

Subsurface Sewage Treatment System Status Report on Recommendations and Planning for Statewide Inventories and Inspections

Report to the Minnesota Legislature



Minnesota Pollution Control Agency

September 2010

Legislative Charge

Minnesota Legislature (2009 Session Law, Chapter 37, Section 3)

The commissioner shall develop recommendations and a plan for directly or indirectly inspecting and providing an inventory for all subsurface sewage treatment systems (SSTS) and submit a report to the chairs of the legislative committees having primary jurisdiction over environment and natural resources policy and finance no later than September 15, 2010. Direct inspection methods shall include field verification of each SSTS on riparian land or a lake or near wetlands or other sensitive waters to determine the owner, location, and which systems are failing or are an imminent health threat. Indirect inspection methods may include census-type data collection to determine the owner and location of each SSTS in the remaining portion of each county. An SSTS with a valid certificate of compliance may be considered inventoried without further work.

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Introduction

This report fulfills the requirement from the Minnesota Legislature (2009 Session law, Chapter 37, Section 3) that the Minnesota Pollution Control Agency (MPCA) "... develop recommendations and a plan for directly or indirectly inspecting and providing an inventory for all subsurface sewage treatment systems..." (SSTS). The extensive nature of completing statewide SSTS inventories and the subsequent legislative requirement related to SSTS compliance (Minnesota session law 2010, Chap. 361. Sec. 73* to convene a SSTS Implementation and Enforcement Task Force with report due to the Minnesota Legislature by January 15, 2011) made it apparent that these two tasks needed to be coordinated and completed together. Therefore, this report provides preliminary recommendations of a plan and framework for implementation of SSTS inventories. The Task Force members will assess this preliminary framework and provide an updated report to the Legislature in the January 15, 2011, report.

To help set the context of completing statewide SSTS inventories, this report also includes background information on SSTS inventories, including the MPCA's understanding of the current status of completed SSTS inventories in Minnesota, county provided estimates of SSTS compliance, which will be a byproduct of inventories, and lessons learned from recent state-funded and county conducted SSTS inventories.

The MPCA will work with counties to establish a baseline of how many counties in Minnesota have completed SSTS inventories, what resources they would need to complete inventories in their jurisdiction, and what roadblocks they would need to overcome. To answer these questions, a survey will be conducted of Local Governmental Units (LGUs) and completed in October 2010. Results from this survey will feed into the work of the SSTS Implementation and Enforcement Task Force and into their final plan and recommendations for SSTS inventories in the January 15, 2011, report.

SSTS Inventories - Background

1. **Completing statewide SSTS inventories will be a major task.** The MPCA conducted a brief review of three states that were known to be in the process of completing SSTS inventories. We are not aware of any other states that have completed a statewide inventory of SSTS similar in scope to this legislative charge. Wisconsin, Iowa, and Florida (Appendix A) have started inventories, but none are completed or track both location and compliance status of SSTS.

*2010 Session Law Chap. 361. Sec. 73. **SUBSURFACE SEWAGE TREATMENT SYSTEMS ORDINANCE ADOPTION DELAY.**

(a) Notwithstanding Minnesota Statutes, section 115.55, subdivision 2, a county may adopt an ordinance by February 4, 2012, to comply with the February 4, 2008, revisions to subsurface sewage treatment system rules. By April 4, 2011, the Pollution Control Agency shall adopt the final rule amendments to the February 4, 2008, subsurface sewage treatment system rules. A county must continue to enforce its current ordinance until a new one has been adopted.

