

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: CS/SB 1438

INTRODUCER: Environmental Preservation and Conservation Committee and Senator Broxson

SUBJECT: Aquifer Replenishment

DATE: March 28, 2017

REVISED: _____

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Rogers	Rogers	EP	Fav/CS
2.			AEN	
3.			AP	

Please see Section IX. for Additional Information:

COMMITTEE SUBSTITUTE - Substantial Changes

I. Summary:

CS/SB 1438 authorizes the Florida Department of Environmental Protection (DEP) to:

- Place additional conditions on permits for underground injection intended to protect, augment, or replenish the state's ground water resources. These conditions can include the establishment of a zone of discharge for ground water standards and associated institutional controls to promote the conservation, reclamation, and sustainability of the state's ground water resources. Examples of institutional controls would include property interests, use restrictions and access controls, and well construction limitations.
- Develop rules establishing voluntary facility classifications and associated operator licensing requirements for treatment facilities that provide treatment for reclaimed water, stormwater, and other water resources as a means of promoting the availability of sufficient water for existing and future reasonable-beneficial uses and natural systems.

II. Present Situation:

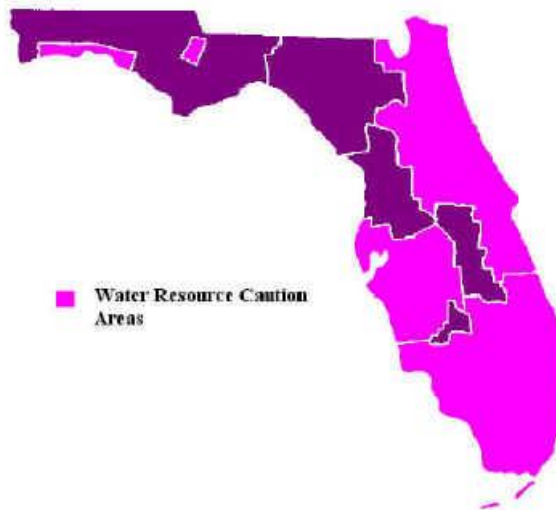
Water Supply and Constraints

By 2030, Florida's population is estimated to reach 23,609,000 – almost a 26 percent increase over 2010.¹ Fresh water demand is projected to reach 7.7 billion gallons per day by 2030, an

¹ DEP, *Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater and Excess Surface Water*, 11 (December 1, 2015) available at <http://www.dep.state.fl.us/water/reuse/docs/sb536/SB536-Report.pdf>.

additional 1.3 billion gallons over 2010 water use for the state.² In Florida, ground water accounts for about 90 percent of public and domestic water supply.³ Over 50 percent of all other water needs including agricultural, industry, mining, and electric power generation are supplied by ground water resources.⁴ The major source of ground water supply in Florida is the Floridan Aquifer System, which underlies the most of the state.⁵ The Floridan is a multiple-use aquifer system.⁶ Where it contains freshwater, it is the principal source of water supply. In several places where the aquifer contains saltwater, such as along the southeastern coast of Florida, treated sewage and industrial wastes are injected into it. Near Orlando, drainage wells are used to divert surface runoff into the Floridan. South of Lake Okeechobee, the aquifer contains saltwater. Some of this saltwater is withdrawn for cooling purposes and some is withdrawn and converted to freshwater by desalinization plants.⁷

Ground water percolates down from the surface. As a result, ground water contains inputs found in surface waters such as agricultural runoff, urban stormwater and domestic and industrial wastewater. Approximately 20 percent of Floridians safely consume ground water without treatment or disinfection.⁸



Water Management Districts (WMDs) are required to ensure an adequate supply of water and water resources for all citizens and natural features, provide protection and improvement of natural systems and water quality, minimize harm to water resources, and promote the reuse of reclaimed water.⁹ The WMDs set minimum flows and minimum levels (MFLs) for surface waters and ground water, respectively. The purpose of setting MFLs is to prevent significant harm to the water resources or ecology of an area as a result of water withdrawals.¹⁰ The WMDs regulate consumptive use of water through a permitting process.¹¹ WMD governing boards are required to conduct regional water supply planning for areas where existing water sources are insufficient to meet projected 20-year demands. Those areas are also to be designated as Water Resource Caution Areas.

