Report to the General Assembly

from

Department of Health & Senior Services

and

Department of Natural Resources

pursuant to

House Bill 89 (2011)

regarding

Onsite Wastewater Systems

December 30, 2011

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I. Executive Summary

Pursuant to House Bill 89 (2011), the Department of Natural Resources (DNR) and the Department of Health and Senior Services (DHSS) convened stakeholder meetings for the purpose of gathering data and information regarding permits and inspections for onsite wastewater treatment systems. The ultimate goal of this process was for the departments to evaluate the data and information obtained and to present the findings and recommendations in a report to the General Assembly due December 31, 2011. The format of the stakeholder meetings included presentations by the two departments, an open discussion between the stakeholders and the departments and compilation of a list of challenges and solutions for this report. Appendix C of this report contains the presentations from the meetings. Eighty-eight participants attend the first stakeholder meeting on August 1, 2011. Forty-nine participated in the second stakeholder meeting on September 8, 2011. Department staff recorded the issues and potential solutions discussed during the meetings. In addition, the departments accepted comments by email between August 1 and October 15, 2011. Stakeholder comments are incorporated in this report in Appendix E and represent the primary basis for recommendations. The departments propose the following recommendations:

a. Develop the Wastewater Web Portal
b. Update DHSS onsite wastewater treatment system rule
c. Disseminate Public Service Announcements
d. Conduct annual stakeholder meetings
e. Reconcile rules
f. Improve oversight of no-discharge lagoons
g. Enhance DHSS' ability to accept complaints and require compliance
h. Register septage hauler and onsite wastewater treatment system service providers
i. Require onsite wastewater treatment system real estate transaction disclosures
j. Expand flexibility with SRF projects
k. Establish professional registration for soil scientists

II. Background of Wastewater Treatment Issue

Wastewater regulation is divided between two agencies, DHSS and DNR, that are responsible for protecting the public health and water resources of the state. DHSS regulations are primarily focused on preventing public health hazards and surfacing wastewater nuisances while assisting in the protection of groundwater. The Clean Water Commission's regulations (implemented by DNR) are primarily focused on protecting Missouri's surface water and groundwater resources.

DHSS has jurisdiction over domestic wastewater treatment systems with flows less than or equal to 3,000 gallons per day (gpd) that disperse and treat wastewater in the soil, single-family wastewater lagoons and holding tanks for flows less than or equal to 3,000 gallons per day. Using DHSS' regulations 19 CSR 20-3.060, the occupants of an average three-bedroom home are assumed to generate up to 360 gallons of domestic wastewater per day; 3,000 gallons per day is the flow from approximately six to nine average size

homes. Individual 'onsite' wastewater treatment systems where treatment and dispersal takes place on the site where wastewater is generated are included in this jurisdiction. Also included are small cluster systems (≤ 3,000 gallons per day) serving more than one home and/or multiple small businesses where soil treatment and dispersal takes place near where wastewater is generated. Sections 701.025 to 701.059, RSMo, are the primary statutes pertaining to onsite wastewater treatment systems (OWTS) handled by DHSS, and the primary regulations are 19 CSR 20-3.015 and 19 CSR 20-3.060 to 19 CSR 20-3.080. Section 701.031 exempts owners of many single-family residence lots that are three acres or more from permitting and construction standards provided certain violations do not occur. Local governments may adopt ordinances that are at least as stringent as Missouri regulation. Since the last comprehensive revisions to the statutes governing onsite wastewater treatment systems in 1994, the statutes and regulations have made substantial positive contributions to sanitary wastewater treatment and public health in Missouri.

DNR has jurisdiction over larger wastewater treatment systems, including soil treatment and dispersal systems with flows greater than 3,000 gallons per day, lagoons other than single-family residence lagoons, holding tanks for flows greater than 3,000 gallons per day, all wastewater treatment systems with point source discharges to surface waters, land application of bio-solids and all non-domestic wastewater treatment systems. Nondischarging lagoons with flows of domestic wastewater less than or equal to 3,000 gallons per day are under DNR jurisdiction but may be exempt from permitting (as explained later in this report). DNR also has jurisdiction for approval of the method of wastewater treatment for residential housing developments. DNR authority is through Chapter 644, the Missouri Clean Water Law; the primary regulations relating to onsite wastewater treatment systems used by DNR are 10 CSR 20-6.015, 10 CSR 20-6.030 and 10 CSR 20-7.015 to 10 CSR 20-8.020.

III. Data

Onsite and Cluster System Permits

Based on available census data, it is estimated that one in four Missouri households are outside areas served by central sewers and use onsite systems to treat their wastewater. Over 600,000 households and small businesses depend on onsite wastewater treatment systems mainly in rural areas and small communities and developments. A large number of those systems were installed before current permitting requirements or construction standards were in effect.

DHSS staff are the local permit authority for onsite wastewater treatment systems and small cluster systems in twenty-two counties and some municipalities. DHSS contracts with local governments, mainly Local Public Health Agencies (LPHAs), to permit systems in thirty counties and in certain municipalities in four additional counties. Sixty-two counties and some municipalities have adopted local onsite wastewater ordinances. Appendix F includes a map showing the type of primary authority by county for onsite and cluster wastewater treatment systems.

Figure 1, below, based on limited available data, shows the number of repair, replacement and new onsite and cluster systems permitted. Permit data for 2007 and 2008 shows only permits issued by DHSS staff and local authorities that are contracted with DHSS. Permits shown for 2006, 2009 and 2010 include data from those local authorities with ordinances that responded to surveys and about 95 percent of onsite and cluster systems reported were permitted under local ordinances. It is estimated that DNR has permitted 6 to 10 domestic wastewater treatment facilities that disperse effluent into large capacity subsurface soil absorption systems. The design flows for these systems range from 6,000 to 147,000 gallons per day with populations ranging between 89 to 15,000 persons respectively. Although DHSS and local authorities issued significantly fewer new construction permits in 2009 and 2010, the number of repair and replacement permits showed a small increase. This is expected because the need for repair or replacement grows as existing onsite wastewater treatment systems age or malfunction for other reasons. The data also shows the numbers of lagoons (single-family) and soil treatment systems permitted.

