior to January 1, 1996 may be granted variances by the Montgomery County Board of Review.

6. Contact this office at 573-564-2495 to set up an appointment with our Environmental Public Health Specialist, Amy Schlanker. You may drop off the application during the health department's normal business hours or send it by mail.

SEE BACK OF THIS PAGE FOR MORE INFORMATION!

Specifications:

1. All new buildings, private or commercial, where people live, work, or assemble are required by County Ordinance to obtain a permit for all septic system installations. Before the occupation of said buildings a permitted, to code, septic system shall be installed and in operating condition. Commercial business wishing to install a lagoon must apply to the Missouri Department of Natural Resources in Jefferson City, MO for a construction permit – call 573-751-2729. A list of registered installers is available at http://health.mo.gov/living/environment/onsite/ose/Montgomery.php.

2. All permitted systems (including lagoons) shall have either a percolation test or a soil morphology examination performed by a person or persons registered with the State of Missouri. Results of these tests must be submitted with the permit application. A list of registered soil scientists is available at http://health.mo.gov/living/environment/onsite/counties/index.php.

3. Diagram specifications for sites plans:

    A. Plans for absorption field showing the following:
        1. Field locations with slope(s) indicated or with contour lines based on field measurement. If field areas are essentially flat or of uniform grade, spot elevations will be required for alternate systems;
        2. Field layout, length spacing connection, pipe sizes and cleanouts details, invert elevations of flow distribution devices and laterals, valves and appurtenances (accessory);
        3. Trench plan and profile drawings and flow distribution device details;
        4. Location and design of associated surface and groundwater drainage systems;
        5. Name, address and telephone number of the person(s) drafting the plans; and
        6. Any other information required by the administrative authority.

    B. Alternative systems whether specifically described in this rule must have:
        1. Engineer diagram required.

4. Any person planning on building in Montgomery County must apply for a building permit from the office of Planning and Zoning – located across 4th Street from the health department at 310 Salisbury, Suite D, Montgomery City, MO 63361 or call 573-564-2142.

Revised March 2022

MONTGOMERY COUNTY HEALTH DEPARTMENT
HOME HEALTH AGENCY

400 Salisbury ▪ Montgomery City, MO 63361
Phone: 573 564-2495 ▪ Fax 573 564-5059 ▪ Web: www.montgomerycountyhealth.org

PublicHealth
Prevent. Promote. Protect.

Dear property /homeowner:

This information folder is intended to give you, the resident homeowner:

- Knowledge of the Onsite Treatment System that is serving, or will be serving your home.
- The purpose of the system and how it works.
- How to get the best and longest service with the proper care.
- How to protect you from repair cost.

The enclosed information, once read, will inform you on the installation of a new system and modifying, maintenance and repair of an existing system. Remember you are in charge of the well-being of your system!

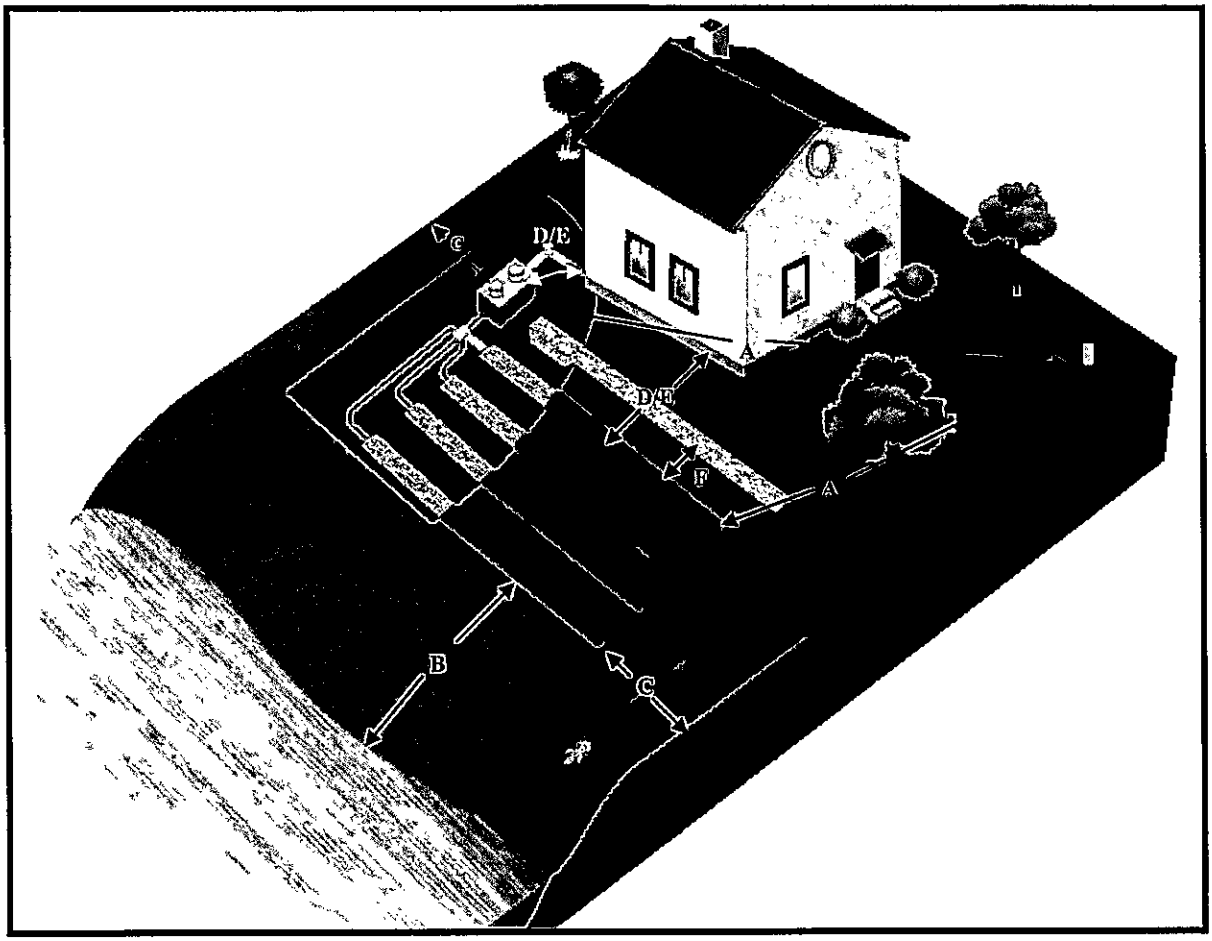
After reviewing this information, if you have questions or concerns, please contact us.

Sincerely,

Amy Schlanker
Environmental Specialist
Montgomery County Health Department
400 Salisbury Street
Montgomery City, Mo 63361
573-564-2495 Office

Developed by in cooperation with Montgomery County Health Department and Missouri Dept of Health and Senior Services.

