

2008 Lake Chetac Sewer Survey



Lake Chetac aerial photo taken spring of 2008

Town of Edgewater

Sawyer County Wisconsin

Sawyer County Sanitarian/Soil Morphologist—Mert Maki

Sawyer County Zoning and Sanitation Technician—Eric Wellauer

Zoning and Sanitation Intern—Jay Kozlowski

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Background on Intern

The Sawyer County Zoning Office Intern is Jay Kozlowski. Jay was chosen for this internship from a long list of candidates. Jay's advanced knowledge in soils and waste management as well as a recommendation from Dr. Aga Razvi, a professor at the University of Wisconsin-Stevens Point, made him the top applicant. Currently Jay is attending school at the University of Wisconsin-Stevens Point and will be graduating in May '09. Upon graduating he will obtain a Bachelor of Science Degree in Soils and Waste Resources-Waste Management as well as a minor in Soil Science and Business Administration. Jay is very enthusiastic to be learning more and more about soils and waste management every day, and hopes after graduation to find a job that relates to his passion in this field.

**Initial letter sent to all lake front property owners along with the petition for lake pollution survey project. Dated September 1, 2006*

To Lake Chetac Property Owners:

The Big Chetac and Birch Lakes Association needs your help dealing with the growing problem of algae blooms on Big Chetac. Our problem has deteriorated to the point that our lake has been classified a public health risk by the state. It is recommended that neither animals nor young children swim in the lake during an algae bloom. There are many causes responsible for the general degradation of a lake's water clarity and quality. One is failing or failed septic systems.

We believe it is our obligation as property owners to be good stewards of the land and the lake we enjoy. The Big Chetac and Birch Lake Association requests your cooperation by authorizing on-site septic sewer system inspection of Big Chetac Lake shore properties to ensure compliance with the Sawyer County Private Sewage System Ordinance and Dept. Commerce, Chapter 83 Private Sewage statute.

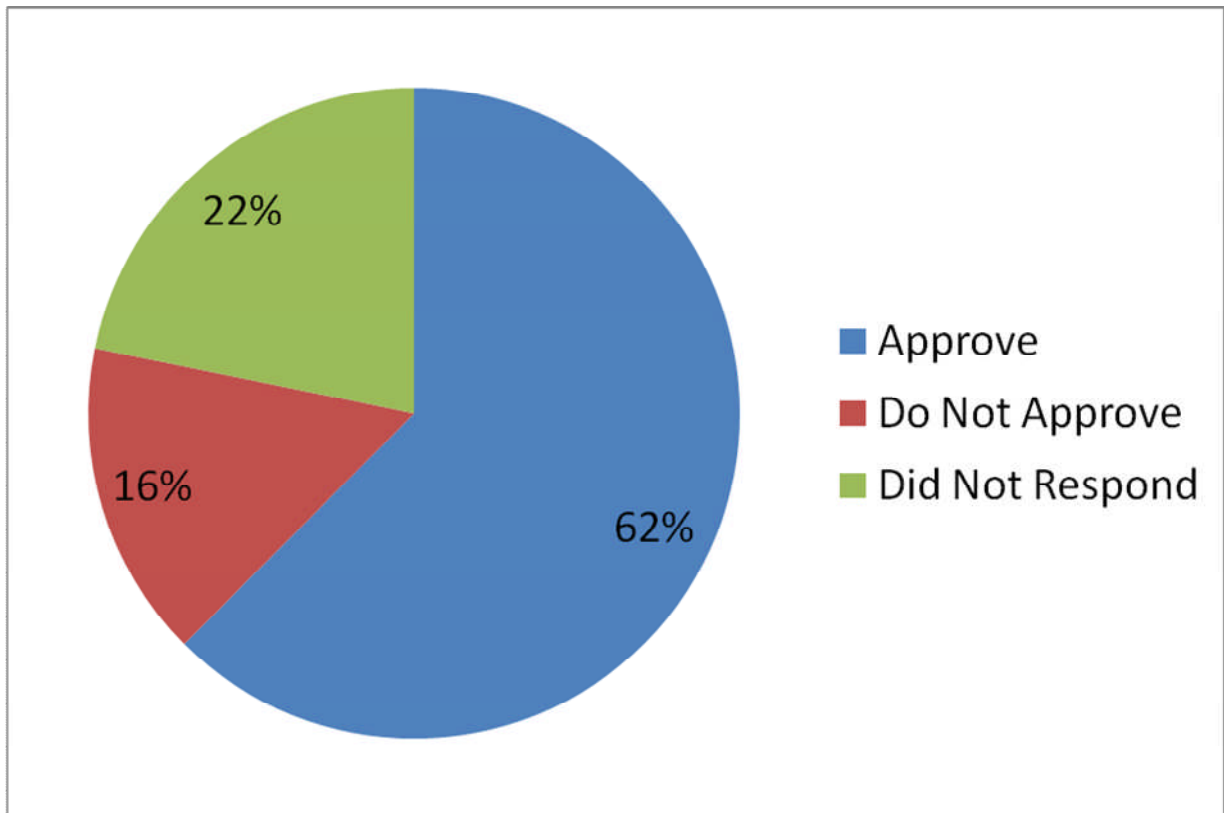
Sawyer County will conduct septic inspections, at county expense, for property owner groups that obtain inspection, however upgrade expense for non-compliant septic systems is the responsibility of the property owner.

All property owners are requested to respond by October 15, 2006. Everyone's input and opinion are important and needed. Please sign, date and indicate your opinion on the enclosed/attached form (not shown here). Return in the enclosed stamped envelope. We thank you in advance for your consideration of this issue. Responses are confidential (results will be published). We will keep you posted regarding the status of opinion responses. If you have concerns or questions, please call; Joe Kehoe, Pres. 354-3890; Tom Raby, Vice Pres. 354-7063; Suse Schmitt, Bd. Mem. 354-7145

Sincerely,
Big Chetac and Birch Lakes Association

To Preserve, Protect & Improve the Quality of the Lake Resources

The Lake Association first circulates the petition to all lake front property owners asking if they approve or disapprove of a septic sewer survey to occur. Once the association gets over a 51% approval the zoning committee procures money from the County Board to fund the project. They ended up getting 62% in favor of survey.



62% Approve
22% Did Not Respond
16% Do Not Approve

Office of

Sawyer County Zoning Administration



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General Outline of the Lake Septic Sewer Survey ~ Sawyer County

1. The County gets the lakeshore owners approval list.
2. The lake association will be placed on the waiting list. Depending on funding and the availability of college interns, it may be 1-3 years before the survey is conducted.
3. The Zoning Committee procures money from the County Board to fund the project. If the County Board only approves partial funding, the lake association must pay the balance, or get a grant from other resources.
4. If funding is approved, the Zoning Office will notify Northland College in Ashland, or UW-Stevens Point for a summer intern student.
5. The County and the college will sign a contract agreement to hire a college intern for a period of 12 weeks. The survey is conducted from approximately June 1 through September 1.
6. The student intern will be supervised by the County Sanitarian/Soil Morphologist.
7. The intern will research all previous sanitary permits and soil tests that have been conducted on each lakeshore property.
8. The student intern will be supervised and field trained by the County Sanitarian Mert Maki, WI License #224901.
9. The County Sanitarian and intern will inspect each existing septic sewer around the lake. Hands-on field training will be conducted for 3-4 weeks. Once the County staff feels confident that the intern has all the required knowledge of inspection procedures, the intern will conduct the inspections on their own.
10. The field inspection starts with an informal interview with the homeowner (if present). The intern will ask the homeowner to respond to a few questions about the

sewer, any sewer problems, bad odors, sewage on the ground, pumping cycle, year round or seasonal usage, garbage disposal, etc.

