The Florida Senate

BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Committee on Environmental Preservation and Conservation

BILL:	SB 648
INTRODUCER:	Senator Evers
SUBJECT:	Land Application of Septage
DATE:	March 29, 2015 REVISED:

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Gudeman	Uchino	EP	**Pre-meeting**
2.			CA	
3.			FP	

I. Summary:

SB 648 removes the prohibition of the land application of septage which is set to take effect January 1, 2016. The bill requires the Department of Health (DOH) to conduct monthly inspections of land application sites located inside spring protection and management zones. It prohibits land application sites inside spring protection and management zones from being sold but allows them to be transferred. It also prohibits additional sites inside spring protection and management zones from being permitted. The bill requires specific soil sampling and septage sampling of these sites, metered receiving, and the use of a digital pH meter.

The bill requires quarterly inspections for land application sites that are located outside spring protection and management zones. These sites may be sold and transferred and additional sites may be permitted. The bill requires metered receiving and the use of a digital pH meter for sites located outside spring protection and management zones.

The bill provides a definition of "spring protection and management zone."

II. Present Situation:

The DOH oversees the administration of onsite sewage treatment and disposal systems (OSTDSs, septic systems) in order to detect and prevent disease caused by natural and manmade factors in the environment.[1] The DOH estimates there are approximately 2.6 million septic tanks in use statewide. An "onsite sewage treatment and disposal system" is "a system that contains a standard subsurface, filled, or mound drainfield system; an aerobic treatment unit; a graywater system tank; a laundry wastewater system tank; a septic tank; a grease interceptor; a pump tank; a solids or effluent pump; a waterless, incinerating, or organic waste-composting toilet; or a sanitary pit privy that is installed or proposed to be installed beyond the building sewer on land

[1] See s. 381.006, F.S.

of the owner or on other land to which the owner has the legal right to install a system. The term includes any item placed within, or intended to be used as a part of, or in conjunction with, the system. The term does not include package sewage treatment facilities and other treatment works regulated under ch. 403, F.S."[2]

The systems operate by allowing sewage to flow from a home or business through a pipe into the first chamber, where solids settle out. The liquid then flows into the second chamber where anaerobic bacteria, which do not require oxygen, to break down the organic matter, allowing cleaner water to flow out of the second chamber into a drainfield.[3]

The DOH's Onsite Sewage Programs, in the Bureau of Environmental Health (bureau), develops statewide rules and provides training and standardization for county health department employees responsible for permitting the installation and repair of OSTDSs. The bureau also licenses septic system contractors, approves continuing education courses, provides courses for septic system contractors, funds a hands-on training center, and mediates septic system contracting complaints. The bureau also manages a state-funded research program, prepares research grants, and reviews and approves innovative products and OSTDS designs.[4]

The majority of septage is regulated by the DOH; however, the Department of Environmental Protection (DEP) permits OSTDSs when the estimated domestic sewage flow from the establishment is over 10,000 gallons per day or the commercial sewage flow is over 5,000 gallons per day. The DEP also has jurisdiction over OSTDSs where there is a likelihood the system will receive toxic, hazardous or industrial wastes, where a sewer system is available, or if any system or flow from the establishment is currently regulated by the DEP. Variances can be granted by either agency as needed.[5]

Land Application of Septage

The land application of septage from OSTDSs is an approved method of disposal in Florida, and is common in rural areas.[6] Septage is defined as "a mixture of sludge, fatty materials, human feces, and wastewater removed during the pumping of an [OSTDS].[7]" Approximately 100,000 septic tanks are pumped each year, generating 100 million gallons of septage requiring treatment and disposal.[8] When used for land application, the septage is stabilized by raising the pH to 12 for at least two hours or to a pH of 12.5 for 30 minutes.[9] The treated septage is then spread over