Diagram of System



	Minimum Setback Distances (in feet)	Sewage Tank	Soil Treatment System	Lagoons
A	Private Well	50	100	100
B	Classified Stream, Lake, or Pond	50	50	50
C	Property Lines	10	10	75*
D	Residential Foundation	5	15	100
E	Residential Basement Foundation	15	25	100
F	Upslope interceptor Drains	-	10	10

NOTE: *100 feet from Lagoons Overflow.

NOTE: Not all setback distances are shown above. A complete listing can be found in 19 CSR 20-3.060, Table 1: Minimum Setback Distances.

Table 1–Minimum Set-Back Distances

Minimum Distance From	Sewage Tank[1]	Disposal Area [2]	Lagoons
	(feet)	(feet)	(feet)
Private water supply well [3]	50	100	100
Public water supply well	300	300	300
Cistern	25	25	25
Spring	50	100	100
Classified stream, lake or impoundment*	50	50	50
Stream or open ditch [4]	25	25	25
Property lines	10	10**	75
Building foundation	5	15	15
Basement	15	25	25
Swimming pool	15	15	15
Water line under pressure	10	10	10
Suction water line	50	100	100
Upslope interceptor drains	-	10	10
Downslope interceptor drains	-	25	25
Top of slope of embankments or cuts of two feet (2') or more vertical height	-	20	20
Edge of surficial sink holes	50	100	500
Other soil absorption system except repair area	-	20	20

*A classified stream is any stream that maintains permanent flow or permanent pools during drought periods and supports aquatic life.

**Recommend twenty-five feet (25') of downslope property line initially, but repair may be allowed to ten feet (10') of downslope property line.

[1]Includes sewage tanks, intermittent sand filters and dosing chambers.

[2]Includes all systems (sand filter, wetland and the like) except wastewater stabilization ponds.

[3]Unplugged abandoned wells or wells with less than eighty feet (< 80') of casing depth shall have one-hundred-fifty feet (150') minimum distance from all above.

[4]Sewage tanks and soil absorption systems should never be located in the drainage area of a sinkhole.

Additional information on
dfferent systems can be found on the DHSS website
https://health.mo.gov/living/environment/onsite/pdf/
SystemOwnersManual.pdf

Chapter 1: Septic Tanks
A Pretreatment Component

Chapter 1

Homes not served by public sewers rely on individual onsite or cluster wastewater treatment systems to treat and disperse household WASTEWATER. Household WASTEWATER includes both GRAYWATER and BLACKWATER. GRAYWATER is defined as water captured from nonfood preparation sinks, showers, baths, and clothes washing machines while BLACKWATER is that portion of WASTEWATER that originates from toilet fixtures, dishwashers, and food preparation sinks.

Household WASTEWATER contains human waste, dirt, food, toilet paper, soap, detergents, and cleaning products; which includes dissolved nutrients, microorganisms, and solid particles. Improperly maintained wastewater treatment systems can allow these substances to contaminate groundwater and/or surface water and pose a health hazard.

A typical ONSITE WASTEWATER TREATMENT SYSTEM has four main components: a sewer line from the house, a septic tank, a soil treatment system, and the soil under and around the treatment system. The septic tank is a buried, watertight tank designed and constructed to receive all household WASTEWATER and provide primary treatment. After receiving limited treatment in the septic tank, WASTEWATER is distributed and dispersed into the soil for final treatment. Then clean water, filtered by the soil, recharges streams, lakes, and groundwater in the area.

What's Ahead...

- How a Septic Tank Works
- Design and Construction
- Maintenance
- Warning Signs
- Do's and Don'ts
- Glossary
- Resources

How a Septic Tank Works

Primary treatment means the septic tank provides short-term storage and time for the WASTEWATER to separate into layers. Tees, or baffles, provided at the septic tank's inlet and outlet are essential to the function of the tank. When raw WASTEWATER enters the tank the inlet tee slows the incoming waste, reducing turbulence so that heavier solids can settle to the bottom of the tank and form a SLUDGE layer. Lighter solids, such as grease and paper, float to the surface and form a SCUM layer. The outlet tee keeps the SLUDGE and SCUM in the tank. During this storage period bacteria digest organic material in the WASTEWATER and reduce the volume of solids that are present.

As new WASTEWATER enters the tank through the inlet tee, an equal amount of clarified WASTEWATER is pushed out of the tank through the outlet tee. The WASTEWATER that leaves the tank has been partially treated but still contains disease causing bacteria and other pollutants and receives further treatment in the soil treatment area. The SCUM and SLUDGE layers retained and stored in the tank accumulate over time and eventually must be pumped out.

Septic tanks provide reliable, but limited treatment of WASTEWATER. The United States Environmental Protection Agency has established five management models with progressively increasing management controls as sensitivity of the environment and/or treatment system complexity increases. MANAGEMENT MODEL I specifies appropriate program elements and activities where treatment systems are owned and operated by individual PROPERTY OWNERS in areas of low environmental sensitivity.

The objective of this model is to ensure that-

- Conventional systems are designed and installed in accordance with appropriate state and local regulations;
- Homeowners are knowledgeable of their particular system and provide routine MAINTENANCE (INSPECTIONS and pumping) necessary for the system to operate properly, and, if needed;
- Homeowners ensure a MALFUNCTIONING system is repaired in accordance with Missouri law.

This model is generally appropriate for septic tank systems. In some sensitive environments, septic tanks can also be used as a component of a more advanced system for which MANAGEMENT MODELS II, III, or IV may be recommended.