² *Id.*

³ *Id.* at 14.

⁴ DEP, *Ground Water Program*, available at <http://www.dep.state.fl.us/water/groundwater/> (last visited March 3, 2017).

⁵ DEP, *Aquifers*, <https://fldep.dep.state.fl.us/swapp/Aquifer.asp#> (last visited March 3, 2017).

⁶ U.S. Geological Survey, *Floridan Aquifer System*, available at https://pubs.usgs.gov/ha/ha730/ch_g/G-text6.html (last visited March 24, 2017).

⁷ *Id.*

⁸ DEP, *Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater and Excess Surface Water*, 14 (December 1, 2015) available at <http://www.dep.state.fl.us/water/reuse/docs/sb536/SB536-Report.pdf>.

⁹ Section 373.036, F.S.

¹⁰ Section 373.042, F.S.

¹¹ Section 373.219, F.S. Note that a WMD may not require a permit for the use of reclaimed water. Section 373.250 (3)(b), F.S.

Water Quality Standards

The U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (DEP) enforce Water Quality Standards (WQSs) through the implementation and enforcement of the National Pollutant Discharge Elimination System (NPDES) permitting program.¹² Every point source that discharges a pollutant into waters of the United States must obtain an NPDES permit establishing the amount of a particular pollutant that an individual point source can discharge into a specific waterbody. The amount of the pollutant that a point source can discharge under an NPDES permit is determined through the establishment of a technology-based effluent limitation. If a waterbody fails to meet the applicable WQS through the application of a technology-based effluent limitation, a more stringent pollution control program called the water quality based effluent limitation is applied. Any stationary installation that is reasonably expected to be a source of air or water pollution must not be operated, maintained, constructed, expanded, or modified without an appropriate permit issued by the DEP.¹³

Most wastewater facilities or activities are required to obtain an "individual permit" which includes permit requirements and conditions tailored to the specific wastewater treatment and disposal systems regulated in the permit. Individual permits allow a permittee to both construct and operate the wastewater treatment facility. A Department-issued wastewater permits generally contain requirements for, depending on the type of facility and disposal means, the treatment of the wastewater, disposal to surface water (NPDES), discharge to ground water, the land-application of reclaimed water, the beneficial use of reclaimed water (e.g., landscape irrigation), influent and effluent monitoring and reporting, and, in the case of a domestic wastewater facilities, industrial pretreatment, and domestic residuals management. Self-monitoring reports called monthly Discharge Monitoring Reports (DMRs) are routinely submitted to the Department by the permittee.¹⁴

The Safe Drinking Water Act (SDWA) is the federal law that protects public drinking water supplies throughout the nation.¹⁵ Under the SDWA, the EPA sets standards for drinking water quality and, with its state partners, implements various technical and financial programs to ensure drinking water safety.¹⁶ Florida has the primary authority to implement the SDWA, having adopted a Florida SDWA that has been demonstrated to be at least as stringent as the EPA's requirements (referred to as "state primacy").¹⁷ The Florida SDWA directs DEP to formulate and enforce rules pertaining to drinking water. These rules adopt the national primary and secondary drinking water standards of the federal government and create additional rules to fulfill state requirements. Drinking water standards are set out in Chapter 62-550, Florida Administrative Code.

¹² See generally, DEP, *Wastewater Permitting*, <http://www.dep.state.fl.us/water/wastewater/permitting.htm> (last visited March 5, 2017).

¹³ Section 403.087, F.S.

¹⁴ DEP, *Wastewater Permitting*, available at <http://www.dep.state.fl.us/water/wastewater/permitting.htm> (last visited March 5, 2017).

¹⁵ The Public Health Service Act, 42 U.S. ss. 300f to 300j-26 (2016).