11. The inspector will locate the sewer system and draw a layout or plot plan showing the location of the home, outbuildings, septic tank, sewer system, well and location of the lakeshore. Measurements will be taken from the home to septic tank, home to septic vent, distance to well and distance to the lake.
12. The inspector will set up a contractor's transit to measure the field elevations of the ground by the sewer, the bottom of the sewer and record the Ordinary High Water Mark (OHWM) of the lake. Measuring the vertical difference from the bottom of the sewer system (system elevation) to the OHWM may give an indication that the sewer is not code compliant. State code requires 36" vertical separation from the bottom of the sewer to a restrictive factor. A restrictive factor may be soil mottling, saturated soils, ground water, and/or bedrock.
13. If in an area of potential high ground water and poor soils, a 3" diameter soil auger will be used to bore a hole adjacent to the sewer. The inspector will bore a hole to a depth of 3' below the system elevation. The inspector will record any restrictive factors present to see whether the system meets state code.
14. The survey does not include septic tank inspections. We do not have the time, staff, or funds to inspect septic tanks. However, if a lakeshore owner wants to contact a septic tank pumper, we are more than glad to be on-site for pumping and inspection of the septic tank. A word of caution on old steel septic tanks: It is our experience that steel septic tanks start rusting out at about 15 years old. Old tanks will pinhole out and the steel baffles deteriorate and/or fall off.
15. If a failed sewer is noted, the County Sanitarian/Soil Morphologist will visit the site with the intern to confirm the failure. The County will issue an "Order for Correction" to the homeowner. The homeowner will have one (1) year to replace the failed system. If we encounter a severe failure, sewage on the ground, sewage close to the lakeshore, or sewage causing a general health hazard, we can issue a 30-60 day order.
16. If our observations indicate a failed system, the homeowner has the right to have a private sewage inspector inspect the system at their own expense. The private licensed qualified inspector (Master plumber, soil tester, POWTS inspector) will charge approximately \$150-\$300 to conduct a thorough test.
17. After all the field work is completed, the intern will tabulate all the passing and failing sewers. The intern will also write a written report of the sewer survey prior to the completion of the 12 week project.
18. The lake association will receive copies of the written report.

19. The County Sanitarian will continue to do all the follow-up until the project is complete. This may take 1-2 years for final completion.
20. If the homeowner does not replace the failed sewer, the county will issue a "Second Order for Correction". If the homeowner does not comply after the second notification, the County will issue a citation for failure to replace the failing system.
21. Sawyer County administers the Wisconsin Private Sewage Grant fund. Resident homeowners that qualify may be eligible for this grant that can pay for approximately 50% of the sewer replacement costs.
22. The Lake Septic Sewer Surveys are very worthwhile projects in our Northwood's lake setting. It requires a lot of cooperation from the lake association, a dedicated staff at the Zoning office and an energetic college intern to complete the project. The ultimate goal is to check for failed septic sewer systems on or near our lakeshores. Properly functioning, code complying sewer systems will cleanse the sewage for proper re-entry into the ecosystem. It is very important to protect our environment, the groundwater we drink, and the lake waters that provide us with beauty, serenity, and recreation. "We all must be stewards of the land".

Lake Septic Sewer Survey

Lake Association Responsibilities

1. Lake association must petition all lakeshore property owners for approval of the septic survey.
2. Must get 51% of the lakeshore owner's approval. It is best to get at least 60% approval. The higher percentage of approval the less negative attitude there is towards the sewer inspectors.
3. For those lakeshore owners that did not respond it is best to send a second notice letter.
4. Submit the approval list to the Sawyer County Sanitarian.
5. The lake association's name will be placed on the lakes priority waiting list. Depending on funding and the availability of college interns, the project may not be conducted for 1-3 years.
6. The County has funded the lake survey in the past. The County has paid for intern's salary, mileage and office supplies. Due to future tighter budgets, the Zoning Committee and the County Board may request cost sharing with the Lake Association.

General Lake Data and Purpose of Survey

Lake Chetac is located in sections: 3, 4, 5, 8, 9, 16, 17, 18, 19, and 20 of Township 37 North, Range 9 West, and sections: 27, 28, 33, and 34 of Township 38 North, Range 9 West. The lake primarily lies in the southwest corner of Sawyer County in the Town of Edgewater. The lake covers over 1920 acres in area. The max depth of the lake is 28 feet with a mean depth of 14 feet. There are 2 public boat launches, both located on the east side of the lake. The boat launch located on Ol' Hays Rd. is a barrier-free boat ramp with a boarding dock. This is a drainage lake that is primarily feed through other tributaries and streams as well as natural spring aquifers that run into it. Several fish species are present in Lake Chetac, including: Northern Pike, Large Mouth Bass, Small Mouth Bass, Walleye, and assorted pan fish.

The Lake Chetac area is an example of the fine natural resource that residents and visitors to Sawyer County appreciate and enjoy. It is our responsibility to use the land and water in an acceptable manner and to protect our valuable resources. By conducting the septic sewer survey on the properties surrounding Lake Chetac we are taking an active role in this protection. The cooperation of the property owners with the help of the lake association has helped the greater lake community for years to come.

The purpose of this sewer survey is for the Lake Association that is interested in maintaining the groundwater and lake water quality and clarity of Lake Chetac. Lake water quality is degraded by many factors such as; agricultural runoff, lawn fertilizers, pesticides, herbicides, soil erosion and sedimentation runoff, and failing septic systems. The Lake Association would like to ensure that all septic sewer systems are in code compliance with the Sawyer County Sanitation Ordinance and Department of Commerce Chapter 83 (Private Sewage Code). This is one of the contributing factors to lake degradation that can be corrected and controlled.

General Overview

Over 25 million homes dispose of domestic wastewater through onsite sewer systems. Approximately 700,000 of the private onsite wastewater treatment systems (POWTS) are in located in Wisconsin alone. Maintaining POWTS properly helps protect the health of your family, your community, and the environment. This is because household wastewater may contain bacteria, viruses, household chemicals, and nutrients such as nitrogen and phosphorus. A failed septic system can contribute to the pollution of the groundwater, the local rivers and lakes, and the shorelines that are used for commercial and recreational activities by the community.