Figure 1
DHSS and Local Authority Onsite and Cluster System Permits

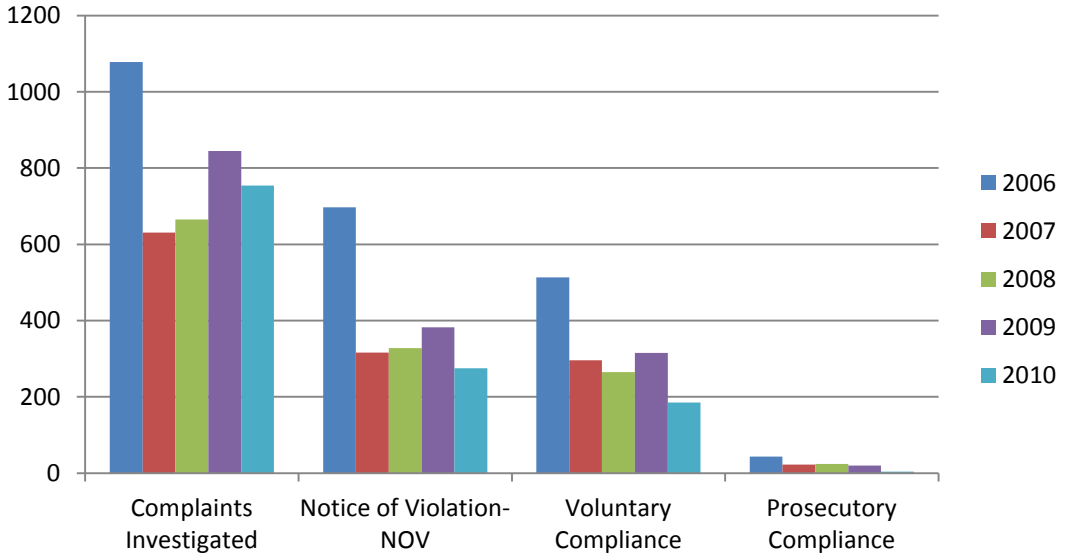
Year	Repair Permits	Replacement Permits	New Construction Permits	Total Permits	Lagoon Permits	Soil Dispersal Permits
2006 (98 counties)	766 (12%)	651 (11%)	4714 (77%)	6131	403	4646
2007 (53 counties)	6 (2%)	75 (31%)	160 (66%)	241	7	206
2008 (53 counties)	9 (4%)	65 (32%)	128 (63%)	202	12	173
2009 (97 counties)	936 (26%)	745 (21%)	1866 (53%)	3547	517	1831
2010 (97 counties)	743 (23%)	708 (22%)	1736 (54%)	3187	462	1868

Malfunctioning Onsite and Cluster Systems

DHSS partners with LPHAs to investigate complaints of onsite or cluster system malfunctions. Local staff work with owners to gain compliance when a wastewater treatment system violation is documented. Data in Figure 2, below, from 2006 to 2010, show complaint investigations initiated, notices of violation issued and how the malfunctions were resolved. The most common limitations to resolving malfunctions are available space and financial resources.

Figure 2

County Survey of Wastewater System Malfunctions



Number of counties: 2006 – 83; 2007 & 2008 – 63; 2009 – 94; 2010 – 79

Underserved Small Communities

It is estimated that in Missouri as many as two hundred incorporated communities and several hundred unincorporated communities and rural developments depend on onsite wastewater treatment infrastructure. Future departmental collaboration may yield useful information to better understand the wastewater needs of small communities. Often, small lots and soil limitations make operation and repair of malfunctioning onsite systems costly and difficult. Small communities can employ managed decentralized (onsite and cluster) wastewater treatment systems as a sustainable option to meet public health and environmental goals. The Water Environment Research Foundation provides a decentralized system cost tool, factsheets and planning information for small community leaders online at http://www.werf.org/decentralizedcost to be used as a guide.

Fees

Statute limits application fees for onsite and small cluster systems under DHSS jurisdiction to $90. The fee established in 1994 is the same for a system serving a single-family residence, multiple residences or a business with flows up to 3,000 gallons per day. County ordinances have established fees for onsite system application reviews and inspections ranging from $75 to $237. Except for single-family residence systems, Figure 3 shows the difference in permit fees established for soil treatment systems under DHSS jurisdiction and all wastewater treatment facilities under DNR jurisdiction. This difference in fees can be a factor in the selection of jurisdiction.

Figure 3
Permit Application Fees

DHSS Permit Fees			DNR Permit Fees	
Construction	Annual Operating	Daily Flow (gallons)	Construction	Annual Operating
$90	$0	Single-family		
$90	$0	100 to 1,500	$750	$100
$90	$0	1,501 to 3,000	$750	$100
		3,001 to 4,999	$750	$100
		5,000 to 5,999	$750	$150
		6,000 to 6,999	$750	$175
		7,000 to 7,999	$750	$200
		8,000 to 8,999	$750	$225
		9,000 to 9,999	$750	$250
		10,000 to 10,999	$750	$375
		11,000 to 11,999	$750	$400
		12,000 to 12,999	$750	$450
		13,000 to 13,999	$750	$500
		14,000 to 14,999	$750	$550
		15,000 to 15,999	$750	$600
		16,000 to 16,999	$750	$650
		17,000 to 17,999	$750	$800
		20,000 to 22,999	$750	$1,000
		23,000 to 24,999	$750	$2,000
		25,000 to 29,999	$750	$2,500
		30,000 to 1,000,000	$750	$3,000
		<500,000	$750	$3,000
		>500,000	$2,200	$3,000
		>1,000,000	$2,200	$3,500

DHSS registers onsite wastewater treatment professionals, including basic and advanced installers, onsite soil evaluators and percolation testers, and licenses private inspectors who inspect onsite systems for real estate purposes. The registration/license application processing fee is $90 for a three-year period. Currently, there are approximately 1,900 DHSS registrants.