¹⁶ U.S. Environmental Protection Agency, *Safe Water Drinking Act (SDWS)*, available at <https://www.epa.gov/sdwa> (last visited March 3, 2017).

¹⁷ Sections 403.850-403.864, F.S.

Ground Water Regulations

DEP regulates underground injection;¹⁸ water well permitting;¹⁹ water well construction;²⁰ source water and wellhead protection programs;²¹ and ground water classes, standards, and monitoring.²² DEP's Aquifer Protection Program is responsible for regulatory programs affecting ground water.²³ DEP exercises regulatory authority over ground water quality under Chapter 62-520 of the Florida Administrative Code. In Florida, ground water standards are equivalent to the drinking water standards. By definition, a violation of any ground water standard or criterion constitutes pollution.²⁴

To enhance water quality protection, the ground waters of the state are delineated and assigned a class designation based on use and natural water quality. Appropriate water quality criteria for those classes are set forth in Chapter 62-520, Florida Administrative Code. Class F-I and G-I are potable water uses meeting the highest water quality criteria (total dissolved solids content of less than 3,000 mg/L). Class G-II is also for potable water, but with a higher level of total dissolved solids (less than 10,000 mg/L). These categories constitute underground sources of drinking water (USDW), which means an aquifer that supplies drinking water for human consumption. USDWs are subject to Florida's SWDA. Class G-III and G-IV are non-potable water uses.

Zone of Discharge Exemption

DEP is authorized to establish reasonable zones of mixing for discharges into waters. Unless otherwise exempt, DEP prohibits installations²⁵ from directly or indirectly discharging into ground water any contaminant that causes a violation of the water quality standards or minimum criteria for the receiving ground water, except within a zone of discharge established by permit or Rule 62-520.465, Florida Administrative Code. The statute specifies that primary and secondary ground water standards that are exceeded within a zone of discharge do not create liability for site cleanup pursuant to chapters 403 or 376, F.S.

“Zone of discharge,” as defined by DEP rule, means a volume of water underlying or surrounding the site and extending to the base of a specifically designated aquifer or aquifers, within which an opportunity for the treatment, mixture or dispersion of wastes into receiving ground water is allowed.²⁶ The zone of discharge provisions are designed to provide an opportunity for the future consideration of factors relating to localized situations including

¹⁸ Fla. Admin. Code R. Ch. 62-528.

¹⁹ Fla. Admin. Code R. Ch. 62-424.

²⁰ Fla. Admin. Code R. Chs. 62-531 (Water Well Contractors) and 62-532 (Water Well Permitting and Construction Requirements)

²¹ Fla. Admin. Code R. Ch. 62-521.

²² Fla. Admin. Code R. Ch. 62-520

²³ DEP, *Ground Water Program*, available at <http://www.dep.state.fl.us/water/groundwater/> (last visited March 3, 2017).

²⁴ Florida Admin. Code s. 62-520.310.

²⁵ Section 403.061(11), F.S.

²⁶ Fla. Admin. Code R. 62-520.200(27).

economic and social consequences, attainability, irretrievable conditions, natural background, and detectability.²⁷

Zones of discharge are allowed when beneficial discharges occur through wells to ground water for:

- Projects designed to recharge aquifers with surface water of comparable quality, or projects designed to transfer water across or between aquifers of comparable quality for the purpose of storage or conservation;
- Aquifer storage and recovery of reclaimed water, ground water recharge by injection of reclaimed water, or creation of salinity barrier systems by injection of reclaimed water; and
- Certain DEP-approved aquifer remediation projects.²⁸

For USDW, the dimensions of a zone of discharge are generally 100 feet from the site boundary or to the installation's property boundary, whichever is less, unless a smaller zone of discharge is necessary to protect the designated use of contiguous waters.²⁹ Other discharges through wells or sinkholes that allow direct contact with ground water designated for public water systems and discharges that may cause an imminent hazard to the public or the environment through contamination of underground supplies of water are not allowed a zone of discharge.³⁰