Soil treats the wastewater effluent by acting as a filter, trapping the viruses, bacteria, and nutrients in its pores or on the soil pedons themselves. Some of the chemical constituents are absorbed and used by plants, while the remainder moves through the soil. There are only certain types of soil that can purify sewage effluent. If the soil pores are too large or too small, the wastewater effluent will either percolate too rapidly or too slowly. Insufficiently treated effluent may cause groundwater contamination and health hazards will arise if people or animals contact the effluent.

Department of Commerce Chapter 83, Wisconsin Administrative Code, defines what is needed for a soil and site to be suitable for a POWTS. Some of these requirements include: 1) A three-foot separation between the bottom of the soil absorption system and groundwater, seasonal high groundwater, or bedrock. A two-foot separation is allowed on POWTS installed prior to December 1, 1969; 2) Soil conditions not well suited for the treatment and disposal of wastewater; 3) Slopes greater than 25 percent are not suited for POWTS. Following the codes made by the Department of Commerce will help in preventing further groundwater contamination and will help protect the public health and welfare of all.

Prior to installing a sewer system, the state requires a licensed soil tester to conduct a soil test to check the suitability of soils for a sewer system. Old soil tests used to be referred to as "PERT" or "PERC" tests. PERC stands for percolation tests and these were antiquated and somewhat unreliable. The soil horizons were not taken into consideration. The State of Wisconsin changed from the old "PERC" tests to soil morphology testing on July 1, 1994. Soil morphology

testing is much more detailed and more accurately describes the soil texture, soil horizons, soil structure, soil consistency, and soil mottles for the suitability of septic systems. Soil mottles are spots, blotches or streaks of different colors of shades of color mix together with the dominate soil matrix color. Mottles are bright yellowish-red (high chroma) to dull grayish-brown (low chroma). Mottles act as a morphological indicator of seasonal soil saturation, soil wetness or poor aeration. This is a restrictive factor that sewer systems may not be put into because it adversely affects the operation of a private sewage system. There must be a minimum of 3 foot vertical separation before any limiting factors (2 feet required for systems installed prior to December 1, 1969).

Types of Public Onsite Wastewater Treatment Systems (POWTS)

POWTS technology has advanced through the years and so has the treatment of domestic household waste. Some of the types of systems currently being installed under the regulations of the Department of Commerce include privies, holding tanks, conventional gravity systems, conventional lift systems, in-ground pressure distribution systems and mounds.

There are two basic types of privies. One is an open pit privy, which simply is a hole dug in the ground under a privy. An open pit privy requires a soil boring to prove that soils are suitable for waste. The second type of privy is a sealed vault privy. A sealed vault privy requires a minimum storage capacity of a 200 gallon watertight container to hold all waste and must be pumped by a licensed waste hauler when full. Other types of privies also include portable restroom units and a variety of different composting and incinerating toilets. Privies are for minimal and occasional usage and can be installed when a dwelling does not have pressurized water. If a dwelling has pressurized water, a code complying POWTS system must be installed.

A holding tank is another type of system. A holding tank is a watertight receptacle for the collection and holding of wastewater. The minimum size holding tank for up to a 3 bedroom house is a 2000 gallon capacity tank. When the tank is full, a waste hauler must be contacted to pump and dispose of the effluent either by land-spreading or at a municipal wastewater treatment plant. When soils and/or topography become limiting factors, a holding tank may be the only viable system. Except for privies and holding tanks, all other systems include an important component called a septic tank. A septic tank is a water

treatment device defined by the Department of Commerce as a device which renders inactive or removes microbiological, particulate, inorganic or radioactive contaminants from water which passes through the device or the water supply system downstream of the device.

Downstream of the septic tank is another component of a POWTS, the Soil Absorption System (SAS) or also called a cell. Cells can not be wider than 6 feet. Most cells are designed to be long and narrow, to utilize a larger soil area for treatment, including the native soil of the sidewalls of each cell. There are several different types of media used for SAS. Some examples are washed and screened rock, washed and screened sand, gravel-less leeching chamber units and other artificial media.

The most common POWTS is a conventional gravity flow system. This system includes a septic tank and a SAS. The SAS is located at a lower elevation than the outlet of the septic tank and the effluent flows via gravity to the cell(s).

A conventional lift system is similar to that of the gravity flow system, but the cells are located at an elevation above the outlet of the septic tank. A separate chamber is required to house a pump to dose the effluent to a high point and then the effluent flows to the cell(s) via gravity. This chamber can be in combination with the septic tank or a separate pump tank.

An in-ground pressure distribution system is also a lift system that utilizes the shallowest natural soil possible which is 36 inches. It includes a septic tank, a pump chamber or pump tank, and a pressurized dosed cell.

If 36 inches of natural suitable soil are not available, washed and screened sand is needed to construct a mound. Mounds require a large area and a level site. A mound system also includes a septic tank, pump chamber or pump tank, and a pressurized dosed cell.

Some types of SAS, still present and in use today, once considered acceptable, but are no longer being installed due to state code changes include drywells, cesspools and conventional septic beds.

Drywells, also called seepage pits, were once commonly installed as a way of treating effluent leaving the septic tank. Drywells were constructed out of concrete blocks, bricks, fieldstones, or rocks and composed in a 4 – 6 foot diameter cylindrical shape and up to 8 feet in depth. Most were installed 5 – 15 feet in the ground. Because of this deep construction

technique, not only was it dangerous to install drywells, but many were installed in or slightly above ground water resulting in untreated effluent entering the ground water. If a drywell was installed in groundwater, the system would very seldom fail or back up into a house, because the groundwater would flush the system out. The untreated effluent would then travel through the ground water to the water we drink and to surface waters of lakes, rivers and streams. Present code requires a minimum separation distance of 36" between the bottom of the infiltrative surface of a system and a limiting factor such as groundwater.

Cesspools are defined by Department of Commerce Chapter 81 as an excavation which receives domestic wastewater by means of a drain system without pretreatment of the wastewater and retains the organic matter and solids permitting the liquids to seep from the excavation. Some cesspools were constructed in such a manner that they did not have a cover and were exposed to the ground surface. This type of system does not utilize a septic tank and poses a serious health threat. The use of a cesspool as a POWTS is prohibited, including any cesspool existing prior to July 1, 2000.

The life span of a particular POWTS depends on water usage, household habits and other criteria. One way to improve effluent quality is to install an Aerobic Treatment Unit (ATU). An ATU introduces oxygen into the treatment tank to improve effluent quality before entering the SAS. An ATU can be installed to rejuvenate a failing SAS, and can also allow for downsizing of the installation of a new SAS, if area or soils are a limiting factor. An ATU is also required to be installed in eating establishments and other commercial businesses which have high strength waste. As technology continues to improve, new types of private onsite wastewater treatment components and systems will better protect public health and the waters of the state.

The Lake Survey

The Sawyer County Zoning and Sanitation Office, with cooperation from area lake associations, have been conducting septic sewer surveys for approximately 30 years. The most recent lake surveys include: Spider Lake 1991-1992, Teal & Ghost Lake 1993, Lac Court Oreilles 1994, Lost Land Lake & Blueberry Lake 1995, Big and Little Round Lake 1998-1999, Tiger Cat Flowage 2001-2002, Windigo Lake in 2006, and Grindstone Lake 2007.