[2] Section 381.0065(2)(k), F.S.
[3] U.S. Environmental Protection Agency, *Primer for Municipal Wastewater Treatment Systems*, 22 (2004), *available at* http://water.epa.gov/aboutow/owm/upload/2005_08_19_primer.pdf (last visited Mar. 26, 2015).
[4] DOH, Onsite Sewage Programs, *Onsite Sewage*, http://www.floridahealth.gov/healthy-environments/onsite-sewage/index.html (last visited Mar. 26, 2015). See also s. 381.006, F.S., and Fla. Admin. Code R. 64E-6 (2013).
[5] DEP, *Septic Systems*, http://www.dep.state.fl.us/water/wastewater/dom/septic.htm (last visited Mar. 26, 2015).
[6] DOH, Bureau of Onsite Sewage Programs, *Report on Alternative Methods for the Treatment and Disposal of Septage*, 1 (Feb. 1, 2011), *available at* http://pk.b5z.net/i/u/6019781/f/FINAL_REPORT_ON_ALTERNATIVE_METHODS_FOR_THE_TREATMENT_AND_DISPOSAL_OF_SEPTAGE_03282011__2_.pdf (last visited Mar. 25, 2015).
[7] Section 381.0065(2)(n), F.S.
[8] *Supra* note 6, at 1.
[9] Fla. Admin. Code R. 64E-6.010(7)(a), (2013).

the land at DOH-regulated land application sites.[10] In addition to septage, OSTDSs serving restaurants include tanks that separate grease from the sewage stream. The grease is collected, hauled, treated, and land applied similarly to septage. There are 84 land application sites that account for approximately 40 percent of disposal in Florida. The rest is disposed of at wastewater treatment facilities or municipal landfills.[11]

In 2010, the Legislature passed SB 550, which created a five-year OSTDS inspection program to be fully implemented by the DOH by January 2016 and banned the land application of septage by January 1, 2016.[12] The law required the DOH to adopt rules and begin initial inspections of OSTDSs by January 1, 2011.[13]

During the Special Session in November 2010, the Legislature acted to extend the implementation date of the inspection program to July 1, 2011, so it could take up the issue during the 2011 Regular Session.[14] Several bills were introduced in 2011 to address the inspection program and repeal the ban on the land application of septage. Although none passed, provisions were included in the implementing act for the 2011-2012 General Appropriations Act that prohibited the DOH from expending funds to move forward with an inspection program until it submits a plan for approval by the Legislative Budget Committee.[15]

In 2012, the statewide inspection program and the DOH's rulemaking authority for the inspection program were repealed. A county or municipality with a first magnitude spring was required to adopt a local ordinance for an OSTDS evaluation and assessment program, unless the county or municipality opted out. All other counties were given the option to opt in.[16] All counties required to opt out of the inspection program have done so, and no county or municipality has opted in.

Department of Health Requirements

The DOH regulates the land application of septage pursuant to Rule 64E-6.010, F.A.C., which requires land application of septage be applied at least:

- 3,000 feet from a Class I waterbody or Outstanding Florida Waters;
- 300 feet from any surface waterbodies, except canals or waterbodies used for irrigation;
- 500 feet from any public water supply wells;
- 300 feet from any private drinking water supply wells;
- 300 feet from a habitable building; and
- 75 feet from property lines and drainage ditches.

[10] Fla. Admin. Code R. 64E-6.010, (2013).
[11] *Supra* note 6, at 1.
[12] Chapter 2010-205, s. 35, Laws of Fla.
[13] Section 381.0065(5), F.S.
[14] Chapter 2010-283, Laws of Fla.
[15] Chapter 2011-247, s. 13, Laws of Fla.
[16] Chapter 2012-184, Laws of Fla.

The following provisions are required for the land application site and the timing of land application:

- A minimum of 24 inches of unsaturated soil above the ground water table at the time of septage or sludge application;
- If the wet season high ground water table is within two feet of the surface or is not determined in the Agricultural Use Plan, then the water table at the time of application must be determined using a monitoring well;
- Land application is prohibited during rain events that are significant enough to cause runoff, or when the soil is saturated;
- The application area must have sufficient buffer areas or stormwater management structures to retain the run-off from a 10-year one-hour storm;
- The topographic grade shall not exceed 8 percent;
- A layer of permeable soil at least two feet thick must cover the surface of the land application area; and
- The land application area and an area 200 feet wide adjacent to the site must not contain:
  - Subsurface fractures,
  - Solution cavities;
  - Sink holes;
  - Excavation core holes;
  - Abandoned holes; or
  - Other natural or manmade conduits.[17]

Sufficient storage capacity for the septage or sludge is required during periods of equipment failure. All facilities must be designed, located, and operated to prevent nuisance conditions and runoff.[18]