Ground water monitoring may be used to ensure that permitting of zones of discharge, or the granting of exemptions, will not cause a violation of ground water standards. Monitoring also allows predictions to be made of the movement and composition of the discharge plume and compliance with applicable state ground water standards at the boundary of the zone of discharge.³¹

Ground Water Recharge Rule – Reclaimed Water

Rule 62-610.560 of the Florida Administrative Code governs ground water recharge by injection and restricts the zone of discharge for reclaimed water. Reclaimed water injected into Class G-II ground water containing 3000 mg/L or less of total dissolved solids or into Class G-I or F-I ground water must meet the full treatment and disinfection requirements required by rule. Reclaimed water may be injected into Class G-II ground water containing greater than 3000 mg/L of total dissolved solids, if all of the following conditions are met:

- The reclaimed water meets principal treatment and disinfection requirements.
- The reclaimed water meets primary drinking water standards before injection. Disinfection standards are applicable. The fecal coliform limitations associated with high-level disinfection do not apply. Zones of discharge are not provided for parameters listed as primary drinking water standards (except for sodium).
- The reclaimed water does not have to comply with the secondary drinking water standards before injection. A zone of discharge can be provided for the parameters included in the secondary drinking water standards and for sodium. The ground water must meet all ground water quality standards at the edge of the zone of discharge. If the natural background ground

²⁷ Fla. Admin. Code R. 62-520.300(2)(c).

²⁸ Fla. Admin. Code R. 62-520.310(8).

²⁹ Fla. Admin. Code R. 62-520.461, 62-520.462, and 62-465.

³⁰ Fla. Admin. Code R. 62-520.310(9).

³¹ Fla. Admin. Code R. 62-520.470.

water quality does not meet the ground water quality standards, the injection system must be operated such that the ground water quality will be no worse than the natural background ground water quality at the edge of the zone of discharge.

- The zone of discharge may not extend into zones having total dissolved solids concentrations less than 3000 mg/L.

DEP may approve less restrictive discharge limitations for parameters which are included as drinking water under certain circumstances.

Institutional Controls

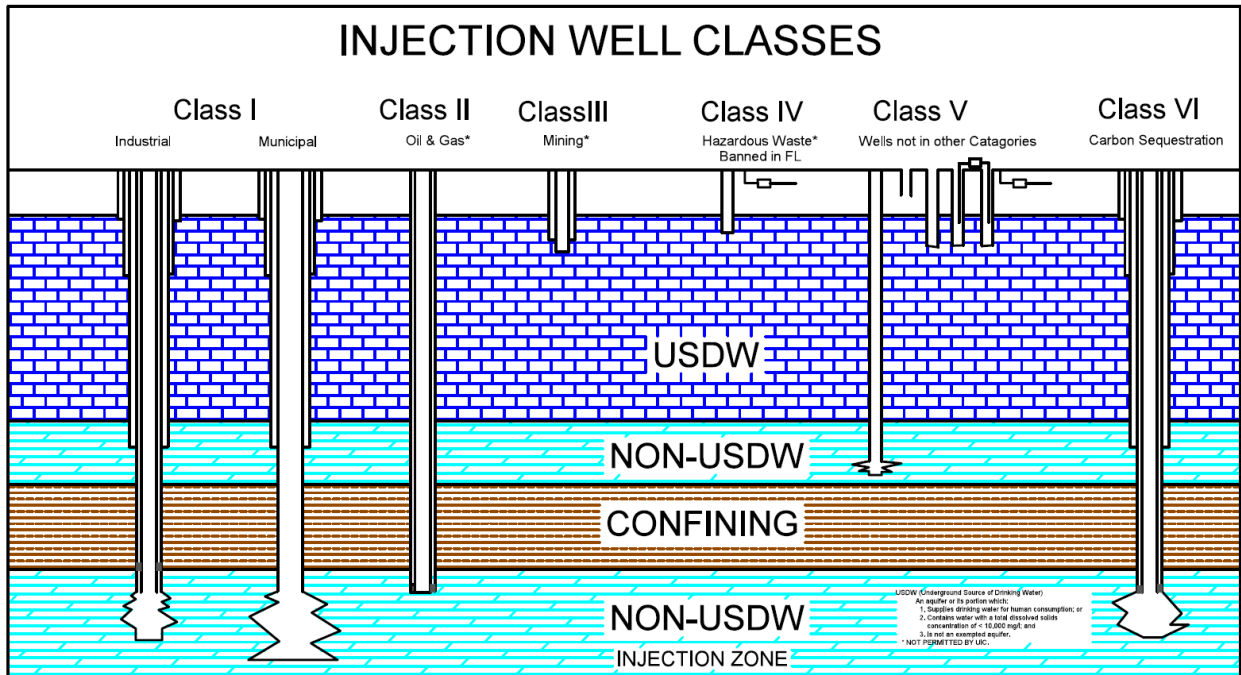
Section 376.301, F.S., defines “institutional controls” as “the restrictions on use or access to a site to eliminate or minimize exposure to petroleum products' chemicals of concern, drycleaning solvents, or other contaminants. This definition applies to sections of law dealing with pollution cleanup.”³² There is no definition for institutional controls for the purposes of ch. 403, F.S.