Sawyer County does not conduct septic sewer surveys every year. It depends on whether a lake association is ready for the survey, as well as if the County Board has approved funds for lake surveys.

The lake association must initiate the lake survey. In 2005, The Big Chetac Lake Association contacted the Zoning Office to inquire about a future lake survey. Between 2005 and 2007 the association mailed petitions and permission slips to the lakeshore owners to conduct the survey. By the year 2007, the Big Chetac Lake Association had 60%-62% of the lakeshore property owner's approval. The lake association contacted the Zoning Office to have its name put on the lake survey priority list.

The survey was started in May of 2008, and continued through August 2008. Prior to starting the actual field work, the student intern researched the property information from the county tax files. If sanitary permits and soil tests were on file after 1971, copies were made for reference while doing the field work. These packets that the intern compiled better served him for knowing more information about the property before even stepping on to it. After all the research was completed, which was about 3 weeks, the actual field work was started. The starting point for the survey was chosen at the very North end of the Lake on East Shore Drive and continued clockwise ending on County Hwy F. For the next 3 weeks the field work was conducted by the County Sanitarian/Soil Morphologist and the summer student intern together. After the intern got a grasp on how to do the survey he continued to work by himself for the next 6 weeks. The County Sanitarian or Sanitarian Technician would occasionally help the intern on difficult sites where the system type was unknown and also to verify failures. The last 1-2 weeks of the survey were used to wrap up the results and to go back on any inconclusive sites.

Field Inspection Techniques

The County Sanitarian and Summer Intern research department permits and make copies of any/all previous sanitary permits and soil tests for properties involved in the septic survey. This information is used on each onsite property inspection. The previous sewer inspection sheet and plot plan are used to locate the sewer system. Setback measurements are taken from the home, septic tank, septic system, well, and the lake and are verified with previous inspection reports.

Upon arriving at each property, the inspectors introduce themselves if the homeowner is present, and explain the purpose of the visit involving the lake survey. Questions such as if the owner's usage is year round or seasonal, the number of household members, the number of bedrooms, age of the system, the type of system, and if they pump on the required 3 year cycle are asked. If the homeowner is not present, the field work is conducted and an informational sheet is left on the door as to the time and date of the inspection, results, and additional comments.

The inspection proceeds by locating the system vent (if present), and removing the inspection/vent cap. The inspector drops a small rock into the vent to check for ponding water. If the system is dry, in most cases the system passes. If there is any suspicion of the system elevation and a high groundwater situation, the system is investigated in more detail. If water is present, the depth, time and date are recorded. Water ponding in the system may indicate an older mature system that has developed a clogging mat. If a clogging mat is present, sewage water cannot move down through the native soil, causing water to build up in the system. If there is a large amount of water (5-10 inches) and a thick black tar-like clogging mat is present, the system is aging and may be near failure. If ponding sewage water is found on the ground, around the system or around the vent, it is a failed system. If an unusual amount of water is found ponded in a newer system, the inspectors will question the homeowner about daily usage. For example, the family household may have recently taken many showers/ baths or laundry, which would result in a large amount of household water discharge, thus causing the ponding. In this example, we may discover that the ponding is a false indicator of failure. Another false indicator of ponding may be our inspection taking place after several days of heavy rainfall, resulting in ponding.

Another method of inspection involves taking elevations of the sewer system, and comparing the elevation to the Ordinary High Water Mark (OHWM) of the lake. A surveyor's transit is set up to calculate the ground elevation by the system, at or near the bottom of the system and at the OHWM.

The State of Wisconsin private sewage code, Department of Commerce Chapter 83, requires at least 36 inches of suitable unrestricted soil under all systems. Having 36 inches of natural or native soils will treat the sewage effluent enough to re-enter the groundwater.

While calculating the difference between the system elevation to the ordinary high water mark there needs to be 36 inches of separation. If the differential is greater than 36 inches, that is good. If the separation distance is around 36 inches or less, other testing methods are used to verify passing or failing the system. If the bottom of the system elevation is at the lake elevation or below, it is in most cases a failure and requires more field work using a soil auger boring.

The final method of inspection involves a soil auger boring adjacent to the system. A 3 inch diameter hand soil auger is used to bore a hole to a depth of 36 inches below the system and record the soil restrictions if present. Any soil restrictions are noted, such as soil mottles, saturated soils, groundwater and/or bedrock. If soil restrictions are within 36 inches below the system, the system fails and must be replaced by a code complying system.

Failing Systems

When the inspectors encounter a failed system, they will record all information and state the reasons for failure. Causes of failure may be a variety of reasons such as: ponding sewage on the ground, a collapsed septic tank or drywell, sewage water flowing towards the lake or a well, sewer system located in groundwater, or a sewer system that does not have 36" of suitable soils below the system.

If the homeowner is present, the inspectors will discuss the reasons for failure with them. The Zoning Office will send the owner an "Order for Correction" to replace the failing sewer system. State Code requires the owner to replace the system with a code complying system within one (1) year of the date of failure.

Should the homeowner disagree with the determination of failure, they have the right to hire a licensed person to dispute the findings. A qualified licensed person will be a master plumber, master plumber restricted, a POWTS inspector and/or a certified soil morphologist. If the homeowner does not replace the failing sewer system within the one year deadline, the Zoning Office can issue a non-compliance citation. Currently, the citation fee for non-compliance is \$753.00.

Definition of Failure

When homeowners are asked how their sewer system is working, common responses vary: “the system is working fine”, “we’ve never experienced a back-up or sewage on the ground”, or “we’ve never had a failure”. Another common excuse is, “we only use the cabin a couple of times a year.” State code does not rely of amount of usage. The County Sanitarians relies on the State of Wisconsin Department of Commerce’s definition of failure, Chapter 81.01 (92):

“Failing private onsite wastewater treatment system” has the meaning specified under s. 145.245 (4), Stats. Note: Section 145.245 (4) reads:

“Failing private sewage system” means a private sewage system which causes or results in any of the following conditions:

The discharge of sewage into surface water or groundwater.

The introduction of sewage into zones of saturation which adversely affects the operation of a private sewage system.

The discharge of sewage to a drain tile or into zones of bedrock.

The discharge of sewage to the surface of the ground.

The failure to accept sewage discharges and backup of sewage into the structure served by the private sewage system.

Wisconsin Fund

The Wisconsin Fund Grant Program, established in 1978, is a program that provides financial assistance to property owners with a failing septic system to help protect the public health, safety, and the waters of the state. Most counties in Wisconsin, including Sawyer County, participate in this program. Not every property owner in the county is eligible to receive the grant and filling out the application does not guarantee the homeowner will receive assistance. There are a number of requirements that must be met.