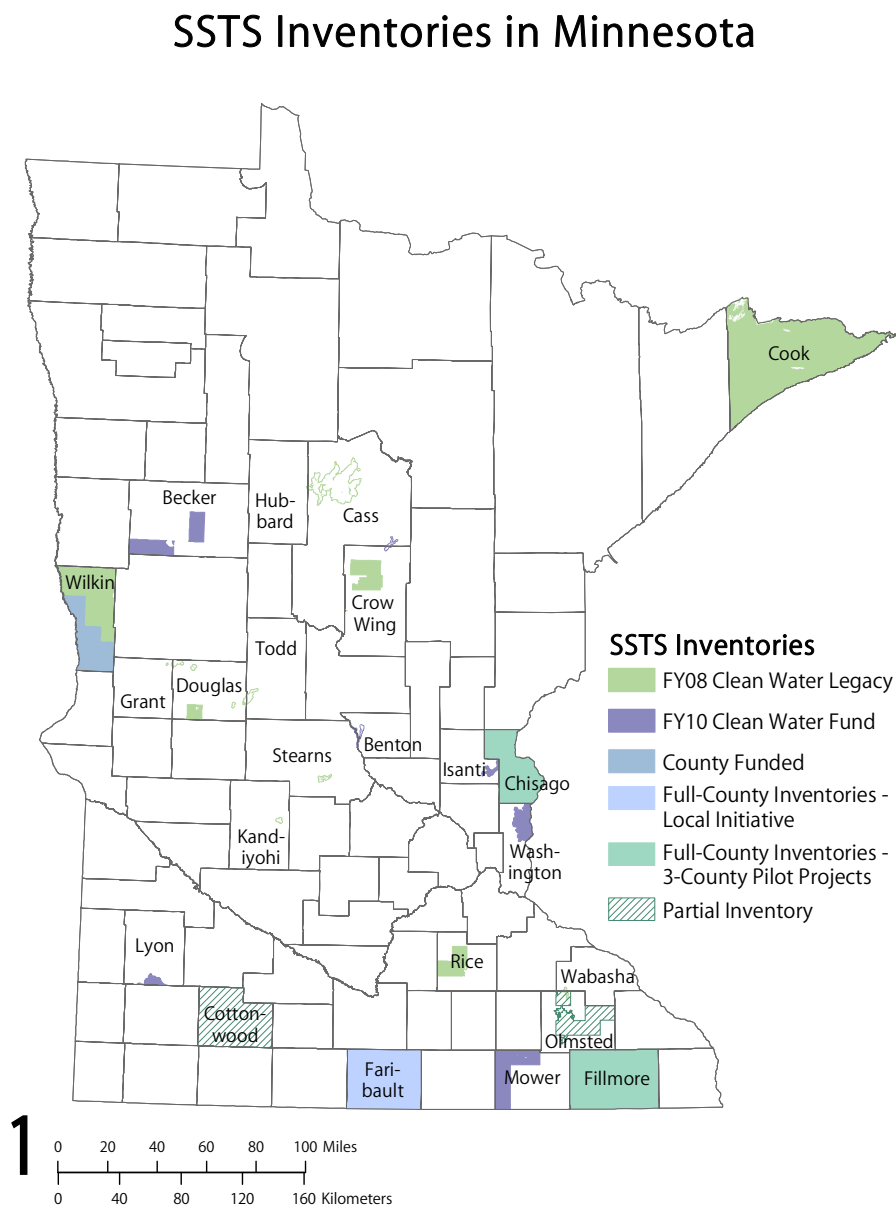
(b) By January 15, 2011, the agency, after consultation with the Board of Water and Soil Resources and the Association of Minnesota Counties, shall report to the chairs and ranking minority members of the senate and house of representatives environment and natural resources policy and finance committees and divisions on:

- (1) the technical changes in the rules for subsurface sewage treatment systems that were adopted on February 4, 2008;
- (2) the progress in local adoption of ordinances to comply with the rules; and
- (3) the progress in protecting the state's water resources from pollution due to subsurface sewage treatment systems.

EFFECTIVE DATE. This section is effective the day following final enactment.

2. **The number of completed SSTS inventories in Minnesota varies greatly by county** depending on availability of resources and how their work is prioritized locally. LGUs maintain regulatory authority of SSTS, including both inventories and their compliance. However, there is much competition for resources at the county level. Specific data on areas with completed SSTS inventories are scarce. The legislatively funded Three County Pilot Program, combined with Board of Water and Soil Resources (BWSR) grants from 2003 to 2009, resulted in the completion of over 20,000 inventories of individual SSTS. While this is a good start, there is still uncertainty about the status of SSTS inventories statewide. Known areas where recent SSTS inventories have been conducted, or are in the progress of being conducted, are shown in Figure 1. A brief synopsis of each of these inventories is provided in Appendix B.

