

**Revision to the Federal Underground Injection Control
Requirements for Class I Municipal Disposal Wells in Florida**

Cost Analysis

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Prepared for:

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Abbreviations and Acronyms Used in the Cost Analysis

BD	Basic Disinfection
CBOD	Carbonaceous Biochemical Oxygen Demand
EPA	Environmental Protection Agency
F.A.C.	Florida Administrative Code
FTE	Full-time equivalent
NDWAC	National Drinking Water Advisory Council
O&M	Operations and Maintenance
PV	Present value
RO	Reverse Osmosis
TSS	Total Suspended Solids
UIC	Underground Injection Control
USDW	Underground Source of Drinking Water
W/W	Waste/Water (model)
WRF	Water Reclamation Facility
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

Background of the Final Rule

A number of Class I municipal disposal wells in Florida that are regulated under the Underground Injection Control (UIC) Program have been found to be causing movement of fluid out of the intended injection zone and into underground sources of drinking water (USDWs). Because operation of Class I wells with fluid movement into a USDW is prohibited by Federal UIC regulations, EPA's final rule, *Revision of Federal Underground Injection Control (UIC) Requirements for Class I Municipal Disposal Wells in Florida* (xx FR xxxxx, date), allows continued injection if owners or operators of these wells meet certain additional wastewater treatment requirements.

This final rule provides a regulatory alternative to these affected owners and operators, while providing an equivalent level of protection to USDWs that is afforded by the no-fluid-movement standard. EPA believes this alternative will be as effective as confinement in protecting USDWs by controlling the quality of the injected fluids. Under this approach, the movement of fluids into USDWs, whether known or suspected, should not endanger the USDWs because the wastewater has been treated to a quality that is no longer a threat to USDWs. This action shifts the endangerment protection strategy from the no-fluid-movement standard to an alternate approach that relies on treatment of wastewater before it is injected.

Without the final rule, the no-fluid-movement requirement would remain the only available approach for regulating Class I municipal disposal wells in certain counties of Florida, regardless of the level of wastewater treatment prior to injection. Enforcing this approach would, in effect, require owners and operators to shut down these wells, because wastewater isolation from USDWs cannot be ensured. Shutting down the injection wells would, in turn, force the municipal wastewater to be managed by other means which could increase the risks to surface water and coastal ecosystems.

EPA has found that pathogens are the contaminant in municipal wastewater that presents the greatest risk to USDWs. High-level disinfection of municipal wastewater is an effective method for removing or inactivating these pathogens. Therefore, in this rule, EPA amends the current Federal UIC regulations to allow owners and operators of Class I municipal disposal wells in specific counties of Florida to continue using their wells, even if they have caused or may have caused movement of fluid into a USDW, provided they meet requirements to treat their wastewater with pretreatment, secondary treatment, and high-level disinfection.

Introduction to the Cost Analysis

This analysis estimates the net cost of the final rule by comparing the costs to affected wastewater disposal facilities in Florida under two scenarios:

- *The baseline case*—describes the costs that operators of affected facilities would incur without the rule; specifically this is the cost for abandoning (i.e., closing)

their injection wells, switching to surface disposal, and applying the appropriate treatment.

- *The final rule*—estimates the costs for adding treatment necessary at each affected facility to be as stringent as the high-level disinfection requirements of Florida Rule 62-600.440(5)(a)-(f), as required under the final rule for Class I municipal disposal wells in Florida. The affected facilities already meet the requirements for pretreatment and secondary treatment under this scenario.

Costs are examined for three groups of facilities: facilities exhibiting current movement into a USDW, facilities exhibiting probable movement of fluid into a USDW, and facilities that exhibit movement of fluid into a non-USDW (i.e., a subsurface aquifer that does not serve as a drinking water source).

For both scenarios, EPA assumes that all injection wells that had exhibited fluid movement or were suspected of causing movement would be subject to the applicable treatment standards.

Summary of Net Costs under the Final Rule

The final UIC requirements for Class I municipal disposal wells in Florida will allow facilities that exhibit fluid movement into USDWs to continue injecting if they treat their water using pretreatment, secondary treatment, and high-level disinfection. It is estimated that the final rule will result in a net cost savings relative to the baseline case for any facility exhibiting fluid movement from the following:

- Surface water disposal would require that the facilities treat their wastewater to meet discharge standards that do not apply to underground injections. For example, many wastewater treatment plants (WWTPs) in Florida must meet nutrient (i.e., nitrate, phosphorous) removal requirements for surface discharges.
- Affected facilities will not be required to abandon and plug their injection wells.
- Affected facilities will not need to apply for surface discharge permits and build new outfall infrastructure, e.g., piping and devices to convey the discharge to a surface water body.

The cost calculations detailed in this document and summarized in Exhibit 6 show that the final Florida Class I UIC requirements would result in total cost savings (or benefit) to affected facilities of \$104.5 million. The savings are distributed as follows: \$20.9 million for facilities exhibiting current movement into a USDW, \$78.4 million for facilities exhibiting probable movement of fluid into a USDW, and \$5.2 million for facilities that exhibit movement of fluid into a non-USDW. This savings can also be expressed as an *annualized present value* (PV) cost savings to WWTPs of \$8.0 to 12.6 million depending on the discount rate used to estimate the annual costs.¹ The annual savings are distributed as follows: \$1.7 to 2.3 million for facilities exhibiting fluid movement into a USDW, \$6.1 to 8.9 million for facilities exhibiting probable movement into a USDW, and \$0.1 to 1.6 million for facilities exhibiting movement into a non-USDW. The costs savings are calculated by comparing the costs for the treatment requirements under the final rule to the costs for complying with existing regulations.

In addition to the treatment costs, it is estimated that facilities will incur costs of \$40,246 annually in administrative costs and for preparing reports to the State (see Exhibit 7). The State of Florida will spend \$16,841 per year to implement and enforce the final rule (see Exhibit 8).

The remainder of this document describes the costing methodology EPA used to estimate costs, the costs to affected facilities under the baseline case and under the final rule, and the calculation of the net cost savings.

Costing Methodology

Costs were calculated for activities associated with the baseline case and under the final rule (as described above). In both cases it was assumed that all injection wells that exhibited fluid movement or were suspected of causing movement would be subject to the applicable treatment standards. Exhibit 1 lists these facilities.

This analysis uses version 3.0 of EPA's W/W (Waste/Water) Costs Model (CWC, 2000) as the primary costing tool, combined with a methodology recommended by the National Drinking Water Advisory Council (NDWAC).

