

**STORAGE NAME:** h1757s1.ep

**DATE:** March 29, 2000

**HOUSE OF REPRESENTATIVES  
AS REVISED BY THE COMMITTEE ON  
ENVIRONMENTAL PROTECTION  
ANALYSIS**

**BILL #:** CS/HB 1757

**RELATING TO:** Water resources

**SPONSOR(S):** Committee on Environmental Protection, Committee on Water and Resource Management; Representative(s): Alexander & Others

**TIED BILL(S):** None

**ORIGINATING COMMITTEE(S)/COMMITTEE(S) OF REFERENCE:**

- (1) WATER AND RESOURCE MANAGEMENT YEAS 10 NAYS 1
- (2) ENVIRONMENTAL PROTECTION YEAS 10 NAYS 1
- (3) GOVERNMENT RULES AND REGULATIONS
- (4) GENERAL GOVERNMENT APPROPRIATIONS
- (5)

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**I. SUMMARY:**

CS/HB 1757 makes numerous changes and revisions to s. 403.0882, F.S., clarifying language, updating the statute to reflect the latest Department of Environmental Protection (DEP) rules and industry developments; providing Legislative intent to promote alternative water supply development; giving DEP rulemaking authority to address the mechanics of the permitting process for desalination; and establishing a technical advisory committee to assist with the development of the rule. In addition, the bill addresses the evaluation of toxicity tests in relation to permitting. It states that the failure of these tests due to the presence of specific, naturally occurring source water constituents (e.g. calcium, potassium, sodium, etc.) cannot be used as the basis to deny a permit and lists the provisions under which these permits are to be issued (e.g. sufficient dilution is available). It also provides a narrowly defined exemption from the mixing zone prohibition in Outstanding Florida Waters (OFWs) for those demineralization discharges that contain specific, naturally occurring source water constituents and can be sufficiently diluted. These discharges must be clearly in the public interest.

CS/HB 1757 also creates s. 403.065, F.S., requiring classification and permitting of aquifer storage and recovery (ASR) wells, consistent with the Federal Safe Drinking Water Act. It authorizes DEP to adopt rules for ASR regulation and to implement the provisions of s. 403.065, F.S. Conditions are specified that must be met in order for ASR wells to qualify for or be granted a zone of discharge for sodium, fecal coliform, or secondary drinking water standards. Requirements include conditions intended to protect existing or future public or private drinking water supplies, ground water monitoring, and a demonstration of environmental benefits. DEP is authorized to specify by permit condition the limits of the approved zone of discharge.

The bill has an indeterminate fiscal impact, which is anticipated to be cost savings for local governments and the private sector because of a streamlined permitting process.

The bill provides that the act shall take effect upon becoming law.

II. SUBSTANTIVE ANALYSIS:

A. DOES THE BILL SUPPORT THE FOLLOWING PRINCIPLES:

- |                                   |                              |                             |   |
|-----------------------------------|------------------------------|-----------------------------|---|
| 1. <u>Less Government</u>         | Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> |
| 2. <u>Lower Taxes</u>             | Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> |
| 3. <u>Individual Freedom</u>      | Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> |
| 4. <u>Personal Responsibility</u> | Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> |
| 5. <u>Family Empowerment</u>      | Yes <input type="checkbox"/> | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/> |

For any principle that received a "no" above, please explain:

B. PRESENT SITUATION:

**Demineralization of Non-potable Water**

With water supplies growing more precious in the state of Florida, options other than traditional groundwater withdrawals are being explored. One example of such an alternative water supply source is demineralization of non-potable water. Demineralization removes salts, minerals, and other constituents are from sources such as seawater or brackish water aquifers to give two products: fresh, potable water and a demineralization concentrate. Examples of demineralization processes include electrodialysis, which uses an electrical current to move salts selectively through a membrane, and reverse osmosis (R/O). Reverse osmosis subjects water on one side of a semi-permeable, plastic-like membrane to pressure which causes fresh water to diffuse through the membrane. Left behind is the concentrate. Whether the resulting concentrate is toxic is a function of the source water for demineralization and the disposal method for the concentrate either by surface water discharge or deep well injection.

Current difficulties encountered in the demineralization industry in Florida include:

- o uncertainty and inconsistency in permitting these types of facilities due to the lack of a clearly defined permitting process and misinterpretation of existing law (in s. 403.0882, F.S.) regarding demineralization facilities both by the DEP and industry, and
- o how to deal with the disposal of the resulting demineralization concentrate, particularly if testing indicates that the concentrate may be toxic.

