

## Chapter 40E-2 Excerpt 11-24-08 DRAFT

### 40E-2.011 Policy and Purpose.

(1) through (2) No Change.

(3) Additional rules relating to water use are found in Chapter 40E-5, F.A.C., (Artificial Recharge), Chapter 40E-8, F.A.C., (Minimum Flows and Levels), Chapter 40E-10, F.A.C., (Water Reservations), Chapters 40E-20, F.A.C., (General Water Use Permits), 40E-21, F.A.C., (The Water Shortage Plan), 40E-22, F.A.C., (Regional Water Shortage Plans) and 40E-23, F.A.C., (Water Resource Caution Areas).

(4) No Change.

*Specific Authority 373.044, 373.113, 373.171 FS. Law Implemented 373.103(1), 373.203, 373.216, 373.249 FS. History—New 9-3-81, Formerly 16K-2.01, Amended 7-4-82, 2-24-85, 11-18-91, 8-1-02, 8-31-03, \_\_\_\_\_.*

### 40E-2.091 Publications Incorporated by Reference.

The “Basis of Review for Water Use Permit Applications within the South Florida Water Management District – \_\_\_\_\_ October 14, 2008”, is hereby published by reference and incorporated into this chapter. A current version of this document is available upon request.

*Specific Authority 373.044, 373.113, 373.118, 373.171 FS. Law Implemented 373.042, 373.0421, 373.109, 373.196, 373.219, 373.223, 373.224, 373.229, 373.232, 373.233, 373.236, 373.239, 373.250 FS. History—New 9-3-81, Formerly 16K-2.035(1), Amended 2-24-85, 11-21-89, 1-4-93, 4-20-94, 11-26-95, 7-11-96, 4-9-97, 12-10-97, 9-10-01, 12-19-01, 8-1-02, 6-9-03, 8-31-03, 4-23-07, 9-13-07, 2-13-08, 10-14-08, \_\_\_\_\_.*

(The following changes are proposed to the “Basis of Review for Water Use Permit Applications within the South Florida Water Management District”)

#### 1.7.5.2 Modeling Data

Applicable modeling data may consist of basic analytic impact assessments or calibrated numeric system simulation models. The modeling impact assessments shall be conducted for the proposed withdrawal alone, as well as the proposed withdrawal combined with all other permitted uses and pending applications within the cone of depression of the proposed use. The cone of depression is defined by the 0.1 foot drawdown contour for the proposed withdrawal from the water table aquifer and the 1.0 foot contour for the proposed withdrawal from a confined aquifer.

A. Basic analytic impact assessments: Basic analytic impact assessments utilize an approved analytic equation(s), such as the Theis or Hantush-Jacob equation, applied to the requested maximum month allocation that simulates continued withdrawal for 90 days without recharge (which is considered for purpose of these simulations to be equivalent to a 1 in 10 year drought condition). Aquifer characteristics derived from approved aquifer performance tests (APT) or specific capacity tests (SFWMD, Part B Water Use Management System Design and Evaluation Aids, Part II Aquifer Performance Test) located within one mile of the project site are acceptable. If more than one set of aquifer characteristics data exists within one mile of the site, the value measured closest to the proposed project will be used unless the applicant can demonstrate that hydrogeologic

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1 conditions at the project site are not represented by such data. If the location of the  
2 nearest site where aquifer characteristics were measured is greater than one mile from the  
3 project site, the average of the nearest three APT or specific capacity test sites is  
4 acceptable providing that two of the three values are within one standard deviation of the  
5 mean. If this is not the case, the applicant shall demonstrate that the conditions of permit  
6 issuance are met for the highest and lowest values of the three sites, or the applicant may  
7 opt to conduct an APT or specific capacity test at the site.  
8

9 The use of numeric models such as Modflow without calibration is acceptable under the  
10 following configurations: (1) the model represents the aquifer or aquifer system as no more  
11 than two layers; (2) each layer uses a single value for transmissivity/permeability,  
12 storage/storativity and a single value is used for leakance between the layers; (3) the  
13 simulation time is 90 days with no recharge; and (4) surface water recharge features are  
14 not represented. The modeling shall include separate runs using the highest and lowest  
15 measured values of transmissivity/permeability, storage/storativity, and leakance from the  
16 region, based on published data and pump test values calculated as described above. The  
17 selected high and low aquifer values will be approved provided they significantly  
18 overestimate the withdrawal impacts that would occur on the site. The use of a numeric  
19 model without calibration is acceptable for representing seepage irrigation systems where  
20 the applicant models the portion of the irrigation water that returns to the water table  
21 aquifer, provided the model is configured as described in this paragraph and the change in  
22 the water table elevation predicted by the model is field verified with water level data from  
23 at least one water table piezometer located adjacent to the irrigated field.  
24