The W/W Costs Model generates capital and annual operations and maintenance (O&M) costs based on assumptions about treatment technology, design and average daily flows, and chemical dose under the baseline and final rule scenarios.

¹ Annual PV costs are calculated using both 3 and 7 percent discount rates.

Exhibit 1: Facilities Showing Fluid Movement or Probable Fluid Movement

Category	Facility Name	Facility ID
Monitoring indicates fluid movement into USDW.	St. Petersburg Albert Whitted WWTF	FLA128830
	Miami-Dade Water and Sewer Department South District WWTP	FLA042137
	Seacoast Utility Authority PGA WWTP	FL0038768
Monitoring indicates probable fluid movement into USDW.	South Cross Bayou WWTF	FL0040436
	St. Petersburg Northeast WRF	FLA128856
	St. Petersburg Northwest WRF	FLA128821
	St. Petersburg Southwest WRF	FLA128848
	City of Melbourne D.B. Lee WWTP	FLA010323
Monitoring indicates fluid movement into non-USDW.	Broward County North Regional WWTP	FL0031771
	G.T. Lohmeyer WWTP	FLA041378
	City of Margate WWTP	FLA169617
	Miami-Dade Water and Sewer Department North District WWTP	FL0032182
	Palm Beach Southern Region WWTP	FLA041424
	City of Plantation North Region WWTP	FLA040401
	South Beaches WWTP	FL0040622
	City of Sunrise Sawgrass Utility Complex	FLA042641

Notes:

1. WRF = Water Reclamation Facility, WWTF = Wastewater Treatment Facility, WWTP = Wastewater Treatment Plant
2. McKay Creek (FL0040410), a facility which showed probable fluid movement into USDW, has been removed from service. (See e-mail dated 8/4/2003 from Ed Snipes.) Hence, it was excluded from this analysis.
3. Miami-Dade plants are listed here, but costs are not calculated as they are currently under a consent order.

As part of its review of the Arsenic Technologies and Costs Document (USEPA 2000b), the NDWAC made several recommendations (NDWAC, 2001) that have since been adopted as best practices in the field of drinking water and wastewater technology costing. The major recommendation was to estimate capital costs by applying a NDWAC-specified multiplicative cost factor to the process costs² obtained directly from the W/W Costs Model output.

² Process Costs = Cost of Excavation + Equipment + Concrete + Steel + Labor + Piping and Valves + Electrical and Instrumentation.

Using relevant information from the domestic wastewater facility permits and the compliance monitoring data, EPA determined required treatment upgrades for each facility and calculated costs for those upgrades.

Costs for the Baseline Case

In the baseline case (i.e., under existing UIC requirements) facilities with fluid movement would incur costs to plug their existing injection wells, identify an alternative surface disposal point and install outfalls for surface disposal, and apply the treatment necessary to meet Florida's requirements for surface discharges. Specifically, the discharge must comply with the Florida surface discharge standard (excluding ocean outfall), in accordance with statutes 62-600.420(1)(a), F.A.C.; 62-600.430(1), F.A.C.; and 62-600.510, F.A.C. (See Appendix A). Facilities may need to upgrade their equipment to meet the surface discharge requirements.

Facilities discharging to certain protected waters (e.g., Tampa Bay or Indian River Lagoon) must also satisfy the following permit limits: 5 mg/L carbonaceous biochemical oxygen demand (CBOD₅), 5 mg/L total suspended solids (TSS), 3 mg/L total nitrogen, and 1 mg/L total phosphorous. Exhibit 2 provides a summary of the treatment upgrades assumed to be needed by the 14 facilities to comply with the surface discharge standards, including those that discharge into the protected waters. Exhibit 3 presents the total costs associated with the baseline case.

Exhibit 2a: Facility Status with Respect to the Surface Discharge Standard, Facilities Exhibiting Movement into a USDW

Facility Name (ID)	Discharging into Protected Waters?	CBOD5 Removal Requirements	TSS Removal Requirements	Basic Disinfection (BD) Requirements	Total Nitrogen (N) and Phosphorous (P) Removal Requirements	pH Requirements	Required Treatment Upgrades
St. Petersburg Albert Whitted WWTF (FLA128830)	Yes	Satisfied.	Satisfied.	Satisfied.	Assumed not satisfied. Facility permit doesn't indicate any N and P removal processes. In the absence of N and P data, it is assumed that N and P limits are not met.	Satisfied.	A2O process for combined N and P removal.
Seacoast Utility Authority PGA WWTP (FL0038768)	Yes	Satisfied.	Not satisfied.	Assumed satisfied. Although chlorine contact time couldn't be estimated, based on the coliform and chlorine residual measurements it appears that BD requirements are met.	Assumed satisfied. Although the "maximum" samples appear to violate the limits for N and P, since the facility appears to have a nutrient removal process, it is assumed that it meets those limits on an average basis.	Satisfied.	Filtration and alum coagulation (dose = 10 mg/L).

Notes for Exhibits 2a, 2b, and 2c:

1. N/A = Not Applicable
2. McKay Creek (FL0040410), a facility which showed probable fluid movement into USDW, has been removed from service. (See e-mail dated 8/4/2003 from Ed Snipes). Hence, it was excluded from this analysis.
3. Miami-Dade plants were omitted from the analysis because they have entered into a consent order with EPA concerning operation of their injection wells which will supersede these revisions.

Exhibit 2b: Facility Status with Respect to the Surface Discharge Standard, Facilities Exhibiting Probable Movement into a USDW

Facility Name (ID)	Discharging into Protected Waters?	CBOD5 Removal Requirements	TSS Removal Requirements	Basic Disinfection (BD) Requirements	Total Nitrogen (N) and Phosphorous (P) Removal Requirements	pH Requirements	Required Treatment Upgrades
South Cross Bayou WWTF (FL0040436)	No	Satisfied	Satisfied	Satisfied.	N/A	Satisfied.	None.
St. Petersburg Northeast WRF (FLA128856)	Yes	Satisfied.	Satisfied.	Satisfied.	Assumed not satisfied. Facility permit doesn't indicate any N and P removal processes. In the absence of N and P data, it is assumed that N and P limits are not met.	Satisfied.	A2O process for combined N and P removal.
St. Petersburg Northwest WRF (FLA128821)	Yes	Satisfied.	Satisfied.	Satisfied.	Assumed not satisfied. Facility permit doesn't indicate any N and P removal processes. In the absence of N and P data, it is assumed that N and P limits are not met.	Satisfied.	A2O process for combined N and P removal.