**Aquifer Storage And Recovery (ASR)**

ASR represents a cost-effective way to store excess water accumulated during the wet season for eventual use during the dry season. By treating and storing excess water through ASR, water utilities can reduce capital costs by relying on smaller water treatment plants. Typically, utilities over-size water treatment plants in order to handle seasonal peaks in water demand, where demand often increases by 20 to 40 percent, rather than build plants sized for normal demand. Because any excess water can be treated prior to

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storage, water utilities can handle peak demand from underground storage without routing the water through a treatment plant.

Besides potential costs savings, ASR offers potential environmental benefits. ASR reduces demand on shallow aquifers, rivers, lakes, and other surface water bodies during the dry season, which helps to avoid saltwater intrusion or other environmental damage. In addition, ASR allows water utilities to use aquifers already contaminated by saltwater for storage. The potential for ASR to effectively and cheaply store excess water also makes it useful for environment restoration.

ASR facilities obtain freshwater from a variety of sources, ranging from reclaimed water to groundwater (although the better the quality of the source water, the less expensive the treatment of the injected water). Regarding proper aquifer characteristics, an ASR facility needs a confined aquifer with high salinity levels. However, even an aquifer meeting these requirements may not be suitable if it is highly transmissive (i.e., the pores of the water-bearing rock allow the easy movement of water), subject to excessive groundwater flow, or filled with extremely saline water.

For reasons unique to Florida, ASR appears to be a sound water-storage option. Florida's subtropical climate, for example, causes significant water loss in surface-water storage through evapotranspiration and seepage. Moreover, with topography like a pancake, Florida lacks readily available valleys and hills to build effective and affordable surface water reservoirs. By storing water underground, ASR overcomes these limitations of climate and topography. Florida's first ASR facility opened in Manatee county in 1983 for the purpose of providing water storage. Currently, there are six fully permitted and operating ASR facilities in the state with another 34 additional facilities planned or under construction.

Despite the current use of ASR, this technology still faces some outstanding legal and regulatory questions concerning public health, efficient use of water, and environmental impact. Primarily, these questions arise in the context of permitting ASR facilities under the federal 1974 Safe Drinking Water Act and Ch. 373, F.S. The 1974 federal Safe Drinking Water Act requires the adoption of primary drinking water standards in order to protect existing and potential underground sources of drinking water (USDWs). As an aspect of protecting public water supplies, the act established the Underground Injection Control (UIC) Program to regulate the disposal and injection of fluids into USDWs. Under UIC regulations, any groundwater in an aquifer containing total dissolved solids (TDS) of less than 10,000 milligrams/liter (mg/l) constitutes a USDW, regardless of whether the aquifer currently serves a public water system. Because EPA has historically interpreted this language to include both injection wells designed for disposal and those wells designed for water storage, ASR is subject to the UIC regulations. Thus, ASR facilities must treat all water to primary drinking water standards prior to injection in any USDWs, which, given the broad definition of USDWs, means virtually any aquifer.

The permitting of ASR facilities treating water to primary standards before injection remains uncontroversial. However, to expand the utility of ASR, certain water utilities and natural resource agencies advocate ASR as a means to store untreated surface water or groundwater -- again, a concept that EPA has historically opposed. Up to this point, the only regulatory relief from the requirement that all injected water meet drinking water standards is either a major or minor aquifer exemption. A major aquifer exemption applies in USDWs with less than 3,000 mg/l of TDS whereas a minor aquifer exemption applies in USDWs with a mg/l TDS in the range of 3,000 to 10,000. But the conditions of the exemptions are difficult to meet. In order to qualify for these exemptions, the permittee

must demonstrate that groundwater in the storage zone is neither currently used as a drinking water source nor would it be reasonably expected to be used as a drinking water source in the future.

Region IV of the EPA proposed an alternative exemption to the UIC regulations. Termed a "limited aquifer exemption (LAE)," this exemption would exempt an applicant from the drinking water standards that apply to specific parameters (e.g., coliform bacteria) rather than a blanket exemption to UIC regulations. Under the emerging test for LAEs, an applicant must meet the following conditions:

- o Concentrations of certain parameters (primarily coliform bacteria) can exceed drinking water standards, provided that the storage aquifer is neither currently used nor reasonably expected to be used as a USDW;
- o Storage aquifer is saline (3,000 mg/l or above of TDS); and
- o Proposed ASR facility results in significant benefits.