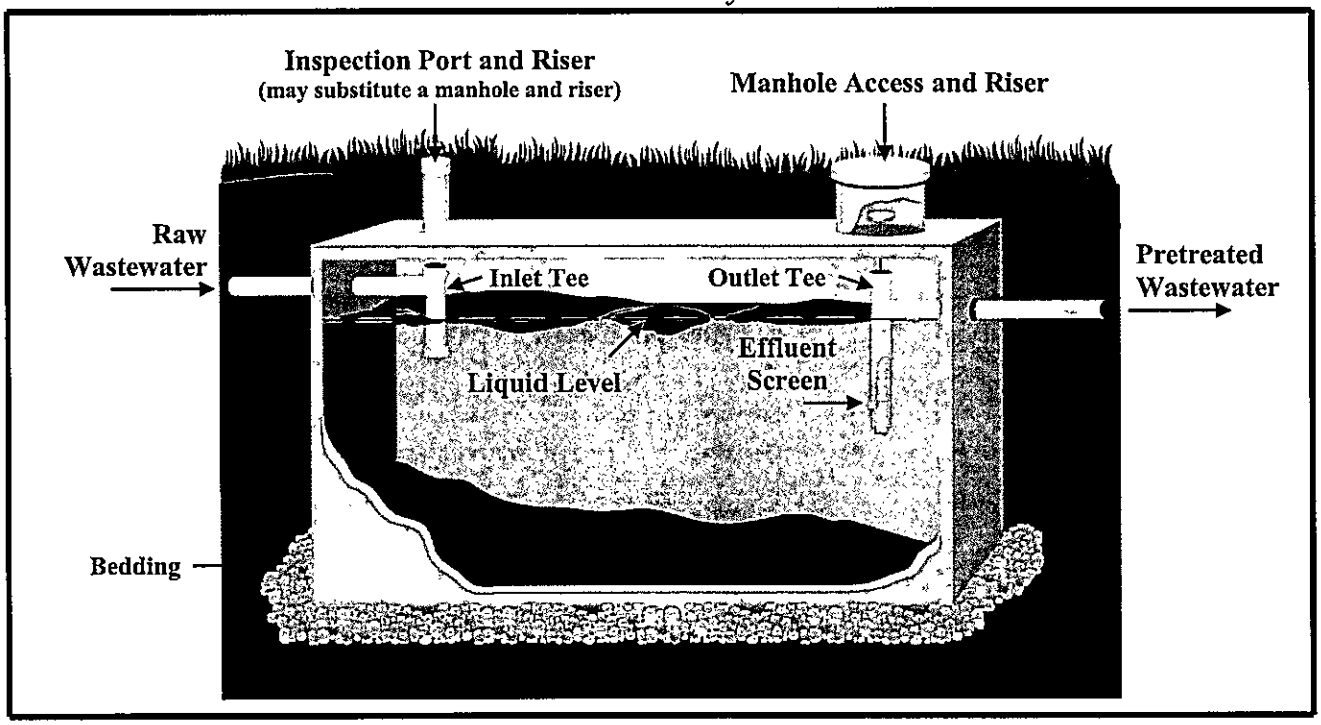


Figure 1: Septic Tank. A septic tank provides primary treatment of WASTEWATER; solids are separated from liquid and some ANAEROBIC digestion occurs.

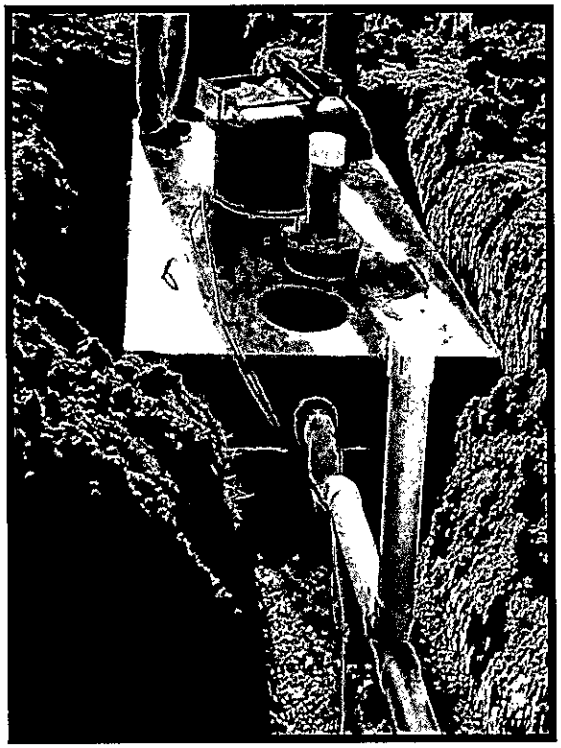
Design and Construction

Septic tanks are typically made of concrete, fiberglass, or plastic. Installation of metal septic tanks is no longer allowed.

Septic tanks must be located:

- On firm bedding material capable of bearing the weight of the tank and its contents;
- In an area easily accessible for the removal of liquids and accumulated solids; and
- To meet the set back distances specified in 19 CSR 20-3.060 Minimum Construction Standards for Onsite Systems.

The size or liquid capacity of a septic tank is important for WASTEWATER separation and storage. For a single-family house, the liquid capacity is based upon the number of bedrooms with a minimum capacity of 1,000 gallons.



Installation of a 1,000 gallon concrete septic tank.

DID YOU KNOW?

Bacteria and other microorganisms, which are naturally present in all septic tanks, are responsible for the beginning phase of digesting and treating WASTEWATER generated in your house. Therefore, it is important to understand how detergents, chemicals and other substances can impact the health of your septic tank system.

SAFE - IN MODERATION

Most detergents are intended to be mixed with water and may remain suspended in the WASTEWATER until it reaches the soil treatment area. However, if used in accordance with manufacturer's label, detergents break down over time in a properly functioning ONSITE WASTEWATER TREATMENT SYSTEM and do not impact surface or groundwater.

Diluted, normal use amounts of hand soap, bar soap, dish detergent, shampoo, multi-surface cleaners and laundry detergent are examples that are safe for ONSITE WASTEWATER TREATMENT SYSTEMS.

Disinfectants and antimicrobials such as bleach, pine cleaners, quaternary ammonium-based products, and alcohol -based products are generally safe for ONSITE WASTEWATER TREATMENT SYSTEMS if used in moderation and in accordance with manufacturer's label.

NOT-SAFE

In general, drain cleaners, concentrated cleaners/disinfectants, degreasers, and specialty cleaners such as oven cleaner are not safe to use with ONSITE WASTEWATER TREATMENT SYSTEMS. They can disrupt the bacteria and other microorganisms in the system that break down nutrients and eliminate pathogens.

DID YOU KNOW?

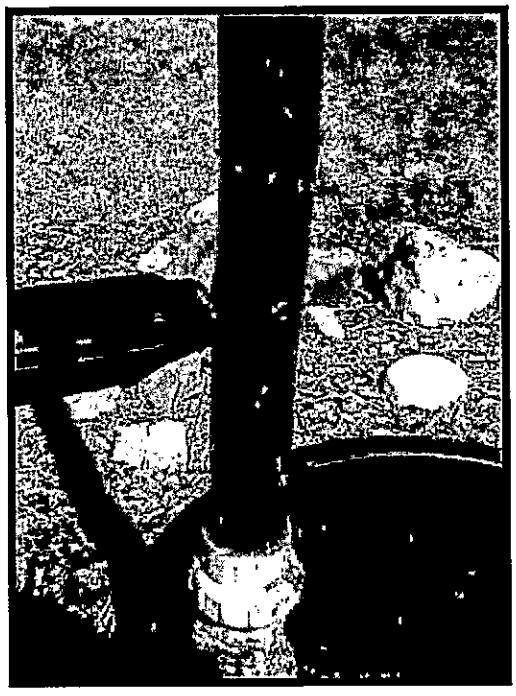
In order to ensure individuals are properly trained, the Missouri Department of Health and Senior Services registers several types of ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONALS. For more information about installers, onsite soil evaluators, onsite system inspectors/evaluators, and percolation testers please go to Wastewater Professionals at http://health.mo.gov/living/environment/onsite/professionals.php

Regular MAINTENANCE is essential for getting the best performance from your septic tank system. If too much SLUDGE and SCUM are allowed to accumulate in the tank, the incoming WASTEWATER does not have adequate time to settle, causing solids to flow into the soil treatment system and clog dispersal trenches. If clogging occurs, WASTEWATER can overflow onto the ground surface or backup into the house, where it exposes people and animals to disease-causing organisms. To prevent this from happening, it is important to inspect your tank regularly and have it serviced when needed. Septic tanks should have INSPECTION access over the inlet and outlet tees/baffles. All tanks have manholes for inspecting and pumping; minor excavation work may be needed to uncover the manhole.