Funding Assistance

Although communities may have access to grants or loans to help fund community wastewater collection and treatment system construction or improvements, most individuals and small communities do not have access to financial assistance to repair or replace existing systems that malfunction or that may be in violation of law. The cost to replace an onsite wastewater treatment system can vary greatly depending on site and soil

conditions and space limitations. Repair costs vary similarly and depend on the extent of the repair needed. In a 2011 cost survey, the Missouri State Tax Commission found that costs for single-family residential onsite systems using soil treatment generally ranged from $2,300 to $14,000 and costs as high as $20,000 were reported. Costs for single-family residence lagoon system generally ranged from $600 to $9,000 with costs as high as $12,000 reported. The Clean Watershed Needs Survey 2008 Report to Congress documented decentralized (onsite and cluster) wastewater treatment system needs; five year projected needs in Missouri were $260 million.

USDA Rural Development, Community Action Agencies and the Clean Water State Revolving Fund (SRF) provide limited financial assistance to owners of onsite wastewater treatment systems in Missouri. Rural Development has an assistance program for wastewater system repairs and other health and safety repairs such as roof, windows and siding. Over the last three fiscal years, loans and grants for these repairs totaled $1.6, $1.8 and $2.0 million, and it is estimated that five percent, or as much as $100,000 annually, was used to repair or replace onsite wastewater treatment systems. Some of the nineteen area Community Action Agencies in Missouri can provide assistance with onsite systems, however, funding for this purpose is very limited. In 2011, the SRF program made $1 million available to the Upper White River Basin Foundation to assist with repair and replacement of onsite systems. The Foundation will use the funds for grants and loans to improve onsite wastewater treatment systems in part of eight counties in southwest Missouri. Additional onsite and cluster system owners and small communities throughout Missouri could be assisted through an expanded program.

IV. Stakeholder input

This report compiles stakeholder comments on challenges and solutions related to onsite wastewater systems and divides them into seven logical categories (stakeholder comments are set forth fully in the Appendix E). Those categories are:

(A) permitting wastewater treatment systems,
(B) malfunctioning onsite wastewater treatment systems,
(C) funding assistance,
(D) septage haulers,
(E) no-discharge lagoons,
(F) simplification/clarification of jurisdiction and
(G) other.

Some of the proposed solutions would require a change in statute; others would require a change in the departments' rules. Still others would not need changes in law or rule but may require additional resources. County ordinances can also be effective in dealing with some of the challenges presented. Some changes to existing statutes, regulations, or policies are feasible, but changes need to occur through a thoughtful and methodical process.

(A) Permitting Wastewater Treatment Systems

Concerns

The stakeholders presented some challenges relating to how the law and departments deal with "special" circumstances, for example,

- misinterpretation and lack of oversight of the 3-acre exemption,
- individual onsite wastewater treatment systems for less than 7-lot subdivisions,
- wastewater treatment for small lots and
- soil treatment in high clay soils.

Other challenges were more general in nature, for example,

- poor onsite evaluations by soil evaluators and inadequate oversight of soil evaluators and engineers,
- inconsistent regulation between DHSS and local permitting authorities and between different local permitting authorities,
- time frames for permit issuance,
- limited number of prescriptive wastewater treatment options and inflexible regulations.

The stakeholders suggested the following changes:

- removing the three-acre exemption (see discussion below) from statute giving DHSS and local authorities better oversight of all onsite wastewater treatment systems,
- allowing single-family residence discharging systems,
- rewriting the onsite wastewater treatment system construction standards,
- adoption of efficiency/reuse/green standards,
- state-required maintenance of onsite wastewater systems,
- required maintenance of advanced onsite systems by registered maintenance providers,
- allowing alternative onsite systems and performance-based standards in "special" circumstances while reducing the need for variance approval and
- improved soil morphology evaluations.

Some stakeholders also suggested that DHSS and DNR explore ways to improve collaboration.

Discussion

Three-acre exemption

Currently, unless a local ordinance is more stringent, statute exempts owners of single-family residence lots of three acres or more from permitting subject to certain conditions and does not require compliance with the Missouri Minimum Construction Standards for Onsite Systems. Because there is limited oversight for exempt properties, owners and installers might construct systems that result in the violation of the Missouri Clean Water Law or that create a nuisance or health hazard and reduce property values. Problems are then encountered when a lender requires compliance with minimum standards at the time of property transfer, or when an adjoining property owner complains about a neighbor's

system. Changing the acreage exemption could improve onsite wastewater treatment practices. For example, raising the exemption to five acres or ten acres would require a permit for new construction or repair. Other options could also improve oversight. For example, registering all new onsite system construction or repairs on exempt property and providing additional wastewater treatment system disclosures during real estate transactions are opportunities for property owner education and would improve oversight.

Residential Housing Regulations

Currently, DNR Residential Housing Regulations provide an exemption for subdivisions with fewer than seven lots. During both stakeholder meetings several individuals stated they were concerned that developers are circumventing the DNR subdivision rule (10 CSR 20-6.030) by having only six lots that are undersized for onsite wastewater treatment systems.

The purpose of the current residential housing rule is to protect the environment and public health by establishing requirements for developers of residential housing requiring wastewater treatment and dispersal methods be determined prior to development. For developments of seven or more lots, the current regulation (10 CSR 20-6.030) utilizes geological and soil sciences. The geology investigation is conducted by DNR as a service to the developer at no cost and focuses on groundwater contamination potential only. A consulting soil scientist uses a systematic investigation of the soil and site characteristics, *e.g.*, slope, depth to limiting soil layer, percentage clay, depth to bedrock, the proposed development's ability to treat and control effluent using onsite wastewater treatment systems. This approach has proven cost-effective for developers while protecting the environment and public health.