25 (Subsection 1.7.5.2 B. remains unchanged)  
26

### 27 **1.8 Definitions**

28

29 **Reservation water body** - Areas within the District as identified in Rules 40E-10.021 and  
30 40E-10.041, F.A.C., for which a water reservation has been established.  
31

### 32 **2.5.2 Dewatering General Water Use Permit**

33

34 Dewatering General Water Use Permits, as described in Rule 40E-20.302(2), F.A.C., are  
35 for dewatering projects, which a) cannot meet the conditions of issuance and requirements  
36 for “No-Notice” permits, b) have a proposed duration of less than one year, and c) propose  
37 to pump less than 10 million gallons per day with a total project volume of less than 1800  
38 million gallons. A dewatering general water use permit application must be submitted to  
39 the District and Staff must issue the General Permit prior to the applicant beginning  
40 dewatering, unless portions of the project qualify for dewatering under the “No-Notice”  
41 permit described above. The applicant may elect to begin dewatering for a single period of  
42 only 90 days in areas of the project, which meet the “No-Notice” criteria, once an  
43 application for a Dewatering General Water Use Permit has been submitted to the District.  
44

45 Permit applications for a Dewatering General Water Use Permit must:  
46

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- 1 (1) through (4) No change.  
2 (5) Demonstrate that reserved water will not be withdrawn pursuant to Rule 40E-  
3 20.301(1)(k), F.A.C., by retaining all water onsite. If the Applicant  
4 demonstrates that retaining the water on site is not feasible, the application  
5 shall be processed as an individual permit pursuant to Section 2.5.3.  
6  
7 (6) Provide reasonable assurances that fresh dewatering water will not be  
8 discharged to saline tidal waters, unless the applicant demonstrates that it is  
9 not technically feasible to prevent discharge to saline water and requests  
10 specific authority from the District for discharge. Saline dewatering water, as  
11 defined in this Basis of Review, may be discharged to tidewater.  
12  
13 (7) Provide an operational plan which describes how stormwater will be handled  
14 during dewatering operations.  
15

16 Dewatering applications will be reviewed concurrently with Environmental Resource or  
17 Surface Water Management construction permit applications, and the dewatering  
18 application will not be considered complete until both applications are complete. An  
19 applicant may request that the dewatering permit include a later “start” date to coincide with  
20 the actual start of dewatering activities at the project. Staff will recommend a permit  
21 expiration date, based on the proposed “start” date. Any temporary dewatering water  
22 holding areas must be constructed and operated using sound engineering practices to  
23 protect public health, safety, and welfare and, as necessary, dewatering activities must  
24 meet all applicable Environmental Resource or Surface Water Management criteria.  
25

### 26 2.5.3 Long-Term Dewatering Individual Permits

27

28 Long-term dewatering individual permits apply to projects that exceed the thresholds and  
29 criteria described in Sections 2.5.1 and 2.5.2 above. These permits must be approved by  
30 the District Governing Board. Two types of individual dewatering permits are available from  
31 the District. For projects where all the dewatering activities are defined at the time of the  
32 permit application, the applicant may apply for a “standard” Individual Permit. For long-  
33 term, multi-phased projects, with undefined activities or no contractor at the time of the  
34 permit application, the applicant may apply for a “master” Individual Permit.  
35

36 Applicants for all individual dewatering permits must satisfy the conditions of issuance for  
37 Individual Permits (Rule 40E-2.301, F.A.C.), and may not commence dewatering prior to  
38 approval of the permit by the Governing Board. In order to provide reasonable assurances  
39 that water reserved in Rule 40E-10.041, F.A.C., will not be withdrawn, all water from the  
40 dewatering activity shall be retained on site. If the applicant demonstrates that retaining the  
41 water on site is not feasible, the project shall be modified to demonstrate pursuant to  
42 Section 3.11 that reserved water will not be withdrawn. The applicant may elect to begin  
43 dewatering for a single period of only 90 days in areas of the project, that meet the No-  
44 Notice criteria specified in Section 2.5.1 of this Basis of Review, once an application for an  
45 Individual dewatering permit has been submitted to the District.  
46