Inspections

Septic tanks must be inspected at least every two years. If the system has an EFFLUENT screen or the system serves a non-residential establishment, the tank should initially be inspected at least annually. The INSPECTION may be conducted by the homeowner, a REGISTERED ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONAL, or other qualified SERVICE PROVIDER. The INSPECTION should include assuring:

- The septic tank is structurally sound with no corrosion, cracking, or missing parts;
- There are no signs of water intrusion;
- The septic tank, risers, manhole, access ports, lids, and covers are watertight;
- Lids and covers are locked or otherwise secured to prevent accidental entry;
- The inlet and outlet tees or baffles are in good condition and functioning properly;
- If present, EFFLUENT screens are in good condition and not clogged; and
- The SCUM and SLUDGE layers are at an acceptable thickness.



A SERVICE PROVIDER may use a tool, such as the Sludge Judge® which is a long, hollow, plastic pole marked in one foot increments to show the solids and liquid levels within a septic tank. This provides the service provider information to determine if it is time to pump the tank.

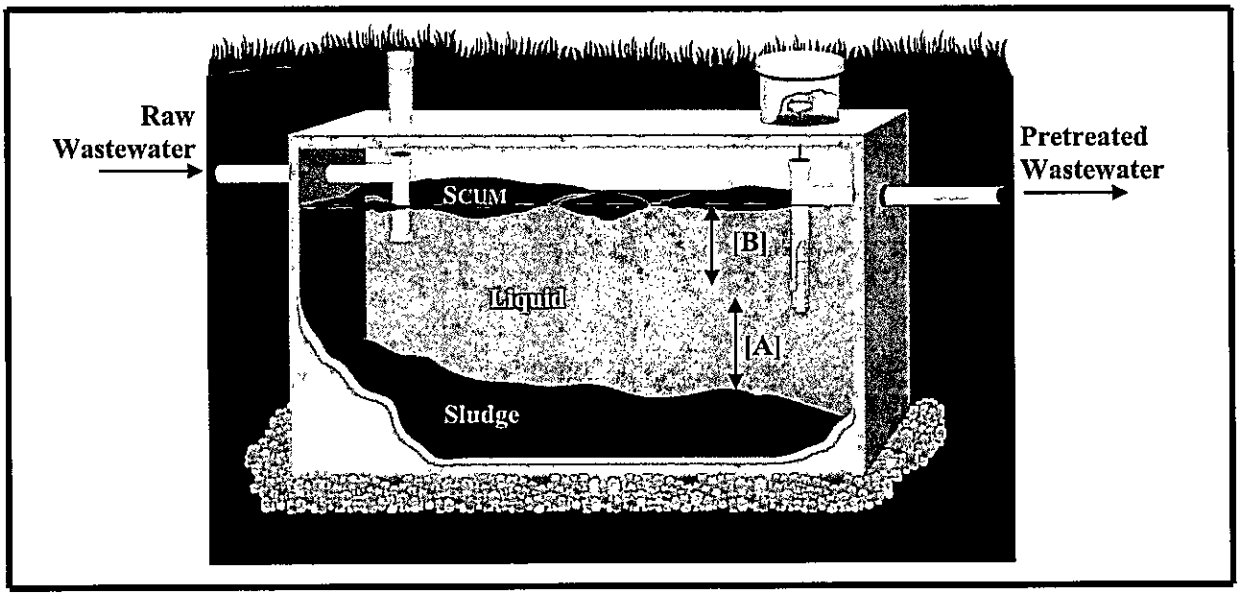


Figure 2: Septic Tank. Contract for removal of solids from the septic tank when SLUDGE is 12 inches or less from bottom of outlet [A] or when SCUM is 3 inches or less from bottom of outlet [B].

Correctly sized septic tanks are designed to accumulate solids for several years under normal conditions. As solids fill up the tank, WASTEWATER has less time to separate properly and solid particles could flow out of the tank into the dispersal trenches. If the tank is not periodically pumped out, these solids will enter the soil treatment system; clogging the system to a point that a new soil treatment area may be needed.

It is the responsibility of the homeowner or user of the septic tank system to contract with a REGISTERED ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONAL or other qualified SERVICE PROVIDER for the removal of the septic tank contents when needed. There are three main factors which determine the frequency at which a septic tank must be pumped:

- The liquid capacity of the tank;
- How much water flows through the system, usually related to the number of people in the household; and
- The volume of solids in the WASTEWATER, usually related to the use of a garbage disposal.

A septic tank must be pumped when the top of the SLUDGE layer is no closer than twelve inches below the bottom of the outlet tee or when the bottom of the SCUM layer is no closer than three inches above the bottom of the outlet tee. A typical 1,000 gallon septic tank serving a three bedroom home may need to be pumped roughly every two to five years; if the home has a garbage disposal, the tank generally needs to be pumped twice as often.

A REGISTERED ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONAL or other qualified SERVICE PROVIDER is responsible for the proper treatment and disposal of all hauled WASTEWATER by transporting to a municipal sewage treatment plant capable of receiving the waste; transporting to a sludge handling facility which possesses a current and valid permit issued for such activity; or land applying under a current and valid permit for such activity.

Final Treatment and Dispersal

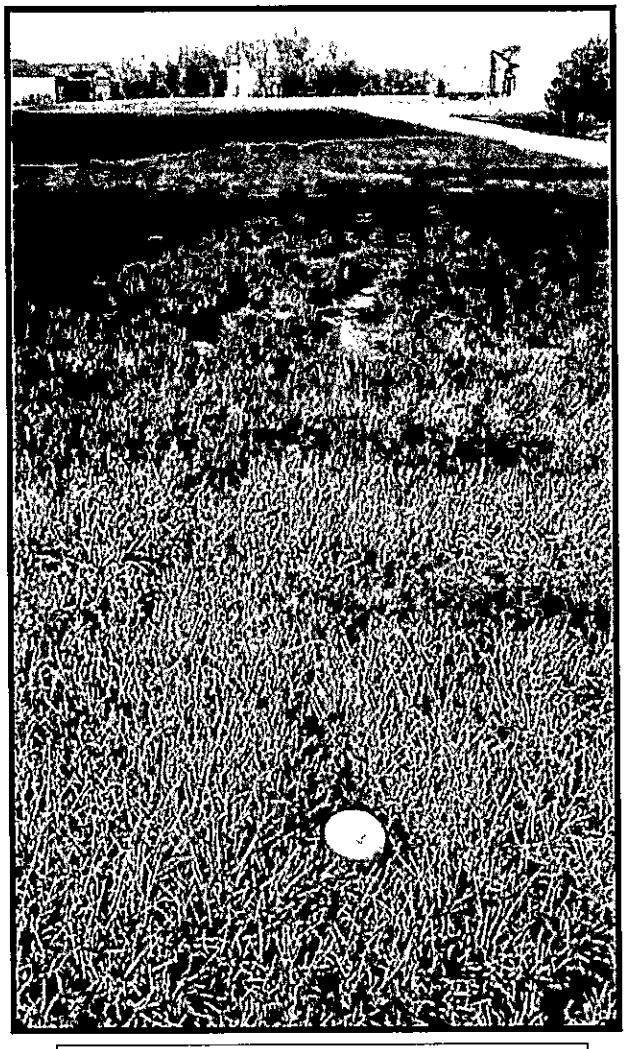
Although properly operated and maintained septic tanks are effective at providing primary treatment, the treatment is limited and WASTEWATER leaving the tank must receive further treatment before it is ready to be returned to the environment. Methods for final treatment and dispersal include discharge to a soil treatment system or a lagoon.