- 1) Your permanent residence must be in the state participating in the program and must be occupied by the owner 51% of the year.
- 2) Your system must be considered failing by code.
- 3) The private sewage system serving your principal residence or small commercial establishment was constructed prior to July 1, 1978.
- 4) Family income of all owners of the primary residence is less than \$45,000 or the gross revenue of the small commercial establishment is less than \$362,500.

Failing septic systems are divided into three categories:

Category 1 failures are those that fail by discharging sewage to the surface water, groundwater, bedrock, or into zones of seasonally saturated soils. These are considered the highest priority, and currently this is the only category being funded by the state.

Category 2 systems are those that fail by discharging sewage to the surface of the ground.

Category 3 failures are those that fail by causing the backup of sewage into the residency or business served.

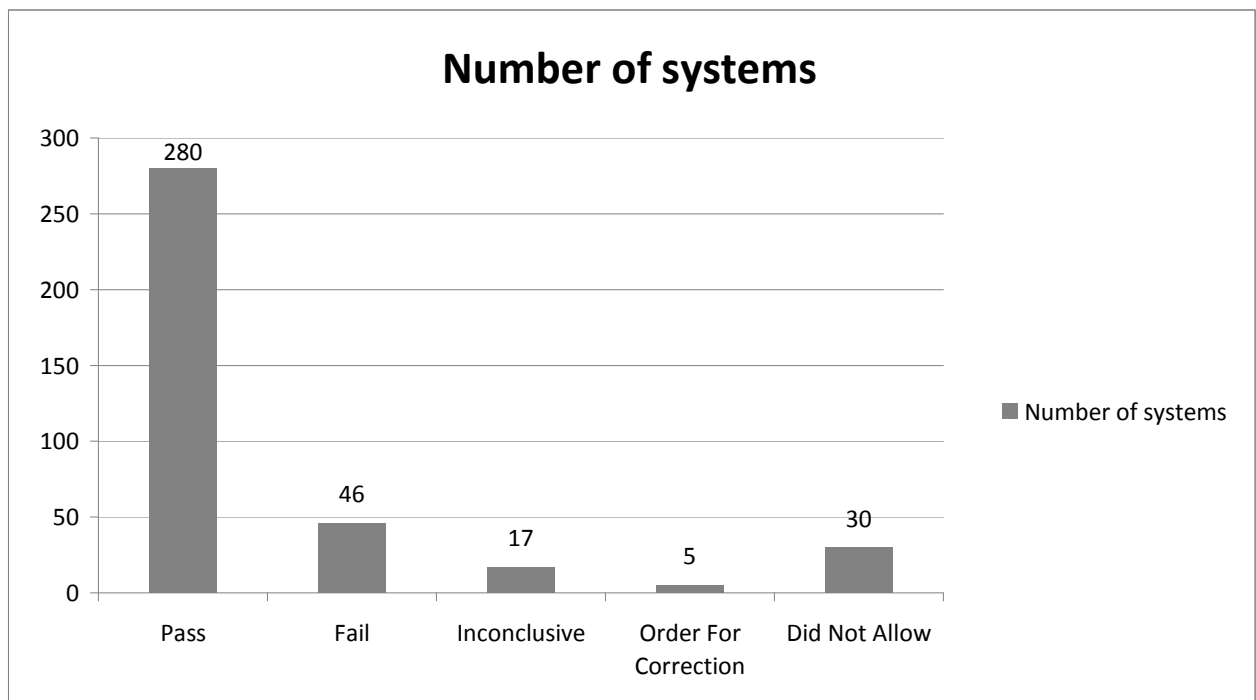
The State of Wisconsin has budgeted approximately \$2.9 million dollars annually for the grant program. The homeowners grant is approximately 50% of the system cost, and not to exceed 60% of the total system cost. The maximum grant for a small commercial business is \$7,000. Monies received through the Wisconsin Fund Grant are a reimbursement to the homeowner. It can take up to a year to receive a reimbursement check.

2008 Sewer Results

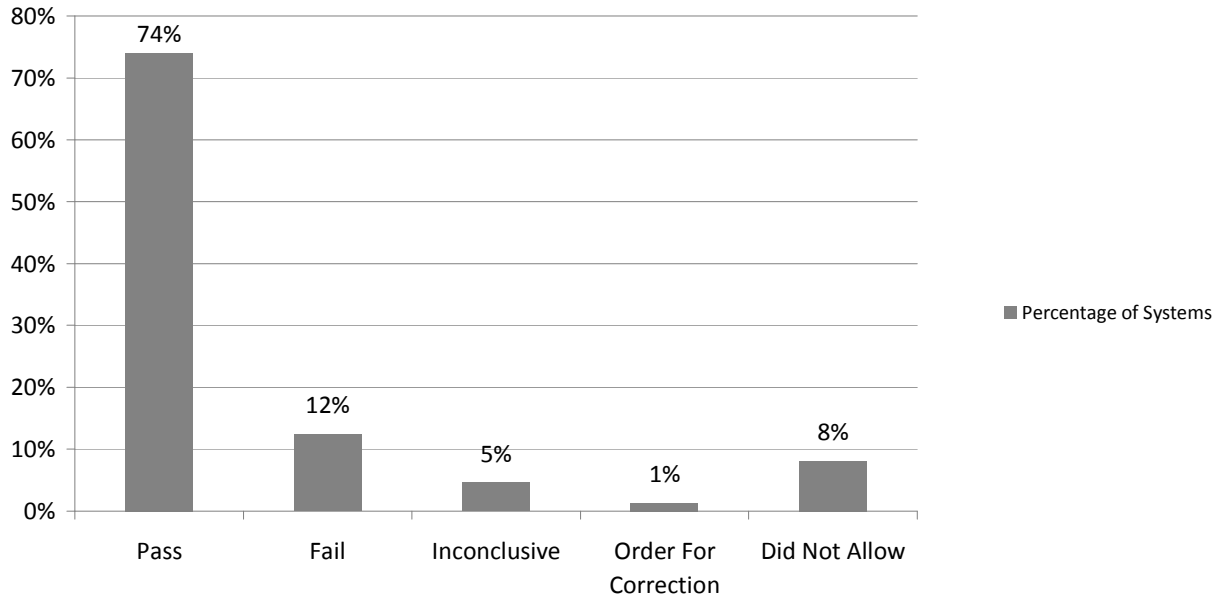
Individual results and a listing of names can be obtained in the additional spreadsheet file named 2008 Lake Chetac Results. This spreadsheet gives the listing of all names for systems that pass, fail, inconclusive, order for correction, and did not allow. This only gives the listing of sewer systems and does not give the total number of properties. Several properties have multiple sewer systems with multiple dwellings. This is why the results reflect the total number of systems. The failures, inconclusives, order for corrections, and did not allow also list the addresses of those properties. The following graphs better display the conclusions of the survey.