Figure 1. Areas where known SSTS inventory work has been conducted or is in the progress of being conducted by local units of governments. Areas indicated may be county-wide or in specific areas of a county.



3. **Important lessons learned from state assisted inventory programs** include the following:
 - For some counties, the entire area was too large a task to be completed in four years. Local support and financial sustainability varied. Pursuing a system that prioritizes certain areas over others may help deliver results faster by focusing resources.
 - Small monetary incentives were effective in encouraging voluntary homeowner participation in fixing identified non-compliance. Some successful examples included \$300-\$500 incentives paid to homeowners by each county to fix imminent threats to public health (ITPH) systems.
 - The Three County Pilot Program was structured and implemented with a minimal amount of staff time allotted to administer the grants. In some counties, this was effective; in others a more day-to-day operational oversight may have produced better outcomes.
4. **SSTS inventories generate compliance activities.** The identification of ITPH SSTS or straight pipes with discharges having the potential for public contact and spread of pathogens, leads by law to SSTS upgrades. Appendix C is a summary of county-estimated noncompliance of SSTS. While the trend for replacing noncompliant systems with compliant systems is positive, as shown in Table 1, there are still high estimates of systems which will require time and expense to fix. The data in Table 1 are estimates provided by LGUs in their SSTS Annual Report Survey.

Table 1. County Estimated SSTS Noncompliance

Year	Total Reported Number of SSTS	Reported Number of SSTS that are Imminent Threats to Public Health (ITPH)	% ITPH SSTS in Minnesota	Reported Number of SSTS that are Failing to Protect Groundwater	% Failing to Protect Groundwater SSTS in Minnesota
2002	470,600	43,520	9%	124,770	27%
2009	521,320	37,880	7%	114,227	22%

While some have raised concerns that the county reported estimated rates of noncompliance are high, these rates are close to the average rate documented in the field through the Three County Pilot Program in Chisago and Fillmore counties (Appendix B), therefore, the MPCA believes these figures have merit.

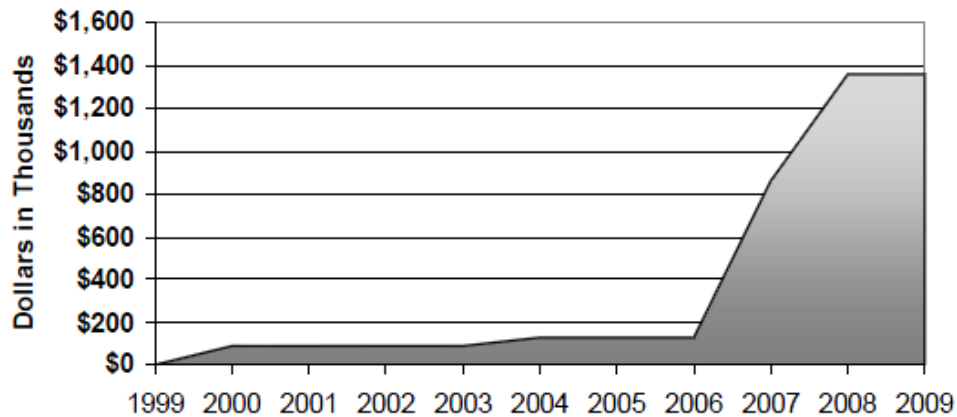
5. **State and local resources will be needed to complete statewide inventories and fix identified noncompliant systems.** The MPCA’s “10-Year Plan to Upgrade and Maintain Minnesota’s On-site (ISTS) Treatment Systems, A Report to the Minnesota Legislature, February 2004” (<http://www.pca.state.mn.us/index.php/water/water-types-and-programs/wastewater/subsurface-sewage-treatment-system-ssts/minnesota-s-subsurface-sewage-treatment-systems-program-ssts.html>) was not fully implemented or funded by the legislature. The plan in this report suggests activities needed to upgrade and maintain Minnesota’s SSTS. While there was not consensus on a specific course of action, some common themes to meet this goal included identifying and upgrading all noncompliant SSTS, enhancing funding mechanisms, adding emphasis in compliance and enforcement, and providing state technical support to LGUs. All of these activities come at a cost. In the Ten Year Plan report, cost estimates to fix all noncompliant SSTS (ITPH and those failing to protect the groundwater with less than three feet of separation to groundwater) was over \$1 billion.