Injection Wells

Subsurface injection, the practice of emplacing fluids in a permeable underground aquifer by gravity flow or under pressure through an injection well, is one of a variety of wastewater disposal or reuse methods used in Florida. Class V wells are used for the storage or disposal of fluids into or above a USDW. The fluid injected must meet appropriate criteria as determined by the classification of the receiving aquifer. Common types of Class V wells include air conditioning return flow wells, swimming pool drainage wells, stormwater drainage wells, lake level control wells, domestic waste wells, and aquifer storage and recovery (ASR) wells. There are more than 13,000 Class V wells in Florida.³³

³² Section 373.301, F.S.; DEP, *Institutional Controls Procedures Guidance* (November 2013), http://www.dep.state.fl.us/legal/Enforcement/files/rest_cov/institutional_controls.pdf (last visited March 5, 2017); ss. 376.301(22) and 376.79(11), F.S.

³³ DEP, *Underground Injection Control*, <http://www.dep.state.fl.us/Water/uic/index.htm> (last visited March 4, 2017).



ASR is the underground injection and storage of water into a subsurface formation for withdrawal at a later date. In 2014, there were approximately 26 active permitted ASR wellfields in Florida and an additional 13 projects under development.³⁴

Aquifer recharge (AR) is similar to ASR except the water used to recharge the aquifer is not being stored for withdrawal from the same facility at a later date. While ASR is typically considered a water storage and supply strategy, AR is primarily considered a water resource development and conservation strategy that is used to preserve and enhance water resources and natural systems (e.g., sustain water levels, meet MFLs, including river and spring flows, and restore recharge) and to attenuate flooding.³⁵

Federal Underground Injection Control Program – Endangerment Rule

One concern about underground injection of water is that the underground formations available for drinking water storage contain minerals that can be mobilized when in contact with injected water. For example, the oxygen in injected water can cause arsenic present in minerals in the ground to move from the rock formation into the ground water.³⁶

The EPA has developed regulations that generally prohibit injection that causes fluid movement into an USDW.³⁷ Since Florida administers the SDWA, its regulations must comply with these provisions. The EPA advises that when a Class V permit is issued, it must contain conditions that ensure that “injected water only be withdrawn by the public water supply system that injected it,

³⁴ DEP, *Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater and Excess Surface Water*, 83 (December 1, 2015) available at <http://www.dep.state.fl.us/water/reuse/docs/sb536/SB536-Report.pdf>.

³⁵ *Id.*

³⁶ Letter from U.S. Environmental Protection Agency to Division of Water Resource Management, Florida Department of Environmental Protection (Sept. 27, 2013) available at http://www.awwa.org/portals/0/files/legreg/documents/2013-09-27_usepa_asr.pdf.