As the above test makes clear, the LAE conceptually functions as a subset of the minor aquifer exemption with one notable exception. Whereas the minor aquifer exemption removes an entire USDW (or at least a portion thereof) from the requirement to meet primary drinking water standards, the LAE exempts a USDW from primary drinking water standards for certain parameters only.

The ASR projects that are part of the Restudy provide an example of the potential benefits of ASR as well as the costs of regulatory requirements related to ASR. The Comprehensive Plan for the Restudy includes three ASR projects that together will provide up to 1.6 billion gallons per day of water storage with a projected recovery rate of 70% when that water is needed. Among the benefits of these projects is the ability to better manage the level of surface waters including Lake Okeechobee, the reduction of damaging releases to estuaries, increased water supply availability, and enhanced flood control. The combined projected cost of these projects is \$1.7 billion. Of that amount \$700 million represents the costs of treating waters to primary drinking water standards before injection underground. As a result, if such waters could be injected without such costly treatment, substantial savings in projected Restudy costs could be realized. EPA has indicated that it is willing to consider a flexible approach to constructing and operating the ASR wells proposed in the Restudy. However, it has also indicated that the approach taken must be incremental and that there must be a clear demonstration that several conditions are satisfied in order for untreated water to be injected underground.

#### C. EFFECT OF PROPOSED CHANGES:

CS/HB 1757 makes numerous changes to the existing statute on demineralization.

- o It reorganizes s. 403.0882, F.S. to remove or reword confusing language and updates the statute according to the latest DEP rules and industry developments;
- o It provides legislative intent and additional directory language to promote alternative water supply development;

- o It provides for specific DEP rulemaking authority to address the mechanics of the permitting process for desalination and establishes a technical advisory committee to assist with the development of the rule;
- o It addresses the evaluation of toxicity tests in relation to permitting. States that the failure of these tests due to the presence of specific naturally occurring source water constituents (e.g. calcium, potassium, sodium, etc.) cannot be used as the basis to deny a permit and lists the provisions under which these permits are to be issued (e.g. sufficient dilution is available); and
- o It provides a narrowly defined exemption from the mixing zone prohibition for OFWs for those demineralization discharges that contain specific, naturally occurring source water constituents and can be sufficiently diluted. These discharges must be clearly in the public interest. This exemption is very narrowly drawn and highly specific so as to continue the protective nature of OFW designations.

CS/HB 1757 provides for the classification and permitting of ASR wells according to DEP rules and authorizes DEP to adopt such rules. It specifies conditions under which:

- o ASR wells that do not inject reclaimed water shall be allowed a zone of discharge for sodium and secondary drinking water standards.
- o ASR wells that do not inject reclaimed water shall be allowed a zone of discharge for total coliform bacteria.
- o DEP may allow a zone of discharge for sodium, total coliform bacteria, and secondary drinking water standards if the total dissolved solid concentration in the affected ground water is less than 1,500 milligrams per liter.

The bill provides that DEP shall specify the limits of the approved zone of discharge. It also requires the applicant to demonstrate through ground water monitoring that any required biological die-off occurs once the ASR well begins operation or otherwise the zone of discharge is revoked. The bill requires monthly sampling of monitor wells and allows DEP to modify monitoring requirements to assure that underground drinking water sources are protected. In addition, DEP may require additional monitor wells if drinking water supply wells are located within 2.5 miles of the edge of the zone of discharge. CS/HB 1757 requires that an aquifer exemption be obtained prior to injection if the injected fluid exceeds any primary drinking water standard other than total coliform bacteria or sodium, or contains constituents that may adversely affect the health of persons. Finally, DEP is required to make a reasonable effort to issue or deny an ASR well permit application within 90 days after determining that the application is complete.

The bill provides that the act shall take effect upon becoming law.

#### D. SECTION-BY-SECTION ANALYSIS:

Section 1: Substantially amends s. 403.0882, F.S. Establishes legislative intent regarding water supplies and their conservation through promotion of brackish water demineralization as an alternative to freshwater ground and surface water withdrawals. Provides definitions, classifies demineralization concentrate as a potable water byproduct and removes the statement from the existing statute that this discharge shall

be permitted according to industrial wastewater requirements. Requires DEP to promulgate rules (rulemaking shall be entered into by October 1, 2000) and establishes a technical advisory committee to assist in the development of rules relating to:

- o Permit application forms for desalination facilities;
- o Specific options and requirements for demineralization concentrate disposal;
- o Specific requirements and methods for evaluating mixing of effluent in receiving waters; and
- o Specific toxicity provisions.