Total Systems Inspected

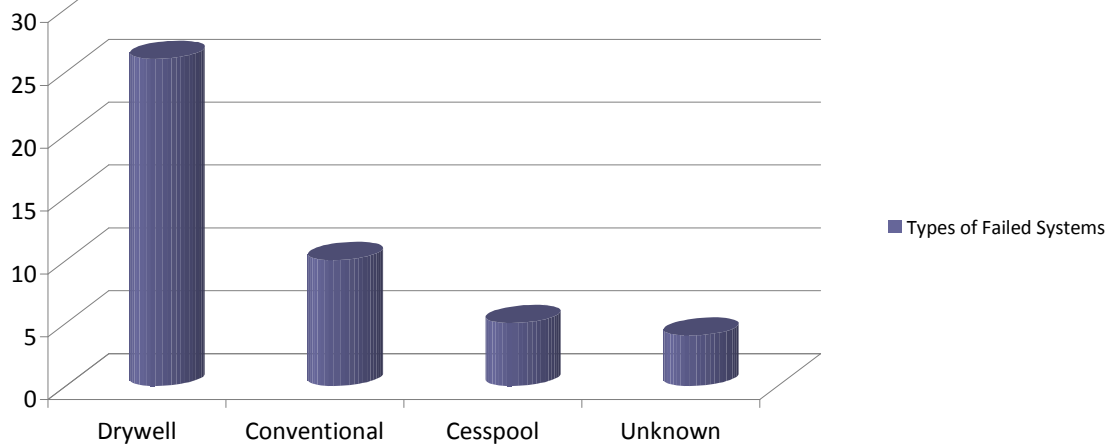
<u>Status</u>	<u>Number of Systems</u>	<u>Rounded Percentage</u>
<u>Pass</u>	<u>280</u>	<u>74%</u>
<u>Fail</u>	<u>46</u>	<u>12%</u>
<u>Inconclusive</u>	<u>17</u>	<u>5%</u>
<u>Order For Correction</u>	<u>5</u>	<u>1%</u>
<u>Did Not Allow</u>	<u>30</u>	<u>8%</u>
<u>TOTAL</u>	<u>378</u>	<u>100%</u>



Percentage of Systems



Types of Failed Systems



Closing

The thing that really stands out in this survey is the number of people that did not allow inspection. There certainly is a reason why some home owners did not allow inspection and this is because they probably know that their sewer system is failing. It is disappointment to see people complain about lake quality and want to clean it up but when it comes down to actually doing something about it they do not allow inspection of their sewer system(s). It is predicted that 90% of the total 30 systems that did not allow inspection would also be of failing nature. This is the highest number ever in Sawyer County Lake Surveys that have not allowed inspection. Over the last 4 lakes surveyed with approximately 1050 sewer systems in Sawyer County there have been a total of 14 systems that did not allow inspection. Lake Chetac alone has 30 systems that did not allow inspection. Many people say that they do not have the money to replace the system. However, if one can afford a cabin on the lake and also another home somewhere else they should be able to afford a new sewer system. If this is their primary residence then they could be eligible for grant money. We all need to be good stewards of the land. Let us protect the water that we drink and the water that we recreate in.

Thank you

I would like to personally thank Mert “Mac” Maki, Sawyer County Sanitarian / Soil Morphologist and Eric Wellauer, Sawyer County Zoning / Sanitation Technician, for their patience, good humor, and teaching ability. This was one of the greatest experiences of my life and I owe it to their devoted dedication to helping me with this internship. I would also like to thank the staff at the Sawyer County Zoning Office who have been very helpful as well as a committed and hard-working group of individuals.

The homeowners on Big Chetac Lake were overwhelmingly kind, supportive, and genuinely interested in the survey and the health of the lake. Without their support and cooperation the septic survey could not have occurred.

Past and present members of the Big Chetac Lake Association Board of Directors, including, Joe and Donna Kehoe, Tom and Sandy Raby, Eugene and Susan Schmitt, and others. This association deserves special thanks for their commitment to this project, and to the water quality of Lake Chetac.

Many Thanks,

Jay Kozlowski

2008 Sawyer County Zoning and Sanitation Summer Intern

Passing Systems

Abbott, Robert	Ehle, James & Laurie
Acrey, Michael & Betsey	Eiseth, Llyod & Elizabeth
Adams, James	Elizalde, Randy
Adamski, Ronald & Barbara	Ellickson, Cheri
Albrecht, Ronald & Kuehl, Patreicia	Ellingboe, Robert & Laurie
Allen III, Frank & Judith	Ellsworth, Charles & Aileen
Allsup, Donna	Fettig, Anne
Anglavar, David & Joyce	Fimmen, James & Patricia
Bay Vu Condo/Resort - Skar, Robert	Fischer, James & Janice
Becker, Richard & Grace	Fred Thomas Resort Inc. Herscher, Bob & Telitz, Julie
Behm, Carey & Suzanne	Frykman, Nancy / Zinner, Theodore
Belanger, William & Lois	Gehrig, Alvin
Bemis, Kenneth & Judith	George, Kenneth & Deborah
Berg, Arthur & Jodell	Gethin, Susan
Berg, Jeffery & Sarah	Glen, Raymond & Jeanette
Big Chetac Resort - Janetski, Jerry & Susan	Gore/Truax Family LLC
Birdsill, Donald	Gounaikis, Phillip
Bowman, Pat & Lesile	Grant, Donald & Eleanor
Bratsos, Peter & Marna	Graves, Marlin & Karen
Brawders, John	Grycko, Anthony & Theresa
Breymeier, Donald & Sonya	Grzanek, Brian & Karin
Briskey, Charles	Gullicksrud, Karen
Brown, Bruce & Deborah	Guth, Eric & Sue
Brown, Eva / Zimmerman ETAL	Hager, Ronald & Nancy
Bulger, Thomas & Deborah	Halbleib, Terry & Jill
Buresh, Germaine	Harty, Marlene
Calhoun, Patrick & Kathleen	Haugen, John
Carpenter, Clifton (2 systems)	Hellman, Eugene & Betty
Carrell, Donnarae	Helquist, Frank & Debra
Catania, Frank	Herlitzke, P & J
Christensen, Richard	Heuer, William
Clemens, David & Natalie	Hillstead, Laverne
Cowan, Thomas & Maryann	Hoff, Gordon
Dalen Condo - Isham, Gene & Nancy	Hogan, Martin & Joyce
Dammen, Susan	Hoggatt, Jack
Dean, Shaun	Hoggatt, Michael
Delong, Earl & Dorothy	Hoover, William & Charlene
Delong, Thomas & Michele	Hourselt, Gary
Derner, Thomas & Stacy	Howard, John & Linda
Dewitz, Paul	Hueer, Richard & Judith
Dewitz, Thomas & Betty	Hulsey, Jack & Joanne , Steven & Dionne
Dohmen, Scott & Laura	Husby, David & Katherine
Drinkman, Gary & Mary	Husby, Ronald & Barbara
Ducklow, Daniel & Susan	Ihrke, Raymond
Edward, Adora & Curtis	Ingersoll, Katherine