DNR is updating and clarifying the rule with regard to terminology, technology and an evolved understanding of onsite wastewater treatment systems and although there are no environmental conditions or standards being prescribed in the amendments to the current residential housing development rule (10 CSR 20-6.030), DNR is open to consideration of lowering the minimum number of lots required to receive approval from seven to three. This adjustment would follow the definition of a subdivision in both DNR's residential housing regulation and DHSS' onsite regulation (19 CSR 20-3.060).

Following the criteria set forth in the residential housing development rule ensures lots are sized properly and configured so that effluent can be treated and dispersed on-site. Inadequate lot sizes are a serious challenge for onsite wastewater permit authorities with small or older developments exempt from the residential housing development rule and without local ordinances to ensure that developers plan properly. For older developments and underserved communities, cluster and centralized wastewater collection and treatment systems are a viable option where there are a number of homes on small lots. DNR has permitted numerous cluster systems with point discharge throughout the state and is actively promoting the use of subsurface soil absorption systems using drip irrigation as an alternative that employs green technology and local reuse.

Onsite soil evaluators and engineers
DHSS registers percolation testers and onsite soil evaluators. Percolation tests are one of two methods of determining how to size a soil treatment and dispersal system. The other method--soil morphology evaluation--provides more detailed information for system selection and design. Percolation tests can be adversely affected by soil moisture conditions at the time of the test and often fail to recognize other limiting soil conditions. Because of this, percolation tests have become less accepted and their use has declined. Still, percolation tests are sometimes surreptitiously submitted as the basis for an onsite system design that would not comply with the minimum construction standards based on an accurate soil morphology evaluation. An improper soil test and system design can lead to early system malfunction. Although local permitting authorities review permit applications and site/soil evaluations received for compliance with minimum standards, some lack the experience needed to provide adequate oversight of registered soil evaluators and percolation testers. A statute change would be needed to phase out the use of percolation tests.

Certain alternative onsite wastewater treatment systems must be designed by a Missouri licensed professional engineer. However, the onsite system standards do not require engineers to have specific training or continuing education. Some local permitting authorities lack the experience needed for adequate oversight and thorough compliance review of engineered system designs; they depend on the competence of the engineer. DHSS provides technical assistance when requested.

Local permitting authorities
Local governments may adopt ordinances that are more stringent than state regulations to deal with locally sensitive environments, soil limitations, or other local regulatory issues. Inevitably, some inconsistencies will exist between local jurisdictions and between the more stringent local regulations and state minimum requirements. Since the sunset of section 701.040.1(5), RSMo, on January 1, 1998, DHSS has not reviewed local onsite wastewater treatment ordinances. DHSS has always provided technical assistance to local permitting authorities when requested. House Bill 89 gave DHSS additional authority to "[p]rovide technical assistance and guidance to any other administrative authority in the state on the regulation and enforcement of standards … when the department determines that such assistance or guidance is necessary to prevent a violation of sections 701.025 to 701.059." DHSS can intervene with guidance if a local jurisdiction does not comply with the state minimum requirements, but will primarily focus on investigating complaints about failure to meet those requirements.

DHSS and local authority permitting timeframes
Permitting timeframes differ between DHSS and various local onsite system permitting authorities based on differences in staffing, the numbers of permit applications received, the complexity of the system proposed and any requested variances. Because some local entities find the state's reimbursement rate (based on the permit fee) to be unattractive, the number of counties where DHSS staff review applications and issue permits has doubled to twenty-two counties in the last two years. Local permitting authorities are geographically closer to permittees, so their response times are typically faster than that

of DHSS. DHSS staff need two to four weeks to conduct a typical permit application review, schedule a site inspection and issue a permit; local authorities can sometimes provide the same service in as little as a few days. Incomplete applications, inclement weather, or non-compliance with minimum standards delays approval. When variances are needed to reduce separation distances or system sizes, approval by a variance board or authority can lengthen the permit issuance timeframe by up to a month based on meeting schedules and the need for additional review.

DNR permitting time frames
DNR is developing an automated e-permitting system for wastewater general permits. On this on-line system permit applicants can complete an application, review permit requirements, certify their application, pay the appropriate fee and have a permit issued within a matter of minutes. DNR will implement this project in phases. Phase I is for new land disturbance general permits and will be available to applicants by June 2012. Later phases will include other general permits and some permits for construction sewer extensions. As these are phased in, permit issuance time frames should be decreased and staff time freed up to work on those permits that are not able to be electronically submitted, such as site-specific permits.

As with any construction permit the actual review time can vary depending upon the complexity of the collection and treatment systems and completeness of the application. Facilities with design flows of less than 50,000 gpd average between two and four months for review. However, with the development of a new general permit for subsurface soil absorption systems or land application, along with the permit centralization in DNR, the review period is expected to be further streamlined.

Single-family discharging systems
Although some stakeholders suggested DHSS permit single-family residence discharging systems, trends in other states are away from small permitted surface discharge systems except on the most limiting soils. It is generally not cost effective or a viable solution to regulate or operate a large number of small surface discharges. Because system failures or malfunctions can have a greater impact on public health and the environment, proper testing and enforcement is generally more difficult with discharging systems. Management of small, especially single-family, discharging systems is not cost-effective except for on the most limited sites. Ongoing operation, sampling and compliance monitoring for small flow systems can be costly. Also, variable flow or waste characteristics can affect the performance of small systems resulting in frequent noncompliance with discharge permit limits. Finally, if numerous small surface discharges of wastewater are allowed in areas where surface water is the source of drinking water, the discharge could enter drinking water supplies and systems.