This original cost estimate is supported from limited preliminary information from BWSR grant work (Appendix B). Based on data reported to BWSR by the inventory fund recipients and MPCA staff experience, the estimated construction cost to replace all ITPH in Minnesota would be about \$250

million (assuming 38,000 ITPH at \$6,500 on average to fix) plus \$740 million to replace SSTS failing to protect groundwater (assuming 114,000 at \$6,500 each). In addition, just to complete SSTS inventories would cost about \$29 million (assuming there is no inventory data for 415,000 SSTS statewide and \$70 per site averaging direct and indirect inventory methods). It should be noted that past costs for SSTS inventories have been mainly borne by the LGUs and the State while construction costs to fix SSTS noncompliance have mainly come from SSTS owners and limited governmental assistance. An overall comparison of the total cost for this work, with past state financial assistance provided to inventory and fix SSTS statewide, shows there is a clear funding gap needing to be filled. Considering the current statewide economic condition, it is believed targeting high priority public health and environmental areas will be the most effective approach in managing SSTS noncompliance.

Figure 2 shows how the state has financially assisted LGUs in the past. It is important to note that until passage of the Clean Water Legacy Act (CWLA) and the funding accompanying it, LGUs have paid for the state's SSTS mandate on their own with little financial support from the State (prior to the CWLA total statewide assistance to counties ranged from about \$8,700 to \$130,000 increasing to \$870,000 to \$1,350,000). This lack of state support is considered a contributing factor to a spotty statewide effort to inventory, inspect, and fix SSTS non-compliance. Another contributing factor would be local political support and financial health.

Figure 2. Total funding to county SSTS programs



Direct and Indirect Inspection Methods

The following are the definitions of direct and indirect inspections and some of the methods used in each category.

1. Direct inspection methods are defined as field verification of each SSTS to determine the owner, location, and which systems are failing to protect groundwater (less than three feet of separation from discharge point to groundwater elevation) or an ITPH.
2. Indirect inspection methods are defined as utilizing off site or desk top methods to determine owner, location, and which systems are failing to protect groundwater or an ITPH. Methods may include a review of census type data, soil survey information, building permit records, etc. An SSTS with a valid Certificate of Compliance (COC) may be considered inventoried without further work.

Draft SSTS Inventory Framework

The following are steps for LGUs to consider in the development of an inventory plan. These steps are based on successful inventories already conducted. The applicability of these procedures needs to be discussed with LGU partners and are not intended to apply to every possible inventory area in Minnesota. It is expected that the LGU would work with the MPCA to develop a reasonable schedule of completion of their plan.

1. Identification of a target geographic area for inventory – Is county-wide or prioritized areas a better approach? This should include considering:
 - Areas of public health and environmental significance such as drinking water sources, riparian land, on a lake, near wetlands, or other sensitive surface water or groundwater locations.
 - Properties not served by city sewer which lack a current SSTS COC.
2. Determine areas that would be best inventoried by direct methods versus indirect methods.
 - field inventories on each site or area-wide
 - desk top inventories through existing information
 - excluding “newer” systems that were built to include a three foot separation and could be expected to be compliant unless problems have occurred, but do not have a current COC
 - systems with poor documentation of the SSTS or site conditions
 - no record at all of an SSTS for the property
3. Develop a prioritized schedule for conducting inventories/inspections within the identified geographic area. This should be based on the priority needs of human health and environmental significance and/or the quality of SSTS documentation.
4. Conduct field work, identifying:
 - systems that are compliant
 - systems that are ITPH
 - systems that are failing to protect groundwater
5. Documentation of the compliance status of the systems and a plan to fix the ITPH and failing to protect groundwater systems.

For an inventory and inspection program to be successful at the local level, the following should be considered as part of the overall process:

1. local political support to conduct the inventory and inspection
 - a. local outreach to the public
 - b. county board support
 - c. townships support
 - d. local ordinance amendment/revision to address enforcement in inventory areas
2. legal support from county attorney
3. funding and other resources needed to administer and conduct SSTS inventories and inspections
4. financial assistance or other incentives to SSTS owners to encourage their participation
 - a. county septic loan program
 - b. low-interest loans or grants for low-income SSTS owners
5. Publish results in local newspapers, county Web site, Soil and Water Conservation District (SWCD) Web site or bulletins or a dedicated ‘septic blog/Web site’ on a regular schedule to keep local citizens informed.