Jankowski, Phillip & Rieko	Melchior, Leo Michael & Jennifer
Jarocki, Lawrence & Bea	Mercer, Russell & Aleta
Jirik, Richard & Bonnie	Miller, Fredrick & Trudy
Johnson, Ralph & Judy	Miller, William & Carol
Johnson, Ronald & Patricia	Milligan, Donald & Charlyne
Johnson, Russell & Janelle	Mitchell, Scott & Kathy
Joslin, Evelyn	Mizerk, Gregg & Gail
Jungbluth, Robert & Diane	Mohan, James & Monica
Kaysen, Jo Ann	Monfries, William & Lois
Kehoe, Joe & Donna	Mooberry, Richard & Marjorie
Kinkle, Edward	Moran, Marnie
Kirks, Craig & Kathleen	Morgan, David & Mary
Knezovich, David & Mary	Myer, Banner & Carolyn
Koenig, Paul & Jean	Neumann, Jerry & Barbara
Koestler, Philip & Judith	Neville, William & John
Kohlmeyer, Joel & Carol	Northstar Resort - Eckert, Michael & Janet
Koschak, John & Nancy	Nylen, Robert & Barbara
Krueger, Daniel & Elizabeth	Nystrom, Jack & Marilyn
Kruse, Toni	Obenauf, Donna
La Roche, Ethel / Lois, Bross	Oliver, Arthur & Bonnie
Lambrecht, William & Monica	Olson, Kenneth & Cheryl
Laney, William & Marcia	Organ, Daniel & Joyal
Law, James & Gail	Orsund, Henry & Betty
Legler, Lee & Lisa	Overby, Marlin & Gloria
Leisman, Mark	Palm, Wayne & Grace
Lembach, Richard & Barbara	Paque, Dee
Leverentz, Charles & Sheila	Peper, Gregory & Sharon
Levine, Earl & Jeanne	Pesek, Michael & Mary
Lindstrom, Donald & Jean	Peters, Marvin & Mary
Loeding, Robert & Michelle	Petit, Paul & Kathleen
Lombard, Thomas	Pierce, Keith / Anderson, Marlane
Longinow, Theodore & Jennifer	Pietrek, Richard
Lortie, Jeannette	Piltz, Greg & Lisa
Lozier, Leah c/o Joe Lozier	Plantberg, Gary & Deborah
Madsen, James Allen & Lageson, Mary Joan	Powell, Gregory & Kathryn
Mahlik, David & William	Quoss, Margaret
Manning, Richard & Donna	Raby, Thomas & Sandy
Marcus, Mary	Rarick, Edwin & Marilynn
Martens, Robert & Judith	Raykovich, Charles
Mason, Douglas & Cheryl	Red Ceder Springs Resort Perrault, Philip & Julie
Massino, Joseph & Johanna	Red School Resort/Condo Manning, Richard & Donna
McCarthy, Marie	Reinen, Douglas & Sherry
McKowen, Creighton	Reinhart, Steven & Judith
McMakin, Janet	Renslow, James & Theresa
Medwetz, Robert & Carol	Reynolds, Robert & Carolyn

Ridgeview Condo - Skar, Thorvald	Vanderbilt, Dale
Ritter, Arthur & Linda	Vierck, Jeffery
Robb, Bruce & Monica	Walker, Paul & Anna
Robole, Roger & La Vonne	Waskow, William
Rode, George	Waznik, Bradley & Marni
Rubin, Michael & Cindy	Weber, Timothy & Diane
Ruh, John & Debra	Webster, David & Mary
Schaefer, Lorraine	Westling, Sharolyn
Schiefelbein, Christopher & Sandra	Wiedl, John & Patricia
Schiefelbein, Scott	Wilhelm, Richard & Diana
Schlosser, Thomas & Sherry	Willis, Donna / Serri, Karen
Schmitt, Eugene & Susan	Wuorenma, William
Schmitz, James	Yahr, Robert
Schmitz, Kathleen & Roger	Zerahn, Donna
Schwebach, John & Susan	Zimmerman, Russel
Semonis, John & Mary	Zutter, Daniel & Sandra
Shearrow, Richard (3 systems)	280 PASSING SYSTEMS
Skar, Thorvald	
Sloat, Robert & Lynn	
Smith, Joel & Jo Anne	
Sommerfield, John & Gwen	
Sportsmans Lodge Condo - Jepson, Allen	
Stanutz, Edward & Annette	
Staples, Kenneth & Margaret	
Starken, Charles	
Steffel, Daniel & Kimberly	
Stonewall, Dennis	
Stroh, Raymond	
Strong, Gary & Patricia	
Sumowski, Scott & Deborah	
Swant, Frederick & Jessie	
Swetlik, Casey & Heidi	
Telitz, Thomas & Julie	
Teper, Frank & Donna	
Teske, Jon & Judith	
Thomas, Anita	
Thomas, Karen	
Thomas, Warren & Verna	
Thompson, Eugene & Hellen	
Thompson, Harold	
Tillander, Roger & Karen	
Timblin, Carson	
Todd, Barbara	
Trainor, Timothy & Cindy	
Tucker, Dennis & Beverly	
Twardzik, Robert	
Van Zeeland, Gerald & Corynn	

Inconclusive Systems

Duffack, William Jr.	1706 N County HWY F	Unable to find system vent
Ekstrum, Richard / Burdick, Becky	1262 Robin Ln.	Unable to find system, good soils in area
Gardner, Allen	1661 N Sunset Beach Drive	Very old system, unable to find field
Fred Thomas Resort Inc.	2086 N County HWY F	Unable to find system vent
Herscher, Bob & Telitz, Julie		Unable to find system vent
Hershey, Christian & Darlene	2281 N East Shore Drive	unable to find system vent, + 250' from lake
Hulke, Warren & Jeanette	15621 W Swede Alley	Letter send to have tank pumped and pumper to inspect remaining part of system
Koeper, James	2540 N County HWY F	Letter send to have tank pumped and pumper to inspect remaining part of system
Martin, Gregory & Patricia	1864 N County HWY F	Vent found but unable to find remaining part of system or system type
Meyer, Eugene & Diane	2680 N Badger Bay Lane	Letter send to have tank pumped and pumper to inspect remaining part of system
Ridgeview Condo (2 systems)	3000 N County HWY F	Letter send to have tank pumped and pumper to inspect remaining part of system
Skar, Thorvald		Letter send to have tank pumped and pumper to inspect remaining part of system
Ristau, Micheal	2733 N East Shore Drive	Unable to find system vent, +25' elevation
Schultz, Russell & Roselyn	1720 N County HWY F	On system with neighbor, permit applied to install holding tank
Simmer, Robert & Rita	1239 N Wildwood Lane	Unable to find system
Sorenson, Dan & Shirley	16260 W Bluebird Lane	unable to locate system, no longer in use
Topinka, Hyacinth	1211 N Timbertrails Lane	Unable to find system, good soils in area
Trevisan, Daniel & Sharon	1724 N County HWY F	On system with neighbor, permit applied to install holding tank
Williams, Dale	3104 N County HWY F	Letter send to have tank pumped and pumper to inspect remaining part of system
17 INCONCLUSIVE SYSTEMS		