Updates to minimum onsite wastewater treatment system standards
DHSS is drafting regulation updates to the onsite system construction standards, the onsite soil evaluation standards and the operation and maintenance standards. DHSS will best serve the public by focusing on these areas of the regulations with stakeholder input over the next twelve to eighteen months. Updated soil evaluation and construction

standards will improve options and practices for small lots, difficult soils and changes in building use. Updated operation and maintenance standards will improve the ability of owners and service providers to manage onsite and cluster subsurface systems. The standards can encourage the development of wastewater system management infrastructure.

DHSS projects that long-term regulatory updates are necessary to continue to meet the public's needs. DHSS' interests include performance-based standards for onsite wastewater treatment systems to address the limited number of prescriptive options and provide for more flexibility in regulation, product approval methodology and gray water reuse standards. Rule development and revisions in these areas will be the next regulatory area of focus. A wastewater treatment web portal, as discussed later in this report, could serve to improve collaboration between departments and communication with wastewater professionals and the public.

(B) Malfunctioning onsite wastewater treatment systems

Concerns

The stakeholders expressed the following challenges:

- lack of OWTS maintenance,
- lack of education of system owners,
- OWTS built in unsuitable soils,
- OWTS lifespan and
- lack of onsite wastewater treatment system enforcement options.

By way of solutions, the stakeholders proposed the following:

- required maintenance for advanced or performance systems,
- inspections of OWTS at the time of property transfer and education,
- public service announcements, and
- DHSS offer continuing education training courses, particularly for registered basic onsite system installers.

Discussion

Unfortunately, none of the potential solutions for malfunctioning systems can be expected to resolve all issues. DHSS is currently working to update OWTS regulations, including the standards for system operation and maintenance. Updates to the minimum construction standards for OWTS can provide additional alternatives for pretreatment and soil dispersal. Design, installation and operation of OWTS in accordance with updated standards would improve system function in unsuitable soils and increase OWTS lifespan. Although requiring inspections for property transfers could successfully identify malfunctioning systems, it could also affect the speed and cost of such transactions. One alternative would be to require OWTS real estate transaction disclosures similar to what is currently in federal law for the disclosure of information regarding lead for residential properties. The Residential Lead-Based Paint Hazard Reduction Act of 1992 requires certain residential property transactions to include (1) an informational pamphlet about lead; (2) disclosure about known lead-based paint on the

property; and (3) a ten-day opportunity to conduct an inspection for lead. A similar system could be used to educate new owners regarding their onsite wastewater treatment system. Public service announcements can be used to improve the education of system owners and would require minimal additional resources.

Maintenance of advanced systems
Advanced onsite wastewater treatment systems, including mechanical treatment systems and pressure dispersal systems, are often used to overcome soil and space limitations. However, if advanced systems are not properly maintained, they will malfunction. Maintenance of advanced mechanical systems is best performed by skilled maintenance providers. A registration program similar to registered installers with training and continuing education requirements would help ensure qualified individuals perform required maintenance. Additionally, registration of onsite wastewater treatment system service providers could standardize the maintenance received and assure that the maintenance is adequate to keep the systems in compliance.

Continuing education
Registered onsite wastewater treatment system professionals need to obtain continuing education training to stay current with onsite wastewater system technology, practices and regulations and to renew their registration. DHSS has historically offered training in areas where there is interest and in cooperation with local permitting authorities. Other state, local and national organizations also offer training that is accepted for continuing education requirements. DHSS attempts to balance the availability with need for training across the state and to work with local permitting authorities and other training organizations to ensure a sufficient number of effective training courses are offered to onsite professionals.

Enforcement
DHSS can respond to complaints only when received from an aggrieved party or an adjacent landowner. *See* Section 701.038, RSMo. To address enforcement concerns the legislature could revise statutes pertaining to onsite wastewater treatment system complaints so DHSS can more easily accept citizens' complaints. Additionally, existing statutes can be amended to include civil penalties as another enforcement tool for local prosecuting attorneys.

(C) Funding Assistance

<u>Concerns</u>
A topic of great discussion was the availability of funds to address some of the problems encountered with wastewater systems across the board. As it stands, centralized systems are funded more frequently than decentralized systems. There are also restrictions on funding eligibility that make it an untenable option for many small systems. Funding through the federal Clean Water Act for water pollution control projects is being reduced at the federal level.

Discussion

Prior to the creation of the State Revolving Fund (SRF), the majority of federal funding for wastewater infrastructure projects was limited to publicly owned wastewater treatment systems. With the advent of the SRF, Congress specifically included water pollution control activities that typically were provided through the private sector. These new eligibilities included Section 319, Nonpoint Source Management and Section 320, Estuary Management program activities. However, the SRF has been a loan-only program thus effectively limiting the types of eligible applicants. In Missouri, project types that may be eligible for SRF nonpoint source funding must be identified in the state's Nonpoint Source Management Plan. Since the inception of the SRF, a number of avenues have been utilized to inform communities and the consulting engineers of the benefits of decentralized wastewater systems. Most notably, the National Small Flows Clearing House, Missouri regional planning commissions and state staff have discussed the use of decentralized systems as an option, especially for small communities. Staff continue to work with various state agencies and private organizations to find ways to provide funding for decentralized and onsite wastewater disposal systems.

With the economic downturn, Congress created an opportunity for the SRF to provide increased subsidization through principal forgiveness, negative interest loans, or grants or a combination of these. The state elected to supply the increased subsidization in the form of grants. This generated an opportunity to fund a financial assistance program through the Upper White River Basin Foundation, or Ozarks Water Watch. Through Ozarks Water Watch, individuals obtain grants and low-interest loans for the rehabilitation or replacement of their onsite wastewater systems. Using the knowledge gained in the development of the Ozarks Water Watch program, the state is currently in discussions with the Missouri Association of Council of Governments (MACOG). MACOG plans to utilize its network of regional planning commissions to provide SRF funding to individuals to address onsite wastewater needs.