Groundwater quality criteria for groundwater and surface water cannot be violated as a result of land application of septage or sludge and the DOH may require water quality testing. The site owner must suspend activities if water quality is violated.[19]

Application rates of septage and food establishment sludge are limited by nitrogen content of the waste and not phosphorus content, unless otherwise provided for. For the application rate limited by nitrogen:

- The maximum annual surface application rate is 500 pounds per acre in a 12-month period (equates to six dry tons or 40,000 gallons of typical septage per acre per year);
- Septage must be applied as evenly as possible to ensure maximum uptake of nitrogen;
- The annual application rate (AAR) of nitrogen can be calculated using the following formula: $AAR = N \div 0.0026$, where N is the amount of nitrogen in pounds per acre per 365 day period needed by the crop or vegetation.[20]

Where the application rate is limited by phosphorus:

[17] *Supra* note 10.
[18] *Supra* note 10.
[19] *Supra* note 10.
[20] *Supra* note 10.

- The maximum annual surface application rate is 40 pounds per acre in a 12-month period (equates to two dry tons or 12,000 gallons of typical septage per year);
- The formulas to calculate AAR of phosphorus are:
  - AAR = P ÷ 0.0076 (if crop demand is calculated for P_2O_5); and
  - AAR = P ÷ 0.0033 (if crop demand is calculated P).[21]

The rule requires permanent records be kept of the application areas and rates. The records are to be maintained by the site owner, lessee, or the land applicator for five years and must be available for inspection by the DOH. The annual summary of total septage or sludge must be included in the annual update to the Agricultural Use Plan. The records must include the:

- Location of the septage treatment facility where each load of treated septage is obtained;
- Date and time the treated septage was obtained from the treatment facility;
- Dates of septage or sludge land application;
- Weather conditions when applied;
- Location of septage or sludge application site;
- Amounts of septage or sludge applied;
- Specific area of the site where septage or sludge was applied;
- pH of stabilized septage or sludge;
- Soil groundwater table when septage was applied; and
- Vegetational status of application area.[22]

Alternatives to Land Application of Septage

There are two current practices in Florida that serve as alternatives to land application of septage. Neither is available in every part of the state. Typically, septage that is not land applied is either treated at wastewater treatment facilities or is dewatered and then disposed of in landfills. There are other alternatives that process small quantities of septage, but they are not yet commercially available in Florida.[23]

Wastewater Treatment Facilities

There are approximately 2,000 domestic wastewater treatment facilities in Florida that have a total treatment capacity of over 2.5 billion gallons per day.[24] The DOH has determined the capacity of the facility is directly related to its ability to accept septage.[25]

Disposing septage at a wastewater treatment facility centralizes the waste treatment process, however, the high strength septage from septic tanks leads to increased operational costs. High strength septage is produced from properly functioning OSTDSs, which separate the liquids from the solids, concentrating the solids at the bottom of the tank. The result is septage with a higher concentration of solid to liquid than wastewater treatment plants typically receive.[26]

[21] *Supra* note 10.
[22] *Supra* note 10.
[23] *Supra* note 6, at 2-4.
[24] DEP, *General Facts and Statistics about Wastewater in Florida*, http://www.dep.state.fl.us/WATER/wastewater/facts.htm (last visited Mar. 26, 2015).
[25] *Supra* note 6, at 2-3.
[26] *Supra* note 6, at 2-3.

There are two current methods facilities use to assimilate septage into the waste stream. The less desirable of the two is allowing septage haulers to discharge the entire load in one "slug" into the main lift station or headworks. This method has the potential to upset the process because of the high concentration of solids entering the system quickly. A more desirable method is to discharge the slug load into a holding tank and then slowly release the septage into any of various treatment points in the system as capacity allows.[27] The average rate for this disposal method is 6 to 12 cents per gallon.[28]

Disposal in Landfills

A second option for septage disposal is at Class I landfills. There are 42 active Class 1 landfills in Florida. Landfills that receive septage benefit from increased microbial activity, decomposition rates, and waste stabilization. However, disposal of dewatered septage can lead to some instability, as well as slick working conditions for compaction equipment. Septage also needs to be covered quickly to avoid health hazards for workers from pathogen exposure and to avoid attracting birds, insects, and rodents.[29]