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1 The applicant must provide the information required for the Dewatering General Permit, as  
2 specified in Section 2.5.2. In addition, the applicant shall provide estimates of the maximum  
3 monthly and annual dewatering withdrawals for the project and will be required to submit  
4 records of monthly withdrawals for each dewatering pump to the District. Staff shall not  
5 specify maximum monthly or annual withdrawal volumes in the recommended permit  
6 conditions presented to the Governing Board.

7  
8 A. "Standard" Individual Permits  
9 No Change.

10  
11 B. "Master" Individual Permits  
12 No Change.

### 13 14 **3.11 Water Reservations**

#### 15 16 **3.11.1 Picayune Strand and Fakahatchee Estuary**

17  
18 A permit applicant shall provide reasonable assurances that the proposed use will not  
19 withdraw water reserved under Rules 40E-10.041 (1) and (2), F.A.C., except that water  
20 uses less than 100,000 gallons per day associated with land management or public  
21 access/recreation shall be permissible. Compliance with the following criteria constitutes  
22 reasonable assurances that water reserved in Rules 40E-010.041 (1) and (2), will not be  
23 withdrawn. Water not reserved under Rules 40E-10.041 (1) and (2), F.A.C., shall be  
24 allocated pursuant to Subsections A and B.

25  
26 For this section, the following definitions apply:

27  
28 Direct Withdrawals from Groundwater: Water pumped from a well(s) constructed  
29 within the boundaries of the Picayune Strand or Fakahatchee Estuary into the water  
30 table or unconfined portions of the Lower Tamiami aquifer.

31  
32 Indirect Withdrawals from Groundwater: a) a groundwater withdrawal from a well(s)  
33 constructed outside the boundaries of Picayune Strand and Fakahatchee Estuary  
34 into the water table or Lower Tamiami aquifer that results in a 0.1 foot or greater  
35 drawdown in the water table aquifer at any location underlying the Picayune Strand  
36 or the Fakahatchee Estuary, as determined by an evaluation conducted pursuant to  
37 Section 1.7.5.2.A.; or b) a groundwater withdrawal that causes a water table  
38 drawdown of 0.1 foot or greater underlying any canal identified in Figure 3-5, as  
39 determined by an evaluation conducted pursuant to Section 1.7.5.2.A.

40  
41 Direct Withdrawals from Surface Water: Withdrawal of surface water from facilities  
42 physically located within the Picayune Strand or Fakahatchee Estuary boundaries.

43  
44 Indirect Withdrawal from Surface Water: Withdrawal of surface water from any canal  
45 identified in Figure 3-5.



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1  
2 A. The following uses do not withdraw reserved water:

3  
4 1. Withdrawals from the Sandstone aquifer, Mid-Hawthorn aquifer or the  
5 Floridan Aquifer Systems;

6  
7 2. Withdrawals authorized by Rule 40E-20.302(3), F.A.C. (No-Notice Short-  
8 Term Dewatering General Water Use Permit);

9  
10 3. A renewal of a water use authorized by a permit existing on [effective date].  
11 If the level of certainty under the permit being renewed is changed to a 1 in 10 year  
12 level of certainty pursuant to Section 2.3.2 (e.g. a golf course irrigation level of  
13 certainty changed from a 1 in 5 to a 1 in 10 year level of drought), the resulting 1 in  
14 10 year allocation shall be authorized;

15  
16 4. A permit modification that does not change the source, increase the allocation  
17 or change withdrawal locations, such as replacement of existing wells with similar  
18 construction and at similar locations, crop changes that do not change the allocation  
19 or timing of use, or decrease in allocation;

20  
21 5. A permit modification that does not result in a direct or indirect withdrawal as  
22 demonstrated through an analysis conducted consistent with Section 1.7.5.2.A.  
23 When a modification to an existing permit is requested, the 0.1 foot threshold for  
24 determining a direct or indirect withdrawal will be applied to the effect of the  
25 modification only. The change in the drawdown solely associated with the applicant's  
26 proposed modification is calculated at the location of the 0.1 foot drawdown contour  
27 associated with the existing permit. If the change in drawdown associated with the  
28 proposed modification is less than 0.1 foot, the applicant's modification does not  
29 withdraw reserved water;

30  
31 6. A proposed new use that does not result in a direct or indirect withdrawal as  
32 demonstrated through an analysis conducted pursuant to Section 1.7.5.2.A.