The SRF was not created in anticipation of funding decentralized and onsite wastewater systems. Even with the recent development of providing increased subsidization funding for onsite systems, funding is still limited and proposed reductions in federal funding for the SRF and 319 programs only exacerbate the situation. Additionally, decentralized and onsite systems are not maintenance-free. Homeowners and communities need to be aware of the maintenance requirements of the specific onsite systems being utilized. One possibility to address this need would be the formation of onsite management districts as has been done in other areas around the country.

(D) Septage Haulers (Pumpers)

Concern

The stakeholders expressed concern over illegal dumping of septage by some septage haulers and improper handling of waste from grease traps. The problems were attributed to inadequate oversight and regulation of individuals in the septage hauling industry.

The stakeholders presented the following solutions:

- registration and regulation of septage haulers,
- continuing education for septage haulers,
- adding inventory of facilities that accept waste to a web portal and
- tracking of waste loads.

Discussion

It is a violation of Missouri Clean Water Law, 644.051.1, RSMo, to "...place or cause or permit to be placed any water contaminant in a location where it is reasonably certain to cause pollution of any waters of the state." Additionally, the Missouri Solid Waste Management Law, 260.210.1, RSMo, makes it illegal to dispose of "solid wastes [this definition encompasses sewage sludge] onto the surface of the ground or into streams, springs and all bodies of surface or ground water... except in a solid waste processing facility or solid waste disposal area having a permit..." Presently, DNR does not register septage haulers or track waste loads destined for a wastewater treatment plant or to land application. Septage can be handled legally in one of two ways. If septage waste is delivered to and treated at a wastewater treatment plant, the waste will be managed along with other similar waste, and the treatment plant operators will manage the additional load within the requirements of their permit from DNR. Alternatively, the waste could be applied to land at a site managed under a state permit from DNR.

Solid waste regulations, 10 CSR 80-2.020(9)(A)7, exempts land application of sewage as long as the land application is permitted by the Missouri Clean Water Commission (CWC). Under this exemption, a permitted land application site is considered a wastewater treatment facility. Both treatment plants and land application sites are operated under permits designed to manage waste materials and avoid pollution. Land application onsite under the no-discharge lagoon exemption does not require a permit. The Solid Waste Management Law exemption does not require any type of record keeping, only compliance with a wastewater permit or permit exemption. Under the CWC's or DNR's wastewater permit or permit exemption, these facilities maintain records and are periodically inspected.

In contrast, septage haulers have no requirement to register or maintain records, and the lack of information makes pollution investigation difficult. If a treatment plant unknowingly receives a bulk load of septage (perhaps emptied into a manhole in the wastewater collection system), plant operation may be upset. Similarly, if septage is dumped at a single location on land (rather than the controlled spreading at an agronomic rate), runoff of a high pollutant load is possible. Sludge deposits and fish kills are typical results of such illegal practices. The source of the polluting material and its route of travel can be unsolved mysteries, particularly when the incident occurs at night and on a third party's property. Septage hauler registration and minimal record keeping could go a long way to beginning to address these incidents.

In the past several legislative sessions, legislators have introduced bills to require registration of residential and commercial septage haulers. In 2009, then Representative Dennis Wood sponsored HB 604, which would have required registration of septage

haulers with DNR, including a list of the counties that the hauler services. The bill required the haulers to keep a log of the amount of waste, from where it was removed and where it was disposed; such log would be available upon request by DNR, DHSS or the county health department. The fee was to be set by DNR "sufficient to recover the cost of implementing the registration program." At the time, DNR based the fiscal note on registration of 468 haulers across the state (this figure came from the yellow book listing of haulers), which required a fee of approximately $285 per year ($1140 for a four-year registration period). Another southwest Missouri representative, Jim Viebrock (co-sponsor in 2009), reintroduced the bill the following year. In 2010, the fee language was modified to "an amount sufficient to recover the cost of processing registrations." This would not have covered the inspections and enforcement aspect of the registration program needed to make it a viable program.

(E) No-Discharge Lagoons (Domestic Wastewater Only)

Concerns

The stakeholders expressed concern regarding the oversight and regulation of exempt no-discharge lagoons. The stakeholders noted that many systems apply for or assume this exemption but operate beyond the designed flow or operate a discharging system after the exemption is received. This does not fulfill the intent of the Clean Water Law.

Stakeholders set forth the following solutions:

- revise the rules so that these systems are properly designed and installed to accommodate the requisite flow and to remain no-discharge, employ better rules and oversight regarding maintenance of these systems, and
- implement jurisdictional changes.

Discussion

No-discharge lagoons are designed, constructed, operated and maintained to hold or irrigate, without discharging to surface or ground waters, all domestic wastewater generated by the facility it serves. *See* 10 CSR 20-6.015. Single-family residential lagoons are excluded from this definition. DNR has responsibility for determining when specific no-discharge facilities are eligible for permit exemptions. The exemption from construction and operating permits is available when a facility generates 3,000 gallons per day or less of domestic wastewater (bathroom and toilet waste, residential laundry waste, residential kitchen waste, etc.) that is held within a no-discharge lagoon, followed by either on-site land application or pumping and hauling to a permitted treatment or disposal facility. If a facility satisfies these criteria, it is then exempt by rule and does not require DNR approval, unless the department determines that construction or operating practices are inadequate. DNR can take action to ensure that a facility does not discharge into surface or groundwater of the state, including requiring a permit for a facility that was previously exempt. Even if no permit is required, the facility (lagoon) would remain the jurisdiction of DNR.