Septage disposal at a Class I landfill is subject to Rule 62-701.300(10), F.A.C., which requires the septage to pass the EPA Paint Filter Liquids Test.[30] Typically, septage is two to three percent solids and must be dewatered to achieve 12 percent solids before it passes the paint filter test. The dewatering process releases effluent that requires a separate disposal process at a wastewater disposal facility. The average cost of landfilling septage is 10 cents per gallon.[31]

Florida's Springs

Florida's springs are unique and beautiful resources. The historically crystal clear waters provide not only a variety of recreational opportunities and habitats, but also great economic value for recreation and tourism. Springs are major sources of stream flow in a number of rivers such as the Rainbow, Chassahowitzka, Homosassa, and Ichetucknee.[32] Additionally, Florida's springs provide a "window" into the Floridan aquifer system, which provides most of the state's drinking water.

The Floridan aquifer system is a limestone aquifer that has enormous freshwater storage and transmission capacity. The upper portion of the aquifer consists of thick carbonate rocks that have been heavily eroded and covered with unconsolidated sand and clay. The surficial aquifer is located within the sand deposits and forms the land surface that is present today. In portions of Florida, the surficial aquifer lies on top of deep layers of clay sediments that prevent the

[27] *Supra* note 6, at 2-3.
[28] *Supra* note 6, at 3.
[29] *Supra* note 6, at 3.
[30] EPA method SW-846 for evaluating solid wastes measures the amount of solid waste in a liquid by applying 100 milliliters to a 400 micron paint filter. If liquid passes through the filter in five minutes it is considered a free liquid and fails the paint test. Most septage must be dewatered in order to pass the paint test prior to disposal.
[31] *Supra* note 6, at 3-4.
[32] Department of Community Affairs, *Protecting Florida's Springs: An Implementation Guidebook*, 3-1 (Feb. 2008), *available at* http://www.dep.state.fl.us/springs/reports/files/springsimplementguide.pdf (last visited Mar. 26, 2015).

downward movement of water. Springs form when groundwater is forced out through natural openings in the ground.[33]

Excessive nutrients may result in harmful algal blooms, nuisance aquatic weeds, and alteration of the natural community of plants and animals. Dense, harmful algal blooms can also cause human health problems, fish kills, problems for water treatment plants, and generally impair the aesthetics and taste of waters. Growth of nuisance aquatic weeds tends to increase in nutrient-enriched waters, which can also impact recreational activities. Increased algae production, as a result of increased nutrients, can alter plant communities and affect natural systems.

In pristine conditions, spring water is high quality and lacks contaminants. It can be used directly for public water supplies or for irrigation. When pollutants are introduced to the land surface, some will be retained, but some will travel into the aquifer and later appear in spring flow. Often, nutrients introduced close to a spring will quickly reach the spring, especially in unconfined areas of the aquifer. While springs are valuable recreational and tourist attractions, they are also an indicator of reduced quality of the water in the aquifer.[34]

Land Application of Septage Study

The DEP is currently conducting a study to determine the leaching potential of land application of septage sites to groundwater. The study examines adjacent land uses and site history, as well as tracer analysis to examine groundwater beneath the application site and the up-gradient locations. The DEP is working with the Florida Onsite Wastewater Association to identify site owners that do not have a history of significant fertilizer use or nearby source contributions and are willing to participate in the study. The DEP expects the study to take 18 to 24 months to complete.[35]

III. Effect of Proposed Changes:

The bill amends s. 381.0065, F.S., to remove the ban of land application of septage, which is effective January 1, 2016. The bill requires that the land application of septage in an area delineated as spring protection and management zone is subject to the following requirements:

- Monthly inspections by the DOH;
- Metered receiving at treatment facilities;
- Testing with an electronic pH meter rather than paper strips;
- Stabilized septage sampling;
- Annual tracking of nutrient loading based on septage sampling;
- Annual soil sampling of active application sites;
- Sites may not be sold, but may be transferred; and
- Additional sites may not be permitted.

[33] *Id*., at 3-1 to 3-2.
[34] *Id*.
[35] DEP, *Senate Bill 648 Agency Analysis*, 3 (Feb. 16, 2015) (on file with the Senate Committee on Environmental Preservation and Conservation).