Exhibit 2b: Facility Status with Respect to the Surface Discharge Standard, Facilities Exhibiting Probable Movement into a USDW

Facility Name (ID)	Discharging into Protected Waters?	CBOD5 Removal Requirements	TSS Removal Requirements	Basic Disinfection (BD) Requirements	Total Nitrogen (N) and Phosphorous (P) Removal Requirements	pH Requirements	Required Treatment Upgrades
St. Petersburg Southwest WRF (FLA128848)	Yes	Satisfied.	Not satisfied sometimes.	Satisfied.	Assumed not satisfied. Facility permit doesn't indicate any N and P removal processes. In the absence of N and P data, it is assumed that N and P limits are not met.	Satisfied.	A2O process for combined N and P removal, and increase alum dose by 2 mg/L.
City of Melbourne D.B. Lee WWTP (FLA010323)	Yes.	Satisfied.	Satisfied.	Satisfied.	Assumed satisfied. With the exception of a few spikes nitrogen data is below the requirements	Satisfied.	Dechlorination (Dose - 5 mg/L)

Exhibit 2c: Facility Status with Respect to the Surface Discharge Standard, Facilities Exhibiting Movement into a non-USDW

Facility Name (ID)	Discharging into Protected Waters?	CBOD5 Removal Requirements	TSS Removal Requirements	Basic Disinfection (BD) Requirements	Total Nitrogen (N) and Phosphorous (P) Removal Requirements	pH Requirements	Required Treatment Upgrades
Broward County North Regional WWTP (FL0031771)	No	Satisfied.	Satisfied.	Satisfied.	N/A	Satisfied.	None.
G.T. Lohmeyer WWTP (FLA041378)	No	Satisfied.	Not satisfied. 90% removal criteria not met.	Assumed satisfied. Although the facility practices chlorination, chlorine residual, contact time, or coliform measurements are not available to make a final judgement.	N/A	Satisfied.	Filtration and alum coagulation (dose = 5 mg/L).
City of Margate WWTP (FLA169617)	No	Unknown.	Satisfied.	Assumed satisfied. Although the facility practices chlorination, contact time measurements are not available to make a final judgement.	N/A	Unknown.	None.
Palm Beach Southern Region WWTP (FLA041424)	No	Satisfied.	Satisfied.	Assumed satisfied. Although chlorine contact time couldn't be estimated, based on the coliform and chlorine residual measurements it appears that BD requirements are met.	N/A	Satisfied.	None.

Exhibit 2c: Facility Status with Respect to the Surface Discharge Standard, Facilities Exhibiting Movement into a non-USDW

Facility Name (ID)	Discharging into Protected Waters?	CBOD5 Removal Requirements	TSS Removal Requirements	Basic Disinfection (BD) Requirements	Total Nitrogen (N) and Phosphorous (P) Removal Requirements	pH Requirements	Required Treatment Upgrades
City of Plantation North Region WWTP (FL040401)	No	Satisfied.	Satisfied.	Assumed satisfied. Although the facility practices chlorination, chlorine residual, contact time, or coliform measurements are not available to make a final judgement.	N/A	Satisfied.	None.
South Beaches WWTP (FL0040622)	No	Unknown.	Unknown.	Assumed satisfied. Based on information in the UIC permit, the facility maintains chlorination and dechlorination facilities in order to address emergency discharge to surface waters.	N/A	Unknown.	Unknown.
City of Sunrise Sawgrass Utility Complex (FLA042641)	Yes	Satisfied.	Satisfied.	Assumed satisfied. In the absence of any monitoring data or specific information and the fact that the facility could be discharging to surface waters during injection well outages, it is assumed that the facility has chlorination capability.	Assumed satisfied. The facility permit mentions that the plant has a membrane unit that is operated when the well is not in use. It is assumed this membrane unit can achieve the necessary reductions.	Satisfied.	Bring RO, chlorination (5 mg/L) and dechlorination (dose = 5 mg/L) units online. Assume no capital costs are incurred; only O&M costs are incurred.

Exhibit 3: Total Costs for the Baseline Scenario for Facilities That Show Fluid Movement into USDW (Estimates in 2002 dollars)

Facility	Facility ID	Cost Components	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years		
St. Petersburg Albert Whitted WWTF	FLA128830	1. Well abandonment	\$419,329	\$0	\$0	\$419,329	\$0	\$419,329	\$28,185	\$39,582		
		2. Treatment (A2O process for combined N and P removal)										
		Anoxic tank	\$4,478,123	\$27,751	\$412,864	\$4,890,987	\$293,994	\$4,772,117	\$328,751	\$450,454		
		Anaerobic tank	\$4,478,123	\$27,751	\$412,864	\$4,890,987	\$293,994	\$4,772,117	\$328,751	\$450,454		
		Aerobic tank	\$6,717,141	\$0	\$0	\$6,717,141	\$0	\$6,717,141	\$451,497	\$634,051		
		Aeration equipment	\$1,103,442	\$223,004	\$3,317,735	\$4,421,176	\$2,362,506	\$3,465,948	\$297,172	\$327,161		
		Subtotal	\$16,776,830	\$278,506	\$4,143,462	\$20,920,291	\$2,950,494	\$19,727,323	\$1,406,172	\$1,862,120		
		3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$0		
		4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595		
		Total	\$18,931,640	\$278,756	\$4,147,187	\$23,078,827	\$2,953,146	\$21,879,779	\$1,551,260	\$2,065,296		
Seacoast Utility Authority PGA WWTP	FL0038768	1. Well abandonment	\$209,664	\$0	\$0	\$209,664	\$0	\$209,664	\$14,093	\$19,791		
		2. Treatment (Install filtration + alum addition)										
		Filtration	\$3,662,967	\$28,913	\$430,153	\$4,093,119	\$306,305	\$3,969,271	\$275,122	\$374,671		
		Alum addition	\$84,864	\$28,686	\$426,782	\$511,646	\$303,905	\$388,769	\$34,391	\$36,697		
		Subtotal	\$3,747,830	\$57,599	\$856,935	\$4,604,765	\$610,210	\$4,358,040	\$309,513	\$411,368		
				3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
				4. NPDES permit amendment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Total	\$5,687,969	\$57,599	\$856,935	\$6,544,904	\$610,210	\$6,298,179	\$439,920	\$594,504		
		Total	\$24,619,609	\$336,356	\$5,004,122	\$29,623,731	\$3,563,356	\$28,177,957	\$1,991,180	\$2,659,800		

Note: PV = present value.