Recommendations

The following recommendations are based on limited input from LGU partners and experiences from current inventory projects. These recommendations will be brought to the SSTS Implementation and Enforcement Task Force for discussion and further development for inclusion in the January 15, 2011 Legislative report.

1. Develop and implement a survey to identify the true extent of existing SSTS inventories. Distribute the survey to LGU SSTS Program Administrators.
2. MPCA will investigate the development of a statewide database to help the State and counties maintain all necessary SSTS inventory and compliance status information.
3. Work with the SSTS Implementation and Enforcement Task Force on a plan to complete a statewide inventory and compliance determination for all SSTS within a ten year timeframe. The plan will include the resources needed to implement the plan.

Appendix A. Other State Efforts To Inventory SSTS

Plans or regulations to inventory SSTS in other states have been developed but not fully implemented. The following is a summary of three states known to be in the process of completing SSTS inventories.

Wisconsin

In 2008 (amended 2009 Wisconsin Act 392), Wisconsin mandated that all counties inventory septic systems by October 1, 2013 and implement a maintenance program by October 1, 2015. This is the first known statewide mandate in the U.S. for counties to inventory SSTS. No comprehensive inventory process was identified, other than each parcel location needs to be indicated using the Property Appraiser's identification system. No site visits are required. Sixteen counties have completed this inventory requirement (Wisconsin Department of Commerce, 2010).

Iowa

Iowa has not developed a statewide inventory process. However, they have a statewide SSTS database that all 99 counties have access to. The State of Iowa also developed a list of small rural communities with wastewater needs and the requirement for Responsible Management Entities to operate and maintain any new wastewater treatment facilities.

Florida

Florida recently published the document titled "Statewide Inventory of Onsite Sewage Treatment and Disposal Systems in Florida" (State of Florida, 2009). The 150-page document provides a detailed approach on a statewide inventory of systems in 65 counties in Florida. The document contains an extensive write-up of different types of inventories done by the counties. A statewide inventory database was developed; it was key in providing a common baseline for each county and standardization of data collected. The State of Florida is now developing a new, statewide mandatory septic tank pumping and inspection program by system owners every five years.

Appendix B. Summary of Existing SSTS Inventories

SSTS grant funded county pilot projects – inventories and fixes

In 2003, the Minnesota Legislature established the “Three County SSTS Pilot Program” with support from environmental groups, agreement from county associations, and a willingness to redirect existing base funds from the MPCA. The concept was simple: provide pilot funding (\$60,000 per year) for four years to expedite the identification and replacement of imminent public health threat SSTS discharges. The actual number of LGUs participating, the amounts of funding provided, and the timeframes for completion varied. Table 1 is a condensed summary of the project and outcomes. The most successful efforts occurred in Chisago and Fillmore counties. A total of 8,620 systems in four counties were evaluated; most of these systems were inspected in Chisago and Fillmore counties. Of these systems, 1,103 were identified as imminent public health threats, or 13 percent of the systems inventoried. Of the 1,103 declared to be ITPH, 919 systems were replaced as of August 2010. The systems not yet updated are being replaced as contractors become available to install the systems and as funds become available for low-income residents that simply cannot afford a new system.

Table 1. Summary of Data* From SSTS County Pilot Projects – Inventories and Fixes

County	Total grant	Systems evaluated	Systems declared an ITPH	Failure rate	Systems replaced as of August 2010	Untreated Gallons per day treated with replaced SSTS
Chisago	\$240,000	4,752	429	9%	410	185,000
Cottonwood	\$118,024	98	98	100%	71	32,000
Fillmore	\$216,312	3,765	571	15%	434	195,000
Olmsted	\$2,440	5	5	100%	4	2,000
Total	\$576,776	8,620	1,103	13%	919	414,000

*Data based on county annual grant reports and e-mail/telephone updates to MPCA staff for this report

SSTS inventories - BWSR FY08-FY09 projects

Through legislation, \$835,000 was distributed through BWSR for SSTS inventories. The following is a summary of the scope of each funded inventory. At this time, not all grant recipients have completed reporting. Current records document approximately 12,000 SSTS have been inventoried. BWSR also distributed low income SSTS fix-up grants to 12 LGUs which resulted in replacement of 226 ITPH systems.