> ADDITIVES
> At some point, most system OWNERS consider the use of septic tank additives. However, sufficient bacteria for WASTEWATER treatment are naturally present in a septic tank and studies do not show a benefit to the use of additives. In fact, some additives may actually harm your system or pollute groundwater.

Warning Signs of System Malfunctioning

While proper use, INSPECTIONS, and MAINTENANCE should prevent most septic tank problems, it is still important to be aware of changes in your septic tank system and to act quickly if you suspect the system is MALFUNCTIONING. The most obvious onsite system failures are easy to spot.

- Surfacing SEWAGE, pooling water or muddy soil around your sewage tank, soil treatment system, or in your basement;
- Plumbing or septic tank backups;
- Slow draining fixtures;
- Gurgling sounds in the plumbing system;
- SEWAGE odors in the house or yard;
- Localized overgrowth of lush green grass in or near the soil treatment area; and/or
- Tests show the presence of bacteria in well water.



Surfacing WASTEWATER

Onsite systems fail when partially treated WASTEWATER comes into contact with groundwater. This type of failure is not easy to detect, but can result in the pollution of wells, nearby streams, or other bodies of water.

If you notice any of these signs, or you suspect your septic tank system may be having problems, contact a qualified SERVICE PROVIDER or the local onsite WASTEWATER ADMINISTRATIVE AUTHORITY for assistance.

Septic Tank Do's and Don'ts

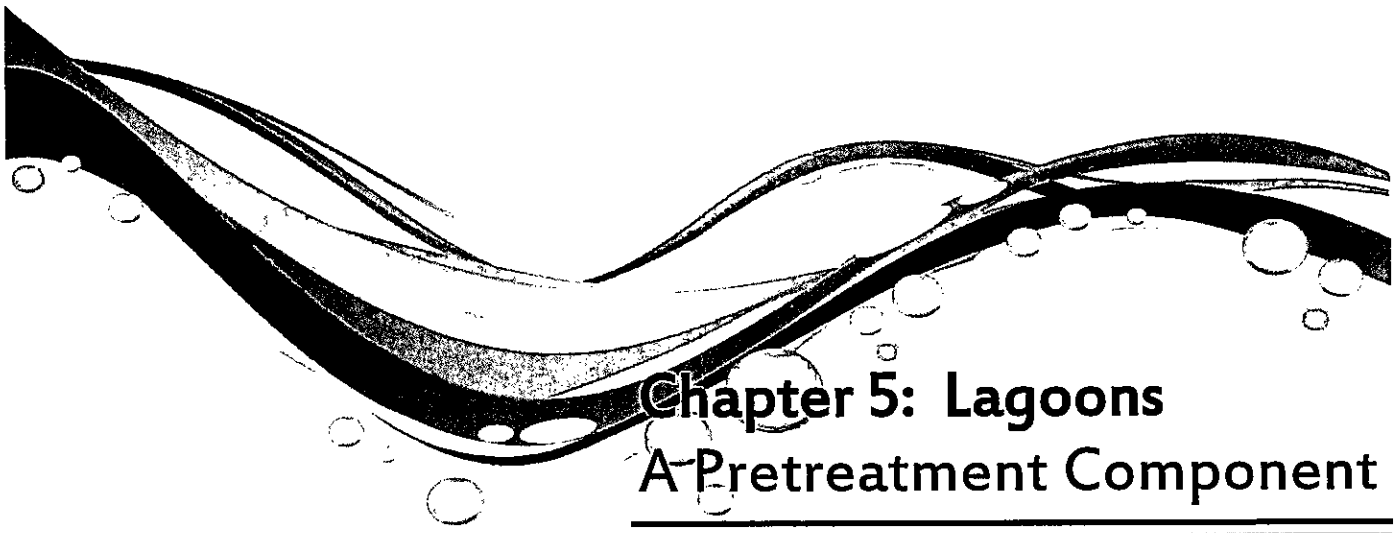
Proper OPERATION and MAINTENANCE of an onsite system can prevent costly repairs or replacement and can protect your property value. Observing the following recommendations will help to keep your system operating properly.

Do's

- Obtain the necessary permits from the appropriate ADMINISTRATIVE AUTHORITY before making any repairs.
- Use REGISTERED ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONALS and qualified SERVICE PROVIDERS.
- Conserve water to avoid overloading the onsite system, use high-efficiency fixtures and promptly repair any leaky faucets or toilets.
- Have your septic tank inspected annually if it has an EFFLUENT screen or every two years if it does not.
- Have your septic tank pumped routinely. Pumping your septic tank when needed may be the single most important thing you can do to protect your soil treatment system and your investment.
- Contact a qualified SERVICE PROVIDER if you experience problems with your system, such as surfacing WASTEWATER in your yard or other warning signs the system may be MALFUNCTIONING.
- Keep detailed records regarding the system, its location, make/model, contract service agreement, service visits, and MAINTENANCE performed.
- Use commercial bathroom cleaners and laundry detergents in moderation and only according to manufacturer's directions.
- Keep your septic tank accessible for INSPECTIONS and pumping; yet locked or otherwise secured to prevent accidental entry.
- Have your private water well tested periodically or if you experience any warning signs of the system MALFUNCTIONING (contact your local public health agency).

Don'ts

- **Don't enter a septic tank.** Poisonous gasses or a lack of oxygen can be fatal.
- Your septic tank system is not a trash can. Don't put dental floss, feminine hygiene products, flushable wipes, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, paint, pesticides, or other hazardous chemicals into your system.
- Don't use caustic drain openers for a clogged drain. Instead, use boiling water or a drain snake to open clogs.
- Don't drive or park vehicles or allow livestock on any part of your septic tank system. Doing so can compact the soil in your soil treatment area or damage the pipes, tank, or other onsite system components.
- Don't build over any part of your septic tank system; this includes patios, carports, and other structures.
- Don't attempt to pump your own septic tank; use the services of a qualified SERVICE PROVIDER.