Monitoring data indicates probable fluid movement into USDW

Exhibit 3 cont.: Total Costs for the Baseline Scenario for Facilities That Show Probable Fluid Movement into USDW (Estimates in 2002 dollars)

Facility	Facility ID	Cost Components	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years
South Cross Bayou WWTF	FL0040436	1. Well abandonment	\$628,993	\$0	\$0	\$628,993	\$0	\$628,993	\$42,278	\$59,372
		2. Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
		4. NPDES permit amendment	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
		Total	\$2,364,475	\$250	\$3,725	\$2,368,200	\$2,653	\$4,092,594	\$159,180	\$386,312
St. Petersburg Northeast WRF	FLA128856	1. Well abandonment	\$628,993	\$0	\$0	\$628,993	\$0	\$628,993	\$42,278	\$59,372
		2. Treatment (A2O process for combined N and P removal)								
		Anoxic tank	\$2,969,200	\$23,474	\$349,239	\$3,318,439	\$248,688	\$3,217,887	\$223,051	\$303,746
		Anaerobic tank	\$2,969,200	\$23,474	\$349,239	\$3,318,439	\$248,688	\$3,217,887	\$223,051	\$303,746
		Aerobic tank	\$6,002,524	\$0	\$0	\$6,002,524	\$0	\$6,002,524	\$403,464	\$566,596
		Aeration equipment	\$1,103,442	\$231,872	\$3,449,668	\$4,553,110	\$2,456,454	\$3,559,896	\$306,041	\$336,029
		Subtotal	\$13,044,365	\$278,821	\$4,148,147	\$17,192,512	\$2,953,830	\$15,998,195	\$1,155,607	\$1,510,116
		3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
		4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
		Total	\$15,408,840	\$279,071	\$4,151,872	\$19,560,712	\$2,956,482	\$20,090,789	\$1,314,787	\$1,896,428

Exhibit 3 cont.: Total Costs for the Baseline Scenario for Facilities That Show Probable Fluid Movement into USDW (Estimates in 2002 dollars)

Facility	Facility ID	Cost Components	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years
St. Petersburg Northwest WRF	FLA128821	1. Well abandonment	\$419,329	\$0	\$0	\$419,329	\$0	\$419,329	\$28,185	\$39,582
		2. Treatment (A2O process for combined N and P removal)								
		Anoxic tank	\$5,282,883	\$25,914	\$385,540	\$5,668,423	\$274,537	\$5,557,420	\$381,007	\$524,581
		Anaerobic tank	\$5,282,883	\$25,914	\$385,540	\$5,668,423	\$274,537	\$5,557,420	\$381,007	\$524,581
		Aerobic tank	\$6,946,558	\$0	\$0	\$6,946,558	\$0	\$6,946,558	\$466,918	\$655,706
		Aeration equipment	\$1,103,442	\$215,327	\$3,203,528	\$4,306,970	\$2,281,182	\$3,384,623	\$289,496	\$319,484
		Subtotal	\$18,615,767	\$267,156	\$3,974,608	\$22,590,374	\$2,830,255	\$21,446,022	\$1,518,428	\$2,024,353
		3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
		4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
		Total	\$20,770,577	\$267,406	\$3,978,333	\$24,748,910	\$2,832,908	\$25,328,952	\$1,663,516	\$2,390,874
St. Petersburg Southwest WRF	FLA128848	1. Well abandonment	\$628,993	\$0	\$0	\$628,993	\$0	\$628,993	\$42,278	\$59,372
		2. Treatment (A2O process for combined N and P removal, and increase alum dose only)								
		Anoxic tank	\$5,282,883	\$24,709	\$367,601	\$5,650,485	\$261,763	\$5,544,646	\$379,801	\$523,375
		Anaerobic tank	\$5,282,883	\$24,709	\$367,601	\$5,650,485	\$261,763	\$5,544,646	\$379,801	\$523,375
		Aerobic tank	\$6,946,558	\$0	\$0	\$6,946,558	\$0	\$6,946,558	\$466,918	\$655,706
		Aeration equipment	\$1,103,442	\$204,099	\$3,036,472	\$4,139,914	\$2,162,224	\$3,265,666	\$278,267	\$308,256
		Increase alum dose only	\$0	\$9,530	\$141,787	\$141,787	\$100,964	\$100,964	\$9,530	\$9,530
		Subtotal	\$18,615,767	\$263,046	\$3,913,462	\$22,529,229	\$2,786,714	\$21,402,481	\$1,514,318	\$2,020,243
		3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
		4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
		Total	\$20,980,242	\$263,296	\$3,917,187	\$24,897,429	\$2,789,367	\$25,495,075	\$1,673,498	\$2,406,555
City of Melbourne (D.B. Lee WWTP)	FLA010323	1. Well abandonment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		2. Treatment (dechlorination)								
		Dechlorination	\$234,432	\$55,507	\$825,804	\$1,060,236	\$588,042	\$822,474	\$71,265	\$77,636
		Subtotal	\$234,432	\$55,507	\$825,804	\$1,060,236	\$588,042	\$822,474	\$71,265	\$77,636
		3. Surface discharge outfall	\$18,615,767	\$0	\$0	\$18,615,767	\$0	\$18,615,767	\$1,251,272	\$1,757,197
		4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$7,660	\$587	\$723
		Total	\$18,855,207	\$55,757	\$829,529	\$19,684,736	\$590,695	\$19,445,901	\$1,323,123	\$1,835,556
		Total	\$78,379,341	\$865,782	\$12,880,646	\$91,259,987	\$9,172,104	\$94,453,310	\$6,134,105	\$8,915,724

Note: PV = present value.

Monitoring data indicates fluid movement into non-USDW

Exhibit 3 cont.: Total Costs for the Baseline Scenario for Facilities That Show Fluid Movement into non-USDW (Estimates in 2002 dollars)										
Facility	Cost Components	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years	
Broward County North Regional WWTP	1. Well abandonment	\$1,257,986	\$0	\$0	\$1,257,986	\$0	\$1,257,986	\$84,556	\$118,745	
	2. Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345	
	4. NPDES permit amendment	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595	
	Total	\$2,993,468	\$250	\$3,725	\$2,997,193	\$2,653	\$4,721,587	\$201,458	\$445,684	
G.T. Lohmeyer WWTP	1. Well abandonment	\$1,048,322	\$0	\$0	\$1,048,322	\$0	\$1,048,322	\$70,464	\$98,954	
	2. Treatment (Filtration + alum addition)									
	Filtration	\$12,567,661	\$115,130	\$1,712,842	\$14,280,503	\$1,219,688	\$13,787,349	\$959,874	\$1,301,428	
	Alum addition	\$122,506	\$119,814	\$1,782,527	\$1,905,033	\$1,269,309	\$1,391,815	\$128,048	\$131,377	
	Subtotal	\$12,690,167	\$234,944	\$3,495,369	\$16,185,536	\$2,488,997	\$15,179,164	\$1,087,922	\$1,432,806	
	3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345	
	4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595	
	Total	\$15,473,970	\$235,194	\$3,499,094	\$18,973,065	\$2,491,650	\$19,691,086	\$1,275,288	\$1,858,699	
	City of Margate WWTP	1. Well abandonment	\$419,329	\$0	\$0	\$419,329	\$0	\$419,329	\$28,185	\$39,582
		2. Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3. Surface discharge outfall		\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345	
4. NPDES permit application		\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595	
Total		\$2,154,811	\$250	\$3,725	\$2,158,536	\$2,653	\$3,882,930	\$145,088	\$366,521	