(F) Simplification/Clarification of Jurisdiction

Figure 4
Current Wastewater Jurisdiction

DHSS and Local Authorities	DNR
• Domestic wastewater systems only • Subsurface soil treatment and dispersal systems with flows ≤ 3,000 gpd • Single-family lagoon systems • Holding tanks ≤ 3,000 gpd	• Domestic and industrial wastewater systems • Subsurface soil treatment and dispersal systems with flows > 3,000 gpd • Lagoon systems except single-family • Holding tanks > 3,000 gpd • All point source wastewater discharges • Land application of bio-solids • Method of wastewater treatment in residential housing developments

Concerns

One impetus for this process' inclusion in HB 89 was an apparent confusion concerning the relative jurisdictional responsibilities of DHSS and DNR. It was requested that these lines be clarified and, if needed, modified. Several stakeholders suggested DNR and DHSS authorities be reviewed to determine if the current methodology best serves Missouri citizens and protects resources. The two agencies have established and improved cooperation over many years. Still, there is potential to improve the services provided by both departments.

Regardless of any jurisdictional change, a consistent and equitable method of estimating daily flows for domestic wastewater needs to be developed and used by both departments. This may be accomplished by rule change and/or through the Memorandum of Understanding (MOU) (Appendix G).

Discussion

The stakeholders and departments explored several different demarcations in jurisdiction. From locating the programs within one department to adjusting jurisdiction based on gallons of waste discharged per day. Participants concluded that their constituents and clients would be better served at this time by focusing on the recommendations in section V, which could be implemented sooner than a jurisdictional and physical reorganization.

(G) Other

The stakeholders raised some additional challenges that were not easily categorized:

- departments need to be prepared to handle the additional requirements during the next five-year term of surface discharge permit renewals, in particular related to nutrient levels,

- small communities will need sustainable answers for how to deal with wastewater treatment systems when populations decrease,
- existing treatment systems may not meet new discharge standards and
- decisions regarding wastewater treatment cannot be based solely on fiscal issues.

V. Recommendations

Some of the opportunities for moving forward identified through the stakeholder process include improving customer service, streamlining the permit processes, expanding enforcement capabilities and securing funding. Customer service can be improved by deployment of a unified wastewater web portal, public service announcements, annual stakeholder meetings and improving oversight of no-discharge lagoons. Processes may be streamlined by updating onsite wastewater treatment rules, updating the residential housing rule and professional registrations and revising fee/license structures. Enforcement may be enhanced by improved communications with county prosecuting attorneys, disclosure of systems at time of sale and revising DHSS complaint procedures. Funding may be secured through expanding the flexibility of the SRF program. Several of the recommendations would require statute changes. These include providing DHSS authority to investigate complaints from any party, registration of septage haulers and onsite wastewater treatment system service providers and real estate disclosures.

a. Develop the Wastewater Web Portal
b. Update DHSS onsite wastewater treatment system rule
c. Disseminate Public Service Announcements
d. Conduct annual stakeholder meetings
e. Reconcile rules
f. Improve oversight of no-discharge lagoons
g. Enhance DHSS' ability to accept complaints and require compliance
h. Register septage hauler and onsite wastewater treatment system service providers
i. Require onsite wastewater treatment system real estate transaction disclosures
j. Expand flexibility with SRF projects
k. Establish professional registration for soil scientists

The following four recommendations (a-d) will be implemented or further explored.

a. Develop the Wastewater Web Portal

The departments will begin planning for development of the Wastewater Web Portal. The Wastewater Internet Portal will allow industry and the public to retrieve pertinent information regardless of jurisdictional authority. Through the web portal, statute revisions and rule/policy updates, the departments canb permanently synchronize efforts into one streamlined process over time regardless of the regulatory authority, thereby reducing inconsistencies between the departments and reducing confusion regarding the appropriate regulatory authority. The following are examples of improved efficiencies that will be realized with the unified wastewater web portal:

- utilize a decision tree system similar to DNR's Permit Assistant as a tool to assist in directing industry and the public to specific resources,
- present links to potential wastewater funding resources such as 319 grants, SRF availabilities and USDA rural development loan opportunities,
- present information to developers regarding subdivision approval processes,
- present information and contacts for state and local wastewater treatment system permitting processes, and
- present tools to wastewater professionals such as training opportunities, DNR certifications information and DHSS registrations information.

b. Update DHSS onsite wastewater treatment system rule

DHSS will continue working to draft proposed rule updates in the following areas:

- site and soil evaluation standards,
- minimum construction standards and
- onsite operation and maintenance standards.

DHSS has been working with an advisory group to update the current rules.

DHSS must update site and soil evaluation and construction requirements to keep pace with changing technology and practices in the wastewater treatment industry. Advances have been made in soil treatment and dispersal systems and new advanced treatment products are available and are used in onsite and small cluster wastewater treatment systems. Proper maintenance is essential for the life of all wastewater treatment systems and, particularly, advanced systems. An updated site and soil evaluation rule will limit the type of sites where outdated percolation tests can be used. It will also clarify soil morphology evaluation requirements and soil classification criteria. The rule will update the soil loading rates for application of wastewater to the soil treatment area to include additional evaluation criteria to better predict the long-term treatment capacity of the soil. Landscape loading will be used to better size and configure wastewater dispersal systems on sloping sites.

The Minimum Construction Standards update will correct some flaws in the current standards. An update is needed for basic systems and practices, however, an update is most needed to reduce impediments to the use of new technology and advanced treatment systems. Some owners of lots with space and soils limitations will benefit from more readily available system choices.

An updated operation and maintenance rule will establish standards for system owners and maintenance providers in the management of onsite and cluster wastewater systems. Maintenance according to the standard and the system manufacturer's requirements will reduce early malfunctions and potential nuisance conditions and health hazards. It will also extend the useful life of the wastewater treatment system and reduce the life-cycle costs to the owner. Private sector service providers will perform routine inspection and maintenance services. The rule will need to recognize a responsible management

authority for cluster systems serving more than one residence or business. A voluntary or mandatory registration program for maintenance providers may be considered to better promote best management practices for maintenance, maintenance records, reporting and monitoring.