Chapter 5: Lagoons
A Pretreatment Component

Chapter 5

Although a septic tank system is more commonly used, a wastewater lagoon system may be an option for single-family residences with slowly percolating, high clay content soils that are not steeply sloped. Lagoon systems include one or more pond-like bodies of water designed with long retention times to receive and treat WASTEWATER. While in the lagoon, WASTEWATER receives treatment through a combination of physical, biological, and chemical processes.

A lagoon system must fit its specific site and use. Designs are based on such factors as the type of soil, the amount of land area available, the slope, the climate, and the amount of sunlight and wind in the area. The most common type of wastewater treatment lagoon used by individual households is the FACULTATIVE lagoon, which are also called stabilization ponds, oxidation ponds, and photosynthetic ponds. They can be adapted for use in most climates, require no machinery, and treat WASTEWATER naturally, using both AEROBIC and ANAEROBIC processes.

How a Lagoon Works

Physical, biological, and chemical processes take place throughout a lagoon to treat WASTEWATER. In FACULTATIVE lagoons, WASTEWATER naturally settles into three fairly distinct layers or zones. Different conditions exist in each layer and treatment takes place in all three.

What's Ahead...

- How a Lagoon Works
- Design and Construction
- Maintenance
- Warning Signs
- Do's and Don'ts
- Glossary
- Resources

The top layer is an AEROBIC zone where wind and sunlight play important roles. The WASTEWATER in this part of the lagoon receives oxygen from air, surface agitation caused by wind and rain, and produced by algae. This oxygen makes conditions favorable for AEROBIC bacteria and other organisms living in this zone to treat WASTEWATER. This zone also serves as a barrier for the odors from gases produced by treatment processes occurring in the lower layers.

Names for the middle layer include the facultative, intermediate, or AEROBIC-ANAEROBIC zone. Both AEROBIC and ANAEROBIC conditions exist in this layer in varying degrees. Depending on the specific conditions in any given part of this zone, different types of bacteria and other organisms contribute to WASTEWATER treatment.

How a Lagoon Works, continued

The ANAEROBIC zone is the layer at the bottom of a lagoon where little oxygen is present. This area includes a layer of SLUDGE, which forms from the solids that settle out of the WASTEWATER. Here ANAEROBIC bacteria and other organisms provide treatment to reduce the overall organic strength of the WASTEWATER and to slow the accumulation of SLUDGE.

Lagoons provide reliable and passive treatment of WASTEWATER. The US Environmental Protection Agency has established five management models with progressively increasing management controls as sensitivity of the environment and/or treatment system complexity increases. MANAGEMENT MODEL I specifies appropriate program elements and activities where treatment systems are owned and operated by individual PROPERTY OWNERS in areas of low environmental sensitivity.

The objective of this model is to ensure that-

- Systems are designed and installed in accordance with appropriate state and local regulations;
- Homeowners are knowledgeable of their particular system and provide routine MAINTENANCE (INSPECTIONS and pumping) necessary for the system to operate properly, and, if needed;
- Homeowners ensure a MALFUNCTIONING system is repaired in accordance with Missouri law.

This model is generally appropriate for lagoon systems. However, in some sensitive environments, MANAGEMENT MODELS II or III may be recommended.

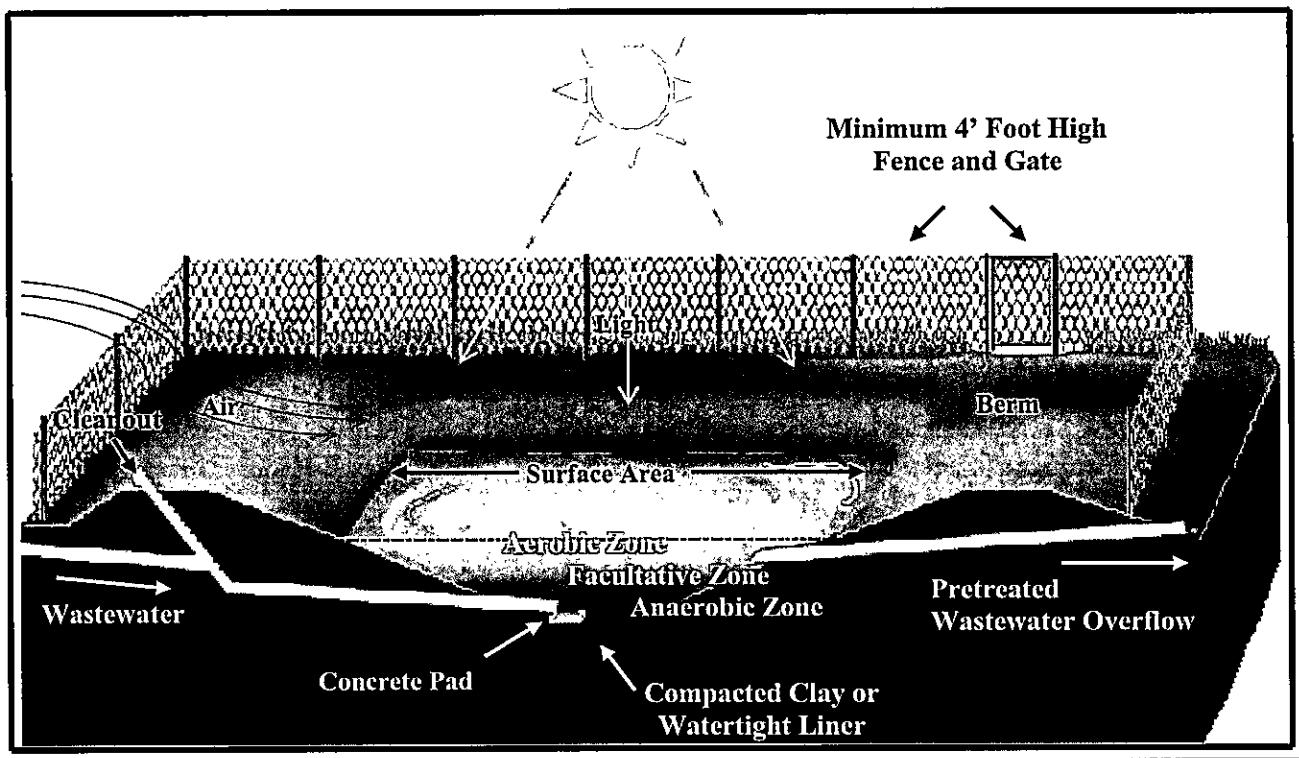


Figure 1: Lagoon. Lagoons hold WASTEWATER in a watertight basin where AEROBIC and ANAEROBIC processes help treat the water. A lagoon's large surface area and long retention time use sunlight, air movement and natural processes for WASTEWATER treatment.

Design and Construction

In Missouri, lagoons may not be allowed on lots with less than two and one-half acres of usable land area. During the design and construction phase, the following standards need to be taken into account.

A properly sized and constructed septic tank or aeration treatment unit is recommended preceding the lagoon.