Exhibit 3 cont.: Total Costs for the Baseline Scenario for Facilities That Show Fluid Movement into non-USDW (Estimates in 2002 dollars)									
Facility	Cost Components	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years
Palm Beach Southern Region WWTP	1. Well abandonment	\$419,329	\$0	\$0	\$419,329	\$0	\$419,329	\$28,185	\$39,582
	2. Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
	4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
	Total	\$2,154,811	\$250	\$3,725	\$2,158,536	\$2,653	\$3,882,930	\$145,088	\$366,521
City of Plantation North Regional WWTP	1. Well abandonment	\$419,329	\$0	\$0	\$419,329	\$0	\$419,329	\$28,185	\$39,582
	2. Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
	4. NPDES permit application	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
	Total	\$2,154,811	\$250	\$3,725	\$2,158,536	\$2,653	\$3,882,930	\$145,088	\$366,521
South Beaches WWTP	1. Well abandonment	\$209,664	\$0	\$0	\$209,664	\$0	\$209,664	\$14,093	\$19,791
	2. Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
	4. NPDES permit amendment	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
	Total	\$1,945,146	\$250	\$3,725	\$1,948,872	\$2,653	\$3,673,265	\$130,995	\$346,730
City of Sunrise Sawgrass Utility Complex	1. Well abandonment	\$628,993	\$0	\$0	\$628,993	\$0	\$628,993	\$42,278	\$59,372
	2. Treatment (Bring RO and chlorination units online)								
	Bring RO unit online	\$0	\$4,703,507	\$69,976,307	\$69,976,307	\$49,829,020	\$49,829,020	\$4,703,507	\$4,703,507
	Bring chlorination unit online	\$0	\$56,191	\$835,974	\$835,974	\$595,284	\$595,284	\$56,191	\$56,191
	Bring dechlorination unit online	\$0	\$79,479	\$1,182,447	\$1,182,447	\$842,002	\$842,002	\$79,479	\$79,479
	Subtotal	\$0	\$4,839,177	\$71,994,728	\$71,994,728	\$51,266,306	\$51,266,306	\$4,839,177	\$4,839,177
	3. Surface discharge outfall	\$1,730,474	\$0	\$0	\$1,730,474	\$0	\$1,730,474	\$116,315	\$163,345
	4. NPDES permit amendment	\$5,008	\$250	\$3,725	\$8,733	\$2,653	\$1,733,127	\$587	\$163,595
Total	\$2,364,475	\$4,839,427	\$71,998,453	\$74,362,928	\$51,268,958	\$55,358,900	\$4,998,357	\$5,225,489	
Total	\$29,241,492	\$5,075,873	\$75,516,174	\$104,757,665	\$53,773,871	\$95,093,627	\$7,041,361	\$8,976,166	

Note: PV = present value.

Costs for the Final Rule

The affected facilities already meet the requirements for pretreatment and secondary treatment under this scenario. Meeting the high-level disinfection requirements could require facilities to upgrade their treatment facilities. This scenario also assumes that some facilities will need to reduce their TSS levels to 5 mg/l as well to lower chlorine demand enough to achieve high-level disinfection with a reasonable chlorine dose.

In this case, EPA also assumes that owners and operators of Class I municipal disposal wells in certain counties of Florida whose injection has caused or may cause the movement of fluids into a USDW will develop and implement a pretreatment program that is no less stringent than the requirements of Chapter 62-625, Florida Administrative Code, or have no significant industrial users (SIUs) as defined in that chapter and treat the injected wastewater using secondary treatment in a manner that is no less stringent than Florida Rule 62-600.420 (1)(d), and using high-level disinfection, as defined by Florida Rule 62-600.440(5)(a)-(f) before injecting into their wells. It is estimated that this requirement will not affect the costs under either scenario. See Appendix B.

Exhibit 4 provides a summary of the treatment upgrades assumed to be required by the facilities to comply with the reuse standard. Exhibit 5 presents the total costs associated with this case.

Exhibit 4a: Facility Status with Respect to High-level Disinfection Requirements for Domestic Wastewater Facilities, Facilities that Exhibit Fluid Movement into a USDW

Facility Name (ID)	CBOD5 Removal Requirements	TSS Limit Before Disinfection Requirement	High-level Disinfection (HLD) Requirements	pH Requirements	Required Treatment Upgrades
St. Petersburg Albert Whitted WWTF (FLA128830)	Satisfied.	Satisfied.	Assumed satisfied. Chlorine contact times couldn't be estimated. However, based on the coliform measurements, it is assumed that HLD requirements are met.	Satisfied.	None.
Seacoast Utility Authority PGA WWTP (FL0038768)	Satisfied.	Not satisfied.	Assumed satisfied. Chlorine contact times couldn't be estimated. However, based on the coliform measurements, it is assumed that HLD requirements are met.	Satisfied.	Filtration and alum coagulation (dose = 10 mg/L).

**Exhibit 4b: Facility Status with Respect to High-level Disinfection Requirements for Domestic Wastewater Facilities,
Facilities Which Exhibit Probable Fluid Movement into a USDW**

Facility Name (ID)	CBOD5 Removal Requirements	TSS Limit Before Disinfection Requirement	High-level Disinfection (HLD) Requirements	pH Requirements	Required Treatment Upgrades
South Cross Bayou WWTF (FL0040436)	Satisfied.	Not satisfied sometimes.	Satisfied.	Satisfied.	Increase alum dose by 2 mg/L. Alum dosing system is already in place.
St. Petersburg Northeast WRF (FLA128856)	Satisfied.	Satisfied.	Satisfied.	Satisfied.	None.
St. Petersburg Northwest WRF (FLA128821)	Satisfied.	Satisfied.	Assumed satisfied. Although three "maximum" coliform samples exceeded 25/100 mL, 75 percent of all monthly fecal coliform samples were "non-detects" (for all three months of data).	Satisfied.	None.
St. Petersburg Southwest WRF (FLA128848)	Satisfied.	Not satisfied sometimes.	Satisfied.	Satisfied.	Increase alum dose by 2 mg/L. Alum dosing system is already in place.
City of Melbourne D.B. Lee WWTP (FLA010323)	Satisfied.	Satisfied.	Satisfied.	Satisfied.	None.