Specifies that the technical advisory committee will be comprised of members from the water management districts, the demineralization industry, local government, and environmental organizations. Provides that permits may not be denied as a result of the failure of toxicity tests for demineralization concentrate due predominantly to specific naturally occurring substances in the source water as long as water quality standards can be achieved within a particular area of the discharge. Provides for the blending of demineralization concentrate with reclaimed water according to DEP rules.

Reorganizes existing statutory provisions for small water-utility businesses into one subsection to prevent confusion about their applicability. These provisions allow for demineralization discharges by small water utility businesses into all the waters of the state if :

- o The discharges meet the standards set forth in this section and s. 403.086(4), with an exemption from high level disinfection requirements;
- o The point of discharge is located at a reasonably accessible point that minimizes water quality impacts; or
- o The discharge achieves a minimum of a 4-to-1 dilution within a distance not in excess of two times the natural water depth at the point of discharge. Thus, the 200-foot radius provision found in the current statute has been removed.

Provides exceptions to allowing small water-utility businesses demineralization discharges are provided if:

- o The discharge would be directly into an OFW, except as provided in chapter 90-262, Laws of Florida, class I or II waters, or a sole-source aquifer;
- o The discharge wouldn't meet DEP's anti-degradation requirements or would fail to meet surface and ground water quality standards; or
- o The results of any toxicity test indicate the discharge does not meet the toxicity requirements at the boundary of the mixing zone.

Provides that if any of these "disqualifiers" are met, DEP *may*:

- o Require more stringent effluent limitations, relocation of the discharge point, or a change in the discharge method;

- o Limit the discharge volume or duration; or
- o Prohibit the discharge if no alternatives are available.

Requires toxicity testing for small water-utility businesses only at the time of permit application, renewal, or modification; additional tests are mandated only if these requisite tests do not meet toxicity requirements. Provides that small water-utility businesses are not required to obtain a water-quality-based effluent limitation determination. Reauthorizes existing rulemaking to allow DEP to adopt rules for the regulation of demineralization and to implement the provisions of this section.

Section 2: Amends s. 403.061, F.S., to include an additional exception to the “no mixing zone” provision for OFWs. Provides that mixing zones are allowable in OFWs for discharges of demineralization concentrate if the discharge meets the provisions of s. 403.0882(4), F.S. (i.e., if the discharge is toxic predominantly due to specific naturally occurring substances in the source water), is clearly in the public interest.

Section 3: Creates s. 403.065, F.S., providing for the classification and permitting of ASR wells according to DEP rules and authorizes DEP to adopt such rules.

Provides that ASR wells that do not inject reclaimed water shall be allowed a zone of discharge for sodium and secondary drinking water standards if the following conditions are met:

- o Ground water within the zone of discharge is not currently being used nor is it reasonably expected to be used as a drinking water supply by anyone other than the applicant for the ASR well permit applicant;
- o The presence of stored water does not cause anyone other than the permit applicant to treat water beyond what would be required in the absence of such water;
- o DEP has approved a monitoring plan; and
- o The zone of discharge does not intersect or include any part of a 500-foot radius surrounding any well using the injection zone as a source of drinking water.

Provides that ASR wells that do not inject reclaimed water shall be allowed a zone of discharge for total coliform bacteria if the following conditions are met:

- o Ground water affected by the zone of discharge contains no less than 1,500 milligrams per liter total dissolved solids;
- o Ground water within the zone of discharge is not currently being used nor is it reasonably expected to be used as a drinking water supply by anyone other than the applicant for the ASR well permit applicant;
- o The presence of stored water does not cause anyone other than the permit applicant to treat water beyond what would be required in the absence of such water;
- o DEP has approved a monitoring plan;

- o Total coliform bacteria is the only primary drinking water standard other than sodium that will not be met prior to injection;
- o The permit applicant demonstrates that biological contaminants will experience die-off to the extent that they do not pose an adverse risk to human health and primary drinking water standards will be met at the edge of the zone of discharge;
- o Environmental benefits are documented;
- o Use of the recovered water is consistent with its intended purpose; and
- o Drinking water sources are not endangered.
- o The zone of discharge does not intersect or include any part of a 500-foot radius surrounding any well using the injection zone as a source of drinking water.