Lagoons should be located:

- On slopes of 12% or less.

Lagoons must be located:

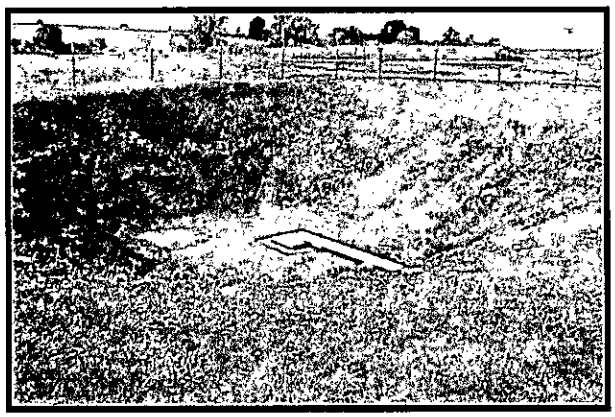
- In an area open to prevailing winds with the waters edge at least 50 feet from trees that could inhibit wind action or shade the water surface;
- Out of any natural drainage way; and
- To meet the set back distances specified in 19 CSR 20-3.060 Minimum Construction Standards for Onsite Systems.

The water surface area of the lagoon is based on the number of bedrooms (see Table 1: Size of Lagoon at the Three Foot Operating Level).

Storm water runoff should be directed away from the lagoon and the design of the berms must prevent entrance of surface water into the lagoon.

Any overflow from the lagoon must be kept out of natural drainage ditches and must be dispersed into the soils on the property from which it originated.

The lagoon area must be enclosed with a fence.



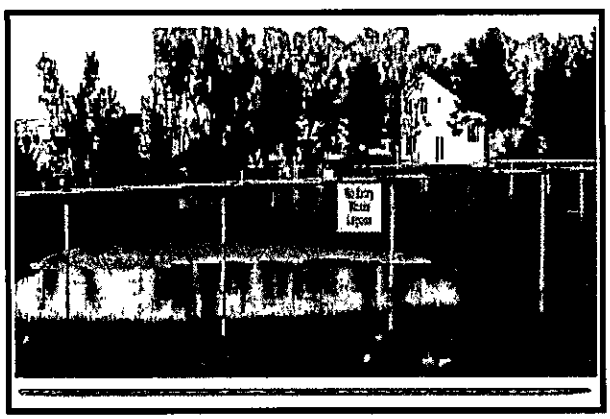


Table 1: Size of Lagoon at the Three Foot Operating Level

Number of Bedrooms	Water Surface Area (sq. ft.)
1-2	900
3	1320
4	1760
5	2200
Additional bedrooms above 5	2200 + 440 per bedroom

WASTEWATER overflow from a lagoon must be dispersed into the soils on the property from which it originated. This may be accomplished by the following methods or as approved by the ADMINISTRATIVE AUTHORITY.

Overflow Pipe

- The pipe should be located as far away from property lines as possible.
- Minimum distance from the outlet to the down slope property line is one hundred feet.
- The outlet pipe must be located out of any natural drainage ditches or swales. WASTEWATER cannot be concentrated; it should spread out and soak into the soil.

Constructed Terrace Swale

- A swale can be used to lengthen the flow path, spread the WASTEWATER out, and help disperse it into the soil.
- If the distance to the down slope property line is less than 100 feet, a swale must be at least one hundred fifty feet long.

Storage and Controlled Irrigation may be needed when there is less than twelve inches of permeable soil over a RESTRICTIVE LAYER.

- To utilize controlled surface irrigation, the pond must be capable of operating up to five feet (5') deep or have a second cell for storage.
- WASTEWATER cannot be irrigated when soils are frozen, covered with snow, or SATURATED.
- During and up to a month after irrigation, access to the application area must be restricted.
- Spray irrigation is not allowed.

Detention/Infiltration Pond

- Detention/infiltration ponds can be used to temporarily store overflow for infiltration into the soil.
- The detention/infiltration pond must be enclosed by a fence.

Maintenance - Grounds keeping

Although required lagoon MAINTENANCE is not complicated, regular upkeep of the lagoon area is important to ensure the system operates properly.

Grounds keeping

Wind and sunlight at the water surface play important roles in the treatment of WASTEWATER in a lagoon. Surface agitation, of any kind, adds oxygen to the WASTEWATER. Therefore, vegetation around a lagoon should be maintained at least monthly in the spring and summer; lagoons need more frequent upkeep when grass and weeds grow more quickly. Mowing grass and controlling weed growth in and around the lagoon is one of the easiest and most important tasks in lagoon MAINTENANCE. Long grass and weeds block wind and provide breeding areas for flies, mosquitoes, and other insects. In addition, weeds can trap trash, grease, and SCUM, which create odors and attract insects, as well as, provides food for burrowing animals that can cause damage to banks and berms. Roots of woody shrubs and trees can create holes in the berm, which become paths for water to leak out of the lagoon.

DID YOU KNOW?
Mowing the grass and weeding in and around your lagoon is one of the easiest and most important tasks in lagoon MAINTENANCE.

Maintenance - Inspections

The following should be inspected at least once per year to assure the lagoon is operating safely and properly:

- The fence and gate are in good repair and maintained in a manner that prevents the entrance of children and/or domesticated animals;
- The berm is in good condition, free from evidence of leakage, erosion, or animal burrows;
- The berm is covered with grass or other similar vegetation and maintained, within the fenced area, at a height that does not restrict adequate air movement over the lagoon;
- No trees or bushes are growing close enough to the lagoon to cause shading, organic loading or root damage;
- Floating vegetation growing in the lagoon is controlled, so as not to interfere with natural treatment processes;
- A minimum distance of 18" inches (24" inches recommended) is maintained between the highest level of WASTEWATER and the top of the berm;
- The depth of WASTEWATER is maintained at a working water level of at least 2' feet and no more than 5' feet. For most lagoons, 3' feet is normal; and
- WASTEWATER overflow is managed and dispersed into the soil on the site.

Maintenance - Pumping

The depth of the SLUDGE layer in lagoons should be checked every two years or as needed. In lagoon systems, SLUDGE eventually accumulates to a point at which it must be removed. How often SLUDGE needs to be removed varies depending on the climate, lagoon design, use, and how well it is maintained. A properly maintained septic tank or aeration treatment unit preceding the lagoon significantly reduces SLUDGE build up in the lagoon.

It is the responsibility of the homeowner or user of the lagoon to contract with a REGISTERED ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONAL or other qualified SERVICE PROVIDER for the periodic removal and treatment of the accumulated SLUDGE in the lagoon. The owner or user of the system must schedule for the removal and sanitary disposal of excess SLUDGE to manage the WASTEWATER level to prevent WASTEWATER from discharging from the lagoon and flowing off of the property; while maintaining at least eighteen inches of water above the SLUDGE layer.