**Exhibit 4c: Facility Status with Respect to High-level Disinfection Requirements for Domestic Wastewater Facilities,
Facilities Which Exhibit Fluid Movement into a non-USDW**

Facility Name (ID)	CBOD5 Removal Requirements	TSS Limit Before Disinfection Requirement	High-level Disinfection (HLD) Requirements	pH Requirements	Required Treatment Upgrades
Broward County North Regional WWTP (FL0031771)	Satisfied.	Satisfied.	Satisfied.	Satisfied.	None.
G.T. Lohmeyer WWTP (FLA041378)	Satisfied.	Not satisfied.	Assumed satisfied. Although the facility practices chlorination, chlorine residual, contact time, or coliform measurements are not available to make a definitive determination.	Satisfied.	Filtration and alum coagulation (dose = 10 mg/L).
City of Margate WWTP (FLA169617)	Unknown.	Not satisfied.	Assumed satisfied. Although the facility practices chlorination, contact time measurements are not available to make a final judgement.	Unknown.	Filtration, alum coagulation (dose = 10 mg/L).
Palm Beach Southern Region WWTP (FLA041424)	Satisfied.	Not satisfied sometimes.	Assumed satisfied. Although the chlorine contact time couldn't be estimated, based on the coliform and chlorine residual data it appears that HLD requirements are met.	Satisfied.	Increase alum dose by 2 mg/L, assuming an alum dosing system is already in place.
City of Plantation North Region WWTP (FL040401)	Satisfied.	Not satisfied.	Assumed satisfied. Although the facility practices chlorination, chlorine residual, contact time, or coliform measurements are not available to make a final judgement.	Satisfied.	Filtration and alum coagulation (dose = 10 mg/L).

Facility Name (ID)	CBOD5 Removal Requirements	TSS Limit Before Disinfection Requirement	High-level Disinfection (HLD) Requirements	pH Requirements	Required Treatment Upgrades
South Beaches WWTP (FL0040622)	Unknown.	Unknown.	Assumed satisfied. Based on information in the UIC permit, the facility maintains chlorination and dechlorination facilities in order to address emergency discharge to surface waters.	Unknown.	Unknown.
City of Sunrise Sawgrass Utility Complex (FLA042641)	Satisfied.	Not satisfied sometimes. However, facility has a membrane (RO) unit and would not need to add filtration and alum coagulation.	Assumed satisfied. In the absence of any monitoring data or specific information and the fact that the facility could be discharging to surface waters during injection well outages, it is assumed that the facility has chlorination capability.	Satisfied.	Bring RO and chlorination (dose = 10 mg/L) units online. Assume no capital costs are incurred; only O&M costs are incurred.

Notes:

1. WRF = Water Reclamation Facility, WWTF = Wastewater Treatment Facility, WWTP = Wastewater Treatment Plant
2. McKay Creek (FL0040410), a facility which showed probable fluid movement into USDW, has been removed from service. (See e-mail dated 8/4/2003 from Ed Snipes). Hence, it was excluded from this analysis.
3. Miami-Dade plants were omitted from the analysis because they have entered into a consent order with EPA concerning operation of their injection wells which will supersede these revisions.

Exhibit 5: Total Costs for the Final Rule Scenario for Facilities That Show Fluid Movement into USDW (Estimates in 2002 dollars)										
Facility	Facility ID	Treatment Upgrade	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years
St. Petersburg Albert Whitted WWTF	FLA128830	No treatment upgrades	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Seacoast Utility Authority PGA WWTP	FL0038768	Install filtration + alum addition								
		Filtration	\$3,662,967	\$28,913	\$430,153	\$4,093,119	\$306,305	\$3,969,271	\$275,122	\$374,671
		Alum addition	\$84,864	\$28,686	\$426,782	\$511,646	\$303,905	\$388,769	\$34,391	\$36,697
		Total	\$3,747,830	\$57,599	\$856,935	\$4,604,765	\$610,210	\$4,358,040	\$309,513	\$411,368
		Total	\$3,747,830	\$57,599	\$856,935	\$4,604,765	\$610,210	\$4,358,040	\$309,513	\$411,368

Note: PV = present value.

Monitoring data indicates probable fluid movement into USDW

Exhibit 5 cont.: Total Costs for the Final Rule Scenario for Facilities That Show Probable Fluid Movement into USDW (Estimates in 2002 dollars)										
Facility	Facility ID	Treatment Upgrade	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years
South Cross Bayou WWTF	FL0040436	Increase alum dose only	\$0	\$16,093	\$239,430	\$239,430	\$170,495	\$170,495	\$16,093	\$16,093
St. Petersburg Northeast WRF	FLA128856	No treatment upgrades	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
St. Petersburg Northwest WRF	FLA128821	No treatment upgrades	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
St. Petersburg Southwest WRF	FLA128848	Increase alum dose only	\$0	\$9,530	\$141,787	\$141,787	\$100,964	\$100,964	\$9,530	\$9,530
City of Melbourne (D.B. Lee WWTP)	FLA010323	No treatment upgrades	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		Total	\$0	\$25,624	\$381,218	\$381,218	\$271,459	\$271,459	\$25,624	\$25,624

Note: PV = present value.