Failing Systems

Carpenter, Clifton	2877 N East Shore Drive	conventional system depth 6.22', saturated soils 7.97'
Clausen, Len & Elaine	2640 N County HWY F	cesspool
Dahl, Joe & Barbara	2535 N East Shore Drive	(conventional) sewage near ground surface & soil mottles 34" deep, system depth at 30 "
Edgewater Cabin Association Chad	Anderson, 15633 W Swede Alley	(7 cabins, 4 systems) failures based on elevaions and soil mottles
Fred Thomas Resort Inc. Herscher, Bob & Telitz, Julie	2086 N County HWY F (2 systems)	(drywell) systems do not meet elevations
Guernsey, Steven	2638 N County HWY F	cesspool
Hatfield, Gerald	16492 W Brule Lane	(drywell) bottom of system below OHWM
Hayes, Scott	15588 W Main Street	(drywell) raw sewage on ground, 2 new systems installed 8-22-08
Holtz, Kent & Tama	2762 N Teal Lane	(drywell) shared system with neighbor, soil mottles 12"-104"
Johnson, Bruce	1467 N Sunset Beach Drive	(drywell) soil mottles 41"-85"
Kingsbury, Stephen	16463 W Oriole Lane	(conventional) soil mottles 33"-55"
Koeper, Ralph & Frances	2536 N County HWY F	(drywell) .69' feet elevation between bottom of system and OHWM (3' needed)
Leon, Linda & Klinger, Steven	(2 systems) 1461 & 1465 N Sunset Beach Drive	(shared) (conventional) soil mottles 42"-62"
Markoe, Stephen	1238 N Wildwood Lane	(drywell) saturated soil at 93"
Matthews, Gregory	15876 W Ol' Hays Road	(drywell) soil mottles at 0-48" and at 71"
Mauer, Robert & Adeline	15571 W Lake Street	connected to older system. New system installed 8-22-08
McMakin, LaVerda	2758 N Teal Lane	(drywell) shared system with neighbor, soil mottles 12"-104"
Neste, Lee & Eileen	2276 N County HWY F	(non code compliant septic tank) at time of new tank installment, code compliance for remaining part of the system will be inspected
Nichols, Pete	16461 W Hummingbird Lane	(conventional) soil mottles 20"-84"

Olson, Robert & Janet	16455 W Hummingbird Lane	(conventional) soil mottles 20"-33"
Perfetti, Daniel	1728 N County HWY F	(drywell) shared with neighbor, soil mottles 60"-80"
Pierce, Cindy	1471 N Sunset Beach Drive	(2 drywells) soil mottles 60"-88"
Pohlman, Lloyd & Sharon	2646 N County HWY F	(cesspool)
Pohlman, Randolph	2644 N County HWY F	(cesspool)
Red Ceder Springs Resort	Perrault, Philip & Julie	2985 N East Shore Drive (drywell) in groundwater new septic and pump tank installed 8-25-08
Robinson, Louis & Paul	16250 W Bluebird Lane	(drywell) no cover, system in groundwater
Rogers, Lynn	16268 W Bluebird Lane	(conventional) soil mottles 26"-46"
Sances, Ross & Patricia	1481 N Sunset Beach Drive	(drywell) soil mottles 42"-68"
Schmacher, Calvin & Carol	1220 N Timber Trails Ln	(drywell with overflow vent towards lake) system replaced 8-5-08
Semerad, Rudy & Beverly	2630 N County HWY F	(drywell) 2.6' feet elevation between bottom of system and OHWM (3' needed) soil mottles 54"-100"
Sorenson, Dan & Shirley	16260 W Bluebird Lane	(conventional) soil mottles 26"-46"
Stangassinger, Georg	16451 W Hummingbird Lane	(conventional) soil mottles 21"-33"
Steinmeyer, Jeffery	2690 N Badger Bay Lane	(drywell) system not accepting effluent, septic tank pumped but system will need replacement
Sullivan, Tom & Jan	2455 N East Shore Drive	(drywell) 8" elevation between bottom of system and OHWM, occasional soil mottles 27"-90"
Trevisan, Daniel & Sharon	1724 N County HWY F	(drywell) shared with neighbor, soil mottles 60"-80"
Wagner Family Trust	2642 N County HWY F	(cesspool)
Wicktor, Phillip & Laurel	2774 N Teal Lane	(inspection did not occur but was able to fail system based on soil test performed in 04. CST shows soil mottles 17"-82"
Wilson, Dan	2636 N County HWY F	(drywell) soil mottles 52"-100"
Zahler, Gregory & Susan	2264 N County HWY F	(2 systems) 1 system has 55 gal drums as septic tank, other tank is under addition which is not code compliant

46 FAILING SYSTEMS

Order for Correction

Bartholf, Louise 2438 N County HWY F graywater line
Day, Steven & Mary 2615 N East Shore Drive graywater line, non code complying septic tank lid (lid as been corrected)
Fischer, Bradley & Jeanne 16434 W Oriole Lane non code complying septic tank lid
Fred Thomas Resort Inc. 2086 N County HWY F Herscher, Bob & Telitz,Julie graywater line
McElfresh, Beverly 15856 Ol' Hays Road broken pump, replaced 7-7-08
Vardas, John & LeeAnn 2258 N County HWY F non code complying septic tank lid
5 SYSTEMS - ORDER FOR CORRECTION

Did Not Allow Inspection

Anderson, William 1399 N Sunset Beach Drive
Brill, Richard & Sharon 2746 N Teal Lane
Cameron, Patrick & Baum, Karyn 15645 W Crescent Ave.
Domjan, Miklos & Carmen 16404 Oriole Lane
East Shore Condo (9 dwellings, 8 Systems?) Padalik, Ron 2171 N Ol' Hays Road
Jamieson, Joseph & Diana 2181
Krause, John & Noreen 2170
Paskiwicz, Leonard 2193
Mulvihill, Mary / Lamkin, Michael 2191
Conner, John & Diane 2189
Lemke, David & Beverly 2183
Klingbeil, Fred 2173
Farr, Tim & Jennifer 2175
Edwards, Brian & Tammy 1651 N Sunset Beach Drive
Fischer, Bradley & Jeanne 16434 W Oriole Lane
McMahon, Robert & Linda 15880 W Ol' Hays Road
Morsching, Nathan & Bridget 16424 W Oriole Lane
Pole, John & Linda 2021 N Ol' Hays Road (2 systems)
Sobotka, Joseph & Christine (2 systems) 1314 & 1318 N County Hwy F
Spellman, Dennis 15884 W Ol' Hays Road
Stumpf, Kenneth & Nancy 2778 N Teal Lane
Swenson, Michael & Lynne 16414 W Oriole Lane
TP Condo 2220 Ol' Hays Road (5 systems)
Wake, Ronald 1510 N Wren Lane
Zillmer, Linda 1626 N County Hwy F
30 SYSTEMS - DID NOT ALLOW INSPECTION