Douglas SWCD

A direct inventory was based on MPCA’s 2006-2008 unsewered area survey, focusing on three areas to be inspected. Approximately 600 properties on seven different lakes and in two cities were inspected utilizing both contracted private state-licensed SSTS inspectors and certified county staff.

Southeast Minnesota Water Resources Board

An indirect inventory of Lake Zumbro in Wabasha and Olmsted Counties was made. A GIS dataset was created from all SSTS permits on file; properties without permits were identified as possible Imminent Public Health Threat SSTS.

Cass County

This inventory project included SSTS inspections on approximately 800 properties on four different lakes. Inspections were conducted with private state-licensed inspector(s) through the Request for Proposal process.

Cook County

This inventory project included two separate projects, utilizing private state-licensed SSTS inspectors selected through the Request for Proposal process. One project encompassed an inspection program on approximately 400 properties around five lakes. The second project area is approximately 110 properties within the Tofte-Schroeder Sanitary District. Septic tank pumping discounts were offered to homeowners. Low-income fix-up funds were made available to qualified applicants.

Crow Wing County

Crow Wing County conducted inventories for SSTS with and without existing local permit information, in the Crow Wing Sanitary Management District's area, inclusive of five townships, one unorganized area and one city encompassing approximately 8,000 SSTS. State-licensed inspectors were selected through the Request for Proposal process; the county utilized a Web-based records management program to track progress. Four lake association education workshops were also conducted.

Kandiyohi County

A SSTS compliance inventory was made around Diamond Lake in order to advance the community decision-making process towards achieving compliant sewage treatment. Approximately 290 properties were inspected; compliance information gathered was entered into the county's computerized permit tracking database.

Mower County

An inventory was completed of approximately 250 properties, within a ¼-mile corridor, along the Cedar River. Properties were visually inspected for Imminent Public Health Threat SSTS.

Rice County

This is an inventory in the Roberds Lake Watershed, encompassing over 2,000 developed parcels. An SSTS database was developed; SSTS were located with GPS units and information downloaded into the county GIS system for further database enhancement.

Stearns County

An inventory of approximately 1,200 SSTS within the river and lake and shore land areas of the Sauk Chain of Lakes. The inventory was requested by the Sauk Chain of Lakes Association. Inspections were conducted by a certified county-employed SSTS inspector.

Wilkin County

An inventory was conducted by certified county staff in 12 townships and one unsewered community, encompassing approximately 460 SSTS. The data were entered into the county GIS system to assist with SSTS program management.

SSTS inventories - MPCA FY10-FY11 projects

Legislation appropriated \$350,000 per fiscal year for SSTS inventories. The following is a summary of the scope of each proposed inventory. These inventories are currently in progress and results are not yet available.

Becker County

An inventory of lakeshore properties will be done; all parcels without a SSTS COC or properties with SSTS more than 10 years old are required to have a compliance inspection conducted by a private state-licensed SSTS inspector. Becker County will develop a method to track the compliance inspection results to ensure needed upgrades and replacements are completed within the required timeframes.

Benton County

This is a voluntary inventory program to encourage landowners in shoreland lots on four lakes and three riverine areas to have their SSTS inspected. The grant provides a 50 percent reimbursement for the cost of the compliance inspection.

Chisago County

This is a continuation of their SSTS Pilot Program project. It includes an inventory of SSTS in eight townships and three cities to conduct compliance inspections and to fix all failing to protect groundwater SSTS in the shore land areas.

Cass County

This inventory will continue SSTS inspections to include approximately 800 properties on four different lakes. The inventories will be conducted using private state-licensed inspector(s) through the Request for Proposal process.

Lyon County

This project will conduct SSTS inventories in the West Fork Des Moines River Watershed. By utilizing their GIS and SSTS database, the county has identified 18 potential properties for inspection; inspections will be conducted by private state-licensed inspector(s).