Monitoring data indicates fluid movement into non-USDW

Exhibit 5 cont.: Total Costs for the Final Rule Scenario for Facilities That Show Fluid Movement into a non-USDW (Estimates in 2002 dollars)									
Facility	Treatment Upgrade	Capital Cost [A]	Annual O&M cost [B]	PV of O&M at 3% and 20 yrs [C]	Total PV at 3% and 20 yrs [A+C]	PV of O&M at 7% and 20 yrs [D]	Total PV at 7% and 20 yrs [A+D]	Annualized Costs at 3% and 20 years	Annualized Costs at 7% and 20 years
Broward County North Regional WWTP	No treatment upgrades	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
G.T. Lohmeyer WWTP	Install filtration + alum addition								
	Filtration	\$12,567,661	\$115,130	\$1,712,842	\$14,280,503	\$1,219,688	\$13,787,349	\$959,874	\$1,301,428
	Alum addition	\$122,506	\$119,814	\$1,782,527	\$1,905,033	\$1,269,309	\$1,391,815	\$128,048	\$131,377
	Total	\$12,690,167	\$234,944	\$3,495,369	\$16,185,536	\$2,488,997	\$15,179,164	\$1,087,922	\$1,432,806
City of Margate WWTP	Install filtration + alum addition								
	Filtration	\$5,493,951	\$44,666	\$664,520	\$6,158,471	\$473,194	\$5,967,145	\$413,946	\$563,256
	Alum addition	\$95,944	\$46,089	\$685,693	\$781,637	\$488,271	\$584,215	\$52,538	\$55,146
	Total	\$5,589,895	\$90,756	\$1,350,213	\$6,940,108	\$961,465	\$6,551,360	\$466,484	\$618,402
Palm Beach Southern Region WWTP	Increase alum dose only	\$0	\$17,423	\$259,213	\$259,213	\$184,581	\$184,581	\$17,423	\$17,423
City of Plantation North Regional WWTP	Install filtration + alum addition								
	Filtration	\$5,607,835	\$44,955	\$668,812	\$6,276,647	\$476,251	\$6,084,086	\$421,889	\$574,295
	Alum addition	\$96,256	\$46,089	\$685,693	\$781,949	\$488,271	\$584,527	\$52,559	\$55,175
	Total	\$5,704,091	\$91,044	\$1,354,505	\$7,058,596	\$964,522	\$6,668,613	\$474,449	\$629,470
South Beaches WWTP	Not known	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
City of Sunrise Sawgrass Utility Complex	Bring RO and chlorination units online at all times								
	Bring RO online	\$0	\$4,703,507	\$69,976,307	\$69,976,307	\$49,829,020	\$49,829,020	\$4,703,507	\$4,703,507
	Bring chlorination unit online	\$0	\$103,773	\$1,543,882	\$1,543,882	\$1,099,374	\$1,099,374	\$103,773	\$103,773
	Total	\$0	\$4,807,280	\$71,520,190	\$71,520,190	\$50,928,394	\$50,928,394	\$4,807,280	\$4,807,280
	Total	\$23,984,153	\$5,241,447	\$77,979,490	\$101,963,643	\$55,527,960	\$79,512,113	\$6,853,558	\$7,505,381

Note: PV = present value.

Annualization and Calculation of Cost Savings

Exhibit 6 presents a summary of the total capital and annualized present value costs for the baseline case and under the final rule. Annualized costs are presented for two discount rate scenarios (i.e., 3 percent and 7 percent), using the following assumptions:

- Capital costs are incurred in year “zero” only, while O&M costs are incurred annually, and
- A 20 year average useful life of the equipment used to comply with the final rule.

Cost savings (or the benefits of the final Class I rule) are calculated by comparing costs for the final rule to the baseline case.

The average cost per facility is also provided in Exhibit 6.

**Exhibit 6: Summary of Costs for Each Option - Current Analysis
(Estimates in millions of 2002 dollars)**

Scenario	Total Cost (in millions)			Average Cost per Facility (in millions)		
	Capital Costs	Annualized PV Costs (Annualized Cap + O&M)		Capital Costs	Annualized PV Costs (Annualized Cap + O&M)	
		3%	7%		3%	7%
Baseline Case: Facilities w/ Movement into USDW (2 facilities)	\$24.6	\$2.0	\$2.7	\$12.3	\$1.0	\$1.3
Baseline Case: Facilities w/ Probable Movement into USDW (5 facilities)	\$78.4	\$6.1	\$8.9	\$15.7	\$1.2	\$1.8
Baseline Case: Facilities w/ Movement into non-USDW (7 facilities)	\$29.2	\$7.0	\$9.0	\$4.2	\$1.0	\$1.3
Baseline Case Total (14 facilities)	\$132.2	\$15.2	\$20.6	\$9.4	\$1.1	\$1.5
Final Rule: Facilities w/ Movement into USDW (2 facilities)	\$3.7	\$0.3	\$0.4	\$1.9	\$0.2	\$0.2
Final Rule: Facilities w/ Probable Movement into USDW (5 facilities)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Final Rule: Facilities w/ Movement into non-USDW (7 facilities)	\$24.0	\$6.9	\$7.5	\$3.4	\$1.0	\$1.1
Final Rule Total (14 facilities)	\$27.7	\$7.2	\$7.9	\$2.0	\$0.5	\$0.6
Cost Savings (Baseline Case minus Final Rule)	\$104.5	\$8.0	\$12.6	\$7.5	\$0.6	\$0.9

PV = Present value.

Note: Numbers may not appear to add due to independent rounding.

Administrative and Recordkeeping Costs

Both owners and operators of the affected facilities and the State of Florida will incur paperwork costs associated with the final rule. Owners/operators of affected facilities will incur one time costs to read and understand the rule as well as both one-time and annual costs for consulting with the State. Exhibit 7 displays the administrative costs to facilities.

Exhibit 7: Operator Administrative Costs

Activity	Assumptions							
	Total Respondents/Responses	Average Annual Responses	Hours per Response	Average Annual Hours (Burden)	Labor Cost (per Hour)	Average Annual Labor Cost	Average Annual Capital Cost	Average Annual O&M Cost
Read and understand rule	16	5.3	20	107	\$ 27.34	\$ 2,916	\$ -	\$ -
Prepare and submit revised permit to inject effluent under the rule	16	5.3	256	1,365	\$ 27.34	\$ 37,330	\$ -	\$ -
Total	32	10.7	276	1,472		\$ 40,246	\$ -	\$ -

Note: Detail may not add to totals due to independent rounding.

The State will incur one time costs to read the rule, revise its primacy regulations, and consult with facilities on rule requirements. Florida will also incur annual costs to consult with facilities regarding compliance and to review reports. Exhibit 8 displays these costs.

Exhibit 8: State Administrative Costs

Activity	Assumptions							
	Total Responses	Average Annual Responses	Hours per Response	Average Annual Hours (Burden)	Labor Cost (per Hour)	Average Annual Labor Cost	Average Annual Capital Cost	Average Annual O&M Cost
Read and understand rule	1	0.3	40	13	\$ 31.73	\$ 423	\$ -	\$ -
Revised primacy application	1	0.3	1,040	347	\$ 31.73	\$ 11,001	\$ -	\$ -
Review revised permits to inject effluent under the rule	16	5.3	32	171	\$ 31.73	\$ 5,416	\$ -	\$ -
Total	18	6.0	1,112	531		\$ 16,841	\$ -	\$ -

Note: Detail may not add to totals due to independent rounding.