³⁷ 40 C.F.R. ss. 144.12(a) and 144.82(a).

because that entity is aware of the situation, is accountable for the presence of arsenic, and as a public water supply system must comply with other regulations under the SDWA.”³⁸ The EPA went on to state, “Permit conditions should require practices designed to reduce arsenic mobilization and minimize the area within which potential arsenic mobilization could occur.”³⁹ The EPA advised using tools such as degasification pretreatment, consistent operation to maintain constant volume, and full recovery of injected water when necessary. Such controls should also include requirements for monitoring wells and triggers to identify when further protective action is needed.⁴⁰

Reclaimed Water, Stormwater, and Other Water Resources

Section 373.019(17), F.S., defines reclaimed water as “water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility.” Water conservation and the promotion of the reuse of reclaimed water have been established as formal state objectives in ss. 403.064 and 373.250, F.S.. There are over 524 wastewater treatment facilities in Florida.⁴¹ Florida tracks its reuse inventory in an annual report compiled by the DEP.⁴² In 2015, a total of 478 domestic wastewater treatment facilities reported making reclaimed water available for reuse.⁴³ The 738 mgd of reclaimed water use represents approximately 44 percent of the total domestic wastewater flow in the state.⁴⁴ The 1,668 mgd of reuse capacity represents approximately 65 percent of the total domestic wastewater treatment capacity in the state.⁴⁵ Reclaimed water from these systems was used to irrigate 362,737 residences, 537 golf courses, 1022 parks, and 369 schools.⁴⁶ Over 13,290 acres of edible crops on 68 farms were reported to be irrigated with reclaimed water.⁴⁷ Approximately 46 wastewater treatment facilities do not provide reuse of any kind.⁴⁸ Reclaimed water is a type of alternative water supply as defined in s. 373.019(1), F.S., and is eligible to receive alternative water supply funding.

Originally, water reuse was required only within water resource caution areas, unless such reuse was not economically, environmentally, or technically feasible as determined by a reuse feasibility study. Currently, Chapter 62-40, Florida Administrative Code, requires use of reclaimed water statewide. A domestic wastewater facility in a water resource caution area is

³⁸ Letter from U.S. Environmental Protection Agency to Division of Water Resource Management, Florida Department of Environmental Protection (Sept. 27, 2013) available at http://www.awwa.org/portals/0/files/legreg/documents/2013-09-27_usepa_asr.pdf.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ DEP, *2015 Reuse Inventory*, (2016), available at http://www.dep.state.fl.us/water/reuse/docs/inventory/2015_reuse-report.pdf (last visited March 3, 2017) (note that this report tracks wastewater facilities with permitted capacities of 0.1 mgd or greater).

⁴² See DEP, *2015 Reuse Inventory*, (2016) available at http://www.dep.state.fl.us/water/reuse/docs/inventory/2015_reuse-report.pdf (last visited March 3, 2017); compiled from reports collected pursuant to Fla. Admin. Code R. Ch. 62-610.

⁴³ DEP, *2015 Reuse Inventory*, 2 (2016) available at http://www.dep.state.fl.us/water/reuse/docs/inventory/2015_reuse-report.pdf (last visited March 3, 2017).

⁴⁴ *Id.* at 3.

⁴⁵ *Id.*

⁴⁶ *Id.* at 2.

⁴⁷ *Id.* (noting that “[a]round 80% of the farmland was dedicated to the production of citrus (i.e., oranges, tangerines, grapefruit, etc.).”).

⁴⁸ *Id.* at 3.

required to prepare a reuse feasibility study before receiving a domestic wastewater permit.⁴⁹ Section 403.064, F.S., provides that if the study shows that reuse is feasible, a permit applicant must give significant consideration to implementing the program.