The bill requires that the land application of septage in an area not delineated as a spring protection and management zone is subject to the following requirements:

- Quarterly inspections by the DOH;
- Metered receiving at treatment facilities;
- Testing with an electronic pH meter rather than paper strips;
- Sites may be sold or transferred; and
- Additional sites may be permitted.

The bill defines the term "spring protection and management zone" as "a springshed where the Floridan Aquifer is vulnerable to sources of contamination or reduced water levels, as determined by the DEP in consultation with the appropriate water management district."

The bill provides an effective date of July 1, 2015.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. Other:

The bill prohibits the sale of a land application site that is located inside a spring protection and management zone. This prohibition may result in per se/categorical takings claims or partial takings claims based on the Fifth Amendment to the U.S. Constitution.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

The bill prohibits new permits for land application sites and the sale of a land application sites inside a spring protection and management zone, which may have a negative fiscal impact on the property owner.

The land application site permit holder may experience an indeterminate cost increase as a result of the monitoring and sampling requirements in the bill. The cost increase realized by the permit holder will likely be passed on to the consumer.

The cost increase associated with the monthly and quarterly inspection programs will be approximately $78,660 per year, which is calculated based on the current rate of $115 charged per site to the permit holder for an annual inspection.[36]

C. Government Sector Impact:

The monthly and quarterly inspections will cost approximately $131,000 per year. The database modifications to collect and track the new data will cost approximately $82,120 and then $2,280 annually. The cost of the new sampling requirements and equipment requirements, including the digital pH meters, is unknown.[37]

If the bill implies the DOH has the authority to adopt new rules, there may be a cost associated with the rulemaking process.

VI. Technical Deficiencies:

None.

VII. Related Issues:

The bill requires the DOH to conduct monthly inspections, to monitor and enforce the new regulations, and to collect and track information. The DOH currently has authority in Rule 64E-6.010, F.A.C., to inspect land application sites annually. The protocols for the sampling, monitoring and tracking requirements will have to be established by the DOH and the bill does not expressly provide the DOH with rulemaking authority to implement these requirements.

The bill is not clear what "septage sampling" entails and how the DOH will implement this requirement. The DOH currently only tests the pH of septage and the bill does not specify what additional parameters should be analyzed. The bill also requires metered receiving at treatment facilities. Specific metered reading is not currently required under Rule 64E-6.010, F.A.C.; however, the septage haulers, treatment facilities, and land application site operators are all required to document the amount of septage that is processed. It is not clear if the documentation that is required is based on metered receiving, therefore, it is not known if bill the bill requires a duplication of efforts.[38]

The bill requires specific actions be taken for the land application of septage inside a spring protection and management zone and outside of a spring protection and management zone. The bill also prohibits new application sites in a spring protection and management zone. The bill

[36] DOH, *Senate Bill 648 Agency Analysis*, 3 (Feb. 4, 2015) (on file with the Senate Committee on Environmental Preservation and Conservation).
[37] *Id*.
[38] Email from Thomas Joos, DOH, to Stephanie Gudeman, Legislative Analyst, The Florida Senate (Mar. 26, 2015) (on file with the Senate Committee on Environmental Preservation and Conservation).

defines a "spring protection and management zone" as "a springshed where the Floridan Aquifer is vulnerable to sources of contamination or reduced water levels, as determined by the DEP in consultation with the appropriate water management districts." The term "springshed" is understood as the area within a groundwater or surface water basin that contributes water, and pollutants, to the discharge of a spring.[39] The agency analysis provided by the DOH and the DEP reported conflicting results based on the definition of the spring protection and management zone. The DEP reports there are 90 land application sites in Florida, 47 of which are located inside a spring protection and management zone.[40] The DOH reports there are 84 land application sites, 54 of which are located inside a spring protection and management zone.[41] The discrepancy may indicate that the delineation of the spring protection and management zone is subject to interpretation and may result in challenges when implementing the new requirements.

SB 918, Regular Session 2015, also included the definition of "spring protection and management zone," which was amended to remove the spring protection and management zone delineation.

VIII. Statutes Affected:

This bill substantially amends section 381.0065 of the Florida Statutes.

IX. Additional Information:

A. Committee Substitute – Statement of Changes:
(Summarizing differences between the Committee Substitute and the prior version of the bill.)

None.

B. Amendments:

None.

[39] *Supra* note 29.
[40] *Id*., at 4.
[41] *Supra* note 29, at 2.