Mower County

This project expands their FY08 Inventory project to complete SSTS inventories within the four townships to encompass the Cedar River corridor.

Washington County

This is a voluntary inspection program for 100 parcels across nine lakes within the Carnelian Marine-St Croix Watershed District. These are parcels determined by Washington County to have no permit record information for SSTS.

SSTS inventories - BWSR FY10-FY11 projects

In addition to MPCA Inventory funding, BWSR has distributed approximately \$150,000 to four different counties. These inventories are currently in progress and results are not yet available.

Appendix C. County Estimated SSTS Compliance From SSTS Annual Report

Figure 1 shows the numbers of SSTS estimated by local program administrators that are failing to protect groundwater because 1) they lack sufficient soil vertical separation to properly treat the effluent or 2) lack watertight tanks. These data represent the raw statewide total numbers reported by local officials each year in the SSTS Annual Report Surveys over the last eight years. Fluctuations in the data occur for a number of reasons including the number of LGUs reporting each year varies with the number of cities and townships either beginning SSTS programs or returning SSTS jurisdiction to the county, personnel changes within LGUs, implementation of SSTS Point of Sale inspections, and implementation of SSTS inventories.

Figure 1. Reported Number of SSTS Failing to Protect Groundwater Estimated from the LGU 2002–2009 Annual Reports

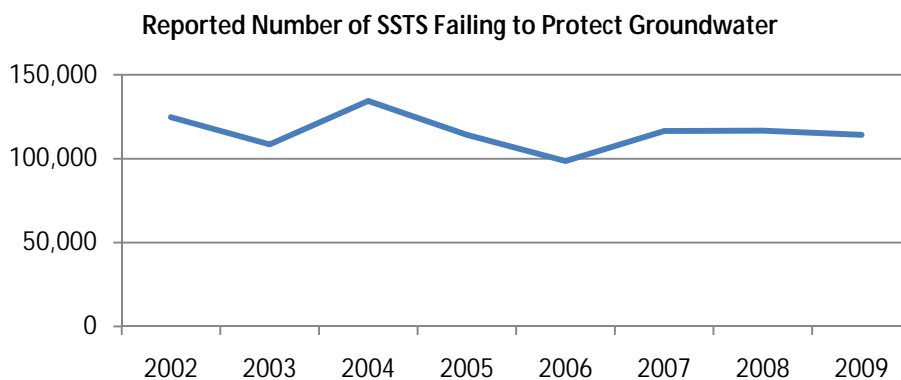
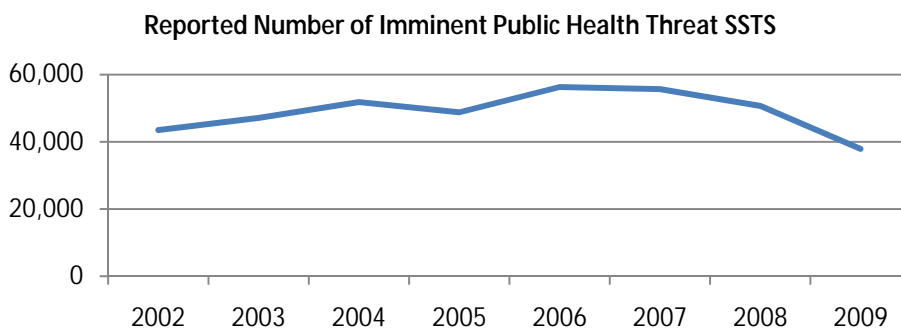


Figure 2 indicates the numbers of SSTS estimated to be Imminent Public Health Threats. As noted above, these data vary over the years based on the number of LGUs reporting and changes within local programs.

Figure 2. Reported Number of Imminent Threat to Public Health SSTS Estimated from the 2002–2009 LGU Annual Reports



Trends observed in Figures 1 and 2 above, as well as Table 1 (page 3), suggest there has been modest improvement to reduce SSTS noncompliance over the last eight years. These successes can be attributed to the efforts of LGU through issuance of building permits, point of sale (property transfer) or through issuance of other land use permits. Legislative action has also been successful in helping to manage SSTS noncompliance through support of inventory and fix programs at local levels.