Stormwater runoff is generated when precipitation events flows over land or impervious surfaces and does not percolate into the ground. As the runoff flows over the land or impervious surfaces (paved streets, parking lots, and building rooftops), it accumulates debris, chemicals, sediment or other pollutants that could adversely affect water quality if the runoff is discharged untreated.⁵⁰ Stormwater projects can be used to address issues such as aquifer recharge, MFLs in surface waters, hydration of wetlands, and irrigation for residential, commercial, and agricultural properties.⁵¹

In its analysis of the expansion of beneficial uses of stormwater, DEP made the following recommendation relating to the injection of stormwater for aquifer replenishment:

Aquifer recharge and aquifer storage and recovery represent important strategies to address storage needs, but can be hampered by existing regulatory framework, particularly water quality requirements. DEP should reconsider the present UIC rules that regulate aquifer recharge and work to establish a regulatory framework that improves the viability of using harvested stormwater runoff for aquifer recharge, but also continue to provide the necessary protections for groundwater resources and public health and safety.⁵²

Other water resources include excess surface water. Excess surface water is “water that could be available for withdrawal from rivers, lakes or other water bodies that is in excess of the amount needed to sustain healthy ecological conditions in the water body and downstream waters and otherwise meets the applicable consumptive use permitting criteria.”⁵³

III. Effect of Proposed Changes:

Section 1 amends s. 403.087, F.S., to authorize DEP to place additional conditions on permits for underground injection intended to protect, augment, or replenish the state’s ground water resources. These conditions can include the establishment of a zone of discharge for ground water standards and associated institutional controls to promote the conservation, reclamation, and sustainability of the state’s ground water resources. Examples of institutional controls would include property interests, use restrictions and access controls, and well construction limitations.

Section 2 creates s. 403.0878, F.S., to authorize DEP to develop rules establishing voluntary facility classifications and associated operator licensing requirements for treatment facilities that provide treatment for reclaimed water, stormwater, or other water resources as a means of

⁴⁹ *Id.* at 20

⁵⁰ DEP, *Stormwater*, available at <http://www.dep.state.fl.us/water/stormwater/> (last visited March 4, 2017).

⁵¹ DEP, *Report on Expansion of Beneficial Use of Reclaimed Water, Stormwater and Excess Surface Water*, 44 (December 1, 2015) available at <http://www.dep.state.fl.us/water/reuse/docs/sb536/SB536-Report.pdf>.

⁵² *Id.* at 52.

⁵³ *Id.* at 11.

promoting the availability of sufficient water for existing and future reasonable-beneficial uses and natural systems.

Section 3 of the bill provides an effective date of July 1, 2017.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. Other Constitutional Issues:

The title of the bill is Aquifer Replenishment, but section 2 of the bill relates to rules for the operation of treatment facilities. Nothing in section 2 of the bill limits the regulations to aquifer replenishment.

Section 6, Article III of the State Constitution requires that the subject of every law “be briefly expressed in the title.” The subject as expressed in the title circumscribes the one subject to which the act must relate. The title is informative of the subject of the bill, and provisions in a bill not expressed in the title are suspect when analyzing the bill for a single subject violation.⁵⁴

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

None.

C. Government Sector Impact:

DEP will have an indeterminate cost associated with rulemaking.

⁵⁴ *Franklin v. State*, 887 So.2d 1063 (Fla. 2004). See also *Tormey v. Moore*, 824 So.2d 137 (Fla. 2002)(finding single subject violation where preamble declared the act to be the Law Enforcement Protection Act, but the act contained provisions requiring an enhanced penalty for attempted murder of any person); *State v. Thompson*, 750 So.2d 643 (Fla. 1999)(short title of an act relating to justice system is overly broad).

VI. Technical Deficiencies:

It is unclear how “property interests” will serve as institutional controls. It may be that another term should be used.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill substantially amends section 403.087 of the Florida Statutes.

This bill creates section 403.0878 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.)

CS by Environmental Preservation and Conservation on March 28, 2017:

- Adds examples of what would constitute “institutional controls.”
- Deletes provisions related to the regulation of advanced wastewater facilities.
- Authorizes DEP to establish voluntary facility classifications and associated operator licensing requirements for treatment facilities.

B. Amendments:

None.