33  
34 7. A proposed new use with a direct or indirect withdrawal and no greater  
35 impact, including changes in timing, on a reservation water body than the terminated  
36 or reduced permit existing on [effective date] within the same project site. This  
37 evaluation will be conducted pursuant to Section 1.7.5.2.

38  
39 8. A proposed new use or proposed modification of a permit with an indirect  
40 withdrawal that does not withdraw reserved water from the Picayune Strand or the  
41 Fakahatchee Estuary. The determination that reserved water is not withdrawn shall  
42 be demonstrated by conducting the Model Impact Evaluation in Section B.

43  
44  
45 B. Model Impact Evaluation. If required by Section A, the applicant shall demonstrate  
46 water reserved for the Picayune Strand and Fakahatchee Estuary will not be withdrawn by

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1 conducting the following Model Impact Evaluation. A pre-application meeting between the  
2 Applicant and District staff is strongly recommended to be conducted prior to initiating  
3 model development.

### 4 5 1. Defining Scope of Model Evaluation

6  
7 (a) For groundwater withdrawals, identify the cone of influence of the proposed  
8 withdrawal per Section 1.7.5.2.A. Based on this analysis, the Applicant shall  
9 identify which reservation inflow locations (set forth in Figures 1 and 2 in Rule  
10 40E-10.021, F.A.C.) and conveyance system(s) identified on Figure 3-5 are  
11 potentially influenced by the proposed withdrawal.

12  
13 (b) For surface water withdrawals, identify the reservation inflow locations,  
14 reservation water body (set forth in Figures 1 and 2 in Rule 40E-10.021, F.A.C.),  
15 and conveyance system(s) identified on Figure 3-5 that are potentially influenced  
16 by the proposed withdrawal.

### 17 18 2. Conditions of Model Development

19  
20 (a) Boundary Conditions: The model domain and resolution of grid cell size shall  
21 be identified using professional standards for model development considering  
22 the area of influence, while avoiding boundary condition biases. At a  
23 minimum, boundaries shall be situated sufficiently distant from the area of  
24 interest or in such a manner as to prevent non-representative impacts from  
25 specified boundary conditions on predicted stages and/or flow in the area of  
26 interest.

27  
28 (b) Surface and groundwater interactions: Surface and groundwater model  
29 codes that have undergone professional peer review and are representative  
30 of the physical system being simulated shall be used. Where integrated  
31 surface water and groundwater models are applied, time steps will be  
32 selected with consideration given to the resolution of the available data and  
33 the resolution necessary for quantifying flow volumes. Surface waters and  
34 overland flow time steps not exceeding 4 hours in length, canal flows time  
35 steps not exceeding 3 minutes, and groundwater time steps not exceeding 6  
36 hours in length shall be considered acceptable. Alternative time steps may  
37 be used providing they produce an acceptable calibration as described in  
38 Subsection 3.11.1B.2(f). For the purposes of model calibration, the time steps  
39 used for simulating stages shall be averaged and flows shall be summed to  
40 produce daily values for comparison to measured data.

41  
42 (c) Hydrologic Conditions: Rainfall and evapotranspiration shall be simulated  
43 based on data collected from 1988 through 2000 for the model domain.

44  
45 (d) Land Use/Water Use: The model shall simulate 2000 land use existing on  
46 December 31, 2000 within the model domain (as identified in Subsection (a),

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1 above). The water use withdrawal data used for the model calibration shall  
2 reflect actual use during the period of 1988 through 2000. In the case of  
3 irrigation type uses, a supplemental crop irrigation module from the model  
4 code selected per Subsection (b) shall be acceptable for calculating variable  
5 demands.

6  
7 (e) Project Features and Operations: Model simulations shall include project  
8 features and operations of the Picayune Strand Restoration Project utilized to  
9 simulate the flows identified in Rule 40E-10.041