Provides that DEP may allow a zone of discharge for sodium, total coliform bacteria, and secondary drinking water standards if the total dissolved solid concentration in the affected groundwater is less than 1,500 milligrams per liter if the following conditions are met:

- o The presence of stored water does not cause anyone other than the permit applicant to treat water beyond what would be required in the absence of such water;
- o DEP has approved a monitoring plan;
- o Total coliform bacteria is the only primary drinking water standard other than sodium that will not be met prior to injection;
- o The permit applicant demonstrates that biological contaminants will experience die-off to the extent that they do not pose an adverse risk to human health and primary drinking water standards will be met at the edge of the zone of discharge;
- o Environmental benefits are documented;
- o Use of the recovered water is consistent with its intended purpose;
- o Drinking water sources are not endangered;
- o The zone of discharge does not intersect or include any part of a 500-foot radius surrounding any well using the injection zone as a source of drinking water;
- o The permit applicant demonstrates that round water within the zone of discharge is not currently being used and cannot be used as a drinking water supply by anyone other than the applicant; and



- o The applicant provides written notice to each landowner whose property overlies the zone of discharge.

Provides that DEP shall specify the limit of the approved zone of discharge.

Requires the applicant to demonstrate through ground water monitoring that the required biological die-off occurs once the ASR well begins operation or otherwise the zone of discharge is revoked.

Provides that additional monitor wells may be required if drinking water supply wells are located within 2.5 miles of the edge of the zone of discharge.

Requires monthly sampling of monitor wells and allows DEP to modify monitoring requirements to assure that underground drinking water sources are protected.

Requires an aquifer exemption to be obtained prior to injection if the injected fluid exceeds any primary drinking water standard other than total coliform bacteria or sodium, or contains constituents that may adversely affect the health of persons.

Requires DEP to make a reasonable effort to issue or deny an ASR well permit application within 90 days after determining that the application is complete.

Section 4: Provides that the act shall take effect upon becoming a law.

### III. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT:

#### A. FISCAL IMPACT ON STATE GOVERNMENT:

1. Revenues:

None.

2. Expenditures:

See Fiscal Comments.

#### B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

None.

2. Expenditures:

See Fiscal Comments.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

See Fiscal Comments.

D. FISCAL COMMENTS:

HB 1757 could allow for decreased expenditures for state and local governments and the private sector due to a clearly defined permitting procedure for demineralization facilities that would take less time to process. In addition, the mixing zone exception for OFWs could result in significant savings in plant design for these same entities where discharges into OFWs have been prohibited as surface water discharges costs would be much lower than deep well injection.

IV. CONSEQUENCES OF ARTICLE VII, SECTION 18 OF THE FLORIDA CONSTITUTION:

A. APPLICABILITY OF THE MANDATES PROVISION:

The bill does not require counties or municipalities to expend funds or to take an action requiring the expenditure of funds.

B. REDUCTION OF REVENUE RAISING AUTHORITY:

The bill does not reduce the authority that municipalities or counties have to raise revenues in the aggregate.

C. REDUCTION OF STATE TAX SHARED WITH COUNTIES AND MUNICIPALITIES:

The bill does not reduce the percentage of state tax shared with counties and municipalities.

V. COMMENTS:

A. CONSTITUTIONAL ISSUES:

None.

B. RULE-MAKING AUTHORITY:

CS/HB 1757 requires DEP rulemaking to address specific provisions in the bill. In addition, rulemaking authority found in the current statute (s. 403.0882, F.S.) to "adopt rules for the regulation of demineralization and to implement the provisions of this section" is restated. The bill also authorizes DEP to adopt rules for the regulation of ASR wells.

C. OTHER COMMENTS:

None

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VI. AMENDMENTS OR COMMITTEE SUBSTITUTE CHANGES:

On March 23, 2000, the Committee on Environmental Protection adopted an amendment to HB 1757 providing for the regulation of ASR wells. The bill was then adopted as a committee substitute.

VII. SIGNATURES:

COMMITTEE ON Water and RESOURCE MANAGEMENT:

Prepared by:

Kellie R. Ralston

Staff Director:

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AS REVISED BY THE COMMITTEE ON ENVIRONMENTAL PROTECTION:

Prepared by:

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