The primary issues to be addressed in DHSS' process of updating wastewater treatment system standards are:

- public health protection,
- environmental protection,
- accountability of all involved with the wastewater treatment system,
- sustainable wastewater treatment options,
- new technology acceptance and
- homeowner/property owner involvement in system selection decisions.

c. Disseminate Public Service Announcements

The departments will enhance educational opportunities through the use of public service announcements and explore the possibility of sharing the costs with interested partners. There are several Public Service Announcements available through the National Environmental Services Center that could be made publicly available at little cost. The departments respective Public Information Offices will develop a joint communications plan that includes dissemination of Public Service Announcements.

d. Conduct annual stakeholder meeting

The departments will continue to hold annual stakeholder meetings subject to stakeholder interest. The first of such meetings will be convened in Fall 2012. Convening and conducting stakeholder meeting does take resources of the departments in terms of staff time preparing for, attending, facilitating and following up meetings; however, the HB 89-required meetings made it clear that there are many issues that would benefit from continued discussion.

The following three recommendations (e-g) require a change in rule or statute and will go a long way toward remedying the confusion expressed by those attempting to install wastewater treatment systems and toward answering the stakeholders' request that the departments have additional tools to protect human health and the environment.

e. Reconcile rules

DHSS and DNR should consider amending their respective construction standards and rules to align the estimated daily flow rates used for the design of wastewater treatment systems to serve various establishments. Recognizing that different treatment technologies handle peak flows differently, questions of jurisdiction would be clarified by establishing consistent daily flow estimates at the jurisdictional limit, which is currently 3,000 gallons per day.

Fees may also be aligned at the jurisdictional limit. Significant differences in fees for similar size wastewater treatment systems can encourage owners to select the system based on the jurisdiction and permit application fee rather than the best technology and system for a project. The departments will continue collaborating as set forth in the agencies' MOU to include quarterly meetings, trainings, maintenance of contact lists and complaint response.

f. Improving oversight of no-discharge lagoons

DNR improves oversight of currently exempt no-discharge lagoons with flows of 3,000 gallons per day (gpd) or less. Currently, no-discharge lagoons are under DNR jurisdiction but largely exempt from regulations. DNR would remove the exemption for these lagoons, thereby requiring a construction and operating permit. This would largely eliminate abuses of the exemption and provide owners of such system with much needed guidance on the operation and maintenance of these systems.

g. Enhance DHSS ability to accept complaints and require compliance

The ability of DHSS and local authorities to deal with malfunctioning onsite wastewater treatment systems may be enhanced. Section 701.038, RSMo, pertaining to complaints may be amended so DHSS may more easily accept citizens' complaints when not an adjacent landowner or aggrieved party. Existing statutes may be amended to include civil penalties as an additional enforcement tool for local prosecuting attorneys. This recommendation was offered by the Attorney General's Office following the August 17-18, 2010, Symposium on Protecting Water Quality at the Lake of the Ozarks: An Environmental Road Map for the Future.

The following four recommendations (h-k) will expand the services provided by the departments to the public and improve the transparency and information available to the departments and system owners concerning wastewater treatment systems.

h. Register septage haulers and onsite wastewater treatment system service providers

DNR should consider implementing required registration of septage haulers with a fee sufficient to administer the program. Registration would help prevent illegal disposal of septage or sewage sludge by land application and into the waters of the state.

DHSS should consider implementing a registration program for onsite system service providers with a fee sufficient to administer the program. Registration would help to ensure qualified individuals perform the required maintenance. It would promote best practices for maintenance, maintenance records, reporting and monitoring. The registration program could be mandatory or it could initially be a voluntary program.

i. Require onsite wastewater treatment system real estate transaction disclosures

A statutory change requiring an onsite wastewater treatment system disclosure for real estate transactions should be considered. By requiring a seller to provide the new owner with an informational pamphlet about OWTS, details about the existing system they are purchasing and an opportunity for a licensed inspector to assess the system, the new owner would be better informed and understand the importance of a properly functioning wastewater treatment system when considering the purchase of a property.

j. Expand flexibility with SRF projects

DNR should consider, where possible, increasing SRF funding availability to smaller wastewater treatment systems. This can be accomplished through creation of groups that can manage the funding and maintenance of the systems, such as the Upper White River Basin Foundation.

k. Establish professional registration for soil scientists

Statewide soil scientist professional registration and standards should be considered. DHSS has established onsite soil evaluator registration requirements and standards for evaluating proposed wastewater treatment areas. However, a professional registration program encompassing a broader range of the skills and experience needed by soil scientists could provide a means for development of new professionals and improve onsite soil evaluation practices. A professional registration system may better protect the public from substandard soil evaluations by elevating the standards of the soil scientist profession.

VI. Conclusion

Although each department has its own mission statement, both agencies have a shared interest in onsite wastewater treatment systems. Throughout this process, the departments utilized shared data, stakeholder comments and internal discussions to produce final recommendations that focus on ensuring proper wastewater treatment. DHSS and DNR believe that any changes resulting from this process should focus on improved customer service while making certain that the necessary regulatory mechanisms are in place to ensure new treatment systems are installed properly and existing ‘legacy’ systems are improved as needed to protect human health and the environment.

Each department would like to thank the General Assembly for the opportunity to submit this report. The agencies would also like to thank everyone that participated in the stakeholder meetings or otherwise presented suggestions for improvement. DNR and DHSS will continue to work with interested parties to explore opportunities to improve services in the future.

This report is respectfully submitted on December 30, 2011 to the 96th Missouri General Assembly.

VII. Appendices

Please note all of the appendices may be found at http://www.dnr.mo.gov/env/wpp/ww-stakeholder.htm.