Lagoon MAINTENANCE includes cutting grass, weeds, and trees growing near the lagoon. The lagoon berm can be damaged when woody plants are allowed to grow. Duckweed growing on the water surface and grass or weeds growing over the waters edge can interfere with treatment and harbor mosquitoes.

The WASTEWATER TREATMENT SYSTEM PROFESSIONAL or other qualified SERVICE PROVIDER is responsible for the proper treatment and disposal of all hauled WASTEWATER by transporting to a municipal sewage treatment plant capable of receiving the waste; transporting to a SLUDGE handling facility which possesses a current and valid permit issued for such activity; or land applying under a current and valid permit for such activity.

Warning Signs of System Malfunctioning

While proper use, INSPECTIONS, and MAINTENANCE should prevent most lagoon problems, it is still important to be aware of changes in your system and to act quickly if you suspect the system is MALFUNCTIONING. The most obvious lagoon issues are easy to spot.

- The presence of weeds and long grass along the berm. The berm must to be mowed and weeded regularly;
- The presence of duckweed, watermeal, or hyacinth growing on water surface. These plants should be physically removed;
- The presence of blue-green algae. This algae is stringy and can clump and block sunlight; it can dominate lagoons when conditions are poor, when pH is low, or when protozoa eat all of the green algae. Blue-green algae can be physically removed like duckweed;
- The presence of an algal bloom. This may occur after periods of cloudy weather or abrupt temperature changes. Matted algae on the surface can block sunlight and cause foul odors and should be broken up and dispersed;
- The presence of odors. Lagoons may occasionally have odors from algal blooms, ANAEROBIC conditions, SCUM, and turnover of the lagoon contents in spring or by temporary overloading, ice cover, or atmospheric conditions. These odors may be controlled by broadcasting sodium or ammonium nitrate over the surface of the pond. In general, the amount of sodium or ammonium nitrate should not exceed two pounds per day until the odor dissipates;
- The observation of short circuiting, or dead spots in the flow pattern, due to obstructions in the lagoon or to wind on the surface. This can cause WASTEWATER to leave the lagoon too quickly, resulting in inadequate treatment of the WASTEWATER;
- The presence of erosion. Controlling burrowing animals around the lagoon can help prevent erosion of berms;
- The presence of burrowing animals; muskrats and other burrowing animals can be discouraged by weeding and mowing the lagoon berms;
- The change of water color. Bright rich green color indicates good conditions; dull green or yellowish color can indicate an undesirable type of algae is becoming dominant in the lagoon; gray or black color can indicate ANAEROBIC conditions; and tan, brown or red color can indicate either soil in the water from berm erosion or the presence of algae with different pigmentation; and
- The presence of SLUDGE accumulation. SLUDGE in the bottom of lagoons should be measured at least once per year and removed as needed.

Onsite systems fail when partially treated WASTEWATER comes into contact with groundwater. This type of failure is not easy to detect, but can result in the pollution of wells, nearby streams, or other bodies of water.

If you notice any of these signs or you suspect your system may be having problems, contact a qualified SERVICE PROVIDER or the local onsite WASTEWATER ADMINISTRATIVE AUTHORITY for assistance.

Lagoon Do's and Don'ts

Proper OPERATION and MAINTENANCE of your onsite system can prevent costly repairs or replacement and can protect your property value. Observing the following recommendations will help to keep your system operating properly.

Do's

- Obtain the necessary permits from the appropriate ADMINISTRATIVE AUTHORITY before making any repairs.
- Use REGISTERED ONSITE WASTEWATER TREATMENT SYSTEM PROFESSIONALS and qualified SERVICE PROVIDERS.
- Keep the system accessible for INSPECTIONS and pumping; yet locked or otherwise secured to prevent accidental entry.
- Have your septic tank inspected annually if it has an EFFLUENT screen or every two years if it does not.
- Have your septic tank pumped routinely. Pumping your septic tank when needed may be the single most important thing you can do to protect your soil treatment system and your investment.
- Keep detailed records regarding the system, its location, contract service agreement, service visits, and MAINTENANCE performed.
- Conserve water to avoid overloading the onsite system, use high-efficiency fixtures and promptly repair any leaky faucets or toilets.
- Divert other sources of water, like roof drains, house footing drains, and sump pumps away from the soil treatment area.
- Have your private water well tested periodically or if you experience any warning signs of the system MALFUNCTIONING (contact your local public health agency).

Don'ts

- **Don't enter a sewage tank.** Poisonous gasses or a lack of oxygen can be fatal.
- Don't allow the overflow from the lagoon to leave your property, even during wet weather.
- Don't plant a garden, trees, or shrubbery near the lagoon. This could cause shading, SLUDGE build-up, and increase odor levels.
- Your sewage system is not a trash can. Don't put dental floss, feminine hygiene products, flushable wipes, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, paint, pesticides, or other hazardous chemicals into your system.
- Don't allow children or pets to play in the lagoon; they could come into contact with WASTEWATER that could make them sick.
- Don't drive or park vehicles or allow livestock on any part of your sewage tank system. Doing so can compact the soil or damage the pipes, tank, or other onsite system components.
- Don't build over any part of your system; this includes patios, carports, and other structures.

Reasons for Maintaining Your System

For many homeowners their ONSITE WASTEWATER TREATMENT SYSTEM may easily be the most overlooked and undervalued utility in the home. If you are like many homeowners, not much thought is given to what happens to the waste that goes down the drain. Yet if you rely on an onsite system to treat and disperse your household WASTEWATER, proper OPERATION and MAINTENANCE of your system can have a significant impact on how well it works and how long it lasts.

There are three main reasons why ONSITE WASTEWATER TREATMENT SYSTEM MAINTENANCE is so important-

- The first reason is protecting your HEALTH, the health of your family, and the environment. Household WASTEWATER is loaded with disease-causing bacteria and viruses, as well as, high levels of nitrogen and phosphorus. When onsite systems fail, inadequately treated household WASTEWATER is released into the environment and can contaminate nearby wells, groundwater, and surface waters. Any contact with untreated human waste can pose a significant health risk.

- The second reason is MONEY. MALFUNCTIONING onsite systems are expensive to repair or replace, and neglected MAINTENANCE by homeowners is a common cause of early system failure. The minimal amount of preventative MAINTENANCE that onsite systems require costs very little in comparison to the cost of a new system. For example, it can easily cost more than $10,000 to replace a failing onsite system, compared to $200 - $500 average per year costs to have a system routinely inspected, serviced or pumped.

- The third reason is to protect your PROPERTY VALUE. An unusable onsite wastewater treatment system or one in disrepair can cause property values to decline. It can also make it difficult to sell the property; in cases when a property transfer INSPECTION is mandated, the property sale may be delayed if the ONSITE WASTEWATER TREATMENT SYSTEM is not operating properly. In addition, building or occupancy permits may be denied for these properties. MALFUNCTIONING onsite systems can reduce property values in the area if they contribute to the pollution of local rivers and lakes that your community uses for commercial or recreational activities.