References

CWC (Culp/Wesner/Culp Engineering). 2000. W/W Costs and Design Criteria Guidelines 3.0, Computer Software for Estimating Water and Wastewater Technology Costs. CWC Engineering Software; San Clemente, CA.

NDWAC (National Drinking Water Advisory Council). 2001. *Report of the Arsenic Cost Working Group of the National Drinking Water Advisory Council.*

USEPA. 2000a. Proposed Revision to the Federal Underground Injection Control Requirements for Class I Municipal Wells in Florida. Prepared by The Cadmus Group, Inc., Arlington, VA, for the USEPA Office of Ground Water and Drinking Water, Washington, D.C.

USEPA. 2000b. *Technologies and Costs for Removal of Arsenic from Drinking Water.* Prepared by International Consultants, Inc., Malcolm Pirnie, Inc., and The Cadmus Group, Inc., for the USEPA Office of Ground Water and Drinking Water, Washington, D.C (December, 2000).

Appendix A: Discharge Standards

Use/ Discharge to	Treatment Requirements	Statute
Surface (excluding ocean outfall)	<ol style="list-style-type: none"> 1) More stringent of: <ol style="list-style-type: none"> a) 20mg/L CBOD5 & 20mg/L TSS limits b) 90% removal of each from wastewater influent 2) Basic disinfection <ol style="list-style-type: none"> a) Cl residual = 0.5 mg/L b) Contact time: at least 15 minutes at peak hourly flow c) Not more than 200 coliform/100mL: <ol style="list-style-type: none"> i) mean of monthly values no more than 200 coliform/100mL ii) geometric mean of values of minimum 10 samples in a month no more than 200 coliform/200mL iii) No sample exceeds 800 coliform/100mL 3) pH controls (6.0 to 8.5) 4) At least 500 feet away from potable water intake 5) Never to Class I waters unless meeting high-level disinfection and other appropriate measures (see Reuse: Discharge to Class I Waters). 6) If potentially discharging to Class I waters, additional requirements depending on travel time to Class I waters. (see 600.510(2)&(3)) 7) Never discharge to Class II waters. (see 600.510(4)) 8) If new facility discharging to waters contiguous to Class II waters, additional requirements apply. (see 600.510(5)) 	<p>62-600.420(1)(a), F.A.C. 62-600.430(1), F.A.C. 62-600.510, F.A.C.</p>

Use/Discharge to	Treatment Requirements	Statute
Injection (High-level disinfection)	1) High-level disinfection: <ul style="list-style-type: none"> a) Cl residual = 1.0mg/L b) Contact time based on pre-disinfection contamination: <ul style="list-style-type: none"> i) 15 min. at peak hourly flow minimum ii) 25 min. if 1,000 coliform/100mL iii) 40 min. if 1,001-10,000 coliform/100mL iv) 120 min. if >10,000 coliform/100mL v) or alternative combination of Cl & CT that can be justified. c) TSS < 5 mg/L before disinfectant application d) over 30 day period 75% of samples non-detect for fecal coliform e) no sample over 25 fecal coliform/100 mL f) or equivalent public health protection 	62-600.440, F.A.C.

Appendix B: Pretreatment Costs

The final rule includes requirements for owners and operators of facilities that wish to be covered by the alternative endangerment standard to comply with existing pretreatment standards for those facilities. Specifically, the final Rule requires that owners and operators develop and implement a pretreatment program that is no less stringent than the State's requirements in Florida Rule 62-625 or have no significant industrial users (SIUs), as defined in that chapter if they wish to avail themselves of the alternative endangerment standard.

Pretreatment requirements apply to both the baseline case (surface water disposal) and the final rule (pretreatment, secondary treatment and high-level disinfection). Therefore, any facility with insufficient pretreatment would be required to upgrade the program or place limitations on discharges by significant industrial users, regardless of the regulatory option.

EPA found that almost all (14 of the 16) facilities that have caused or may cause fluid movement into a USDW already have pretreatment programs in place or—in one case—under development. The remaining two facilities have conducted surveys and found that they are not handling waste streams from significant industrial users. EPA believes that existing pretreatment programs at the affected facilities are adequate and critical to ensuring that a variety of contaminants that might appear in wastewater do not endanger USDWs.

EPA does not believe that owners and operators will incur additional costs due to the pretreatment requirements of this rule, because the 16 facilities with varying degrees of fluid movement already have a pretreatment plan in place or have no significant industrial users. Furthermore, should owners and operators need to upgrade their pretreatment program, such improvements would be necessary for both the baseline case and under the final rule, resulting in no additional costs (or savings) from improvements in pretreatment.

Exhibit B-1 presents the pretreatment status of each affected facility.

Exhibit B-1: Status of Pretreatment Programs at Facilities Showing Fluid Movement or Suspected of Fluid Movement

Category	Facility Name	Facility ID	Design Capacity	Pretreatment (PT) Status		
				PT Program	Certification of no SIUs	Neither PT Program nor Certification of no SIUs
Monitoring indicates fluid movement into USDW.	St. Petersburg Albert Whitted WWTF	FLA128830	12.4	yes		
	Miami-Dade Water and Sewer Department South District WWTP	FLA042137	97	yes		
	Seacoast Utility Authority PGA WWTP	FL0038768	12	yes		
Monitoring indicates probable fluid movement into USDW.	South Cross Bayou WWTF	FL0040436	33	yes		
	St. Petersburg Northeast WRF	FLA128856	16	yes		
	St. Petersburg Northwest WRF	FLA128821	20	yes		
	St. Petersburg Southwest WRF	FLA128848	20	yes		
	City of Melbourne D.B. Lee WWTP	FLA010323	5.1	yes		
Monitoring indicates fluid movement into non-USDW.	Broward County North Regional WWTP	FL0031771	80	yes		
	G.T. Lohmeyer WWTP	FLA041378	43	yes		
	City of Margate WWTP	FLA169617	8	(Inactive)	Yes; No SIU's	
	Miami-Dade Water and Sewer Department North District WWTP	FL0032182	112.5	yes		
	Palm Beach Southern Region WWTP	FLA041424	30	yes		
	City of Plantation North Region WWTP	FLA040401	30	yes		
	South Beaches WWTP	FL0040622	9		Yes; No SIU's	
	City of Sunrise Sawgrass Utility Complex	FLA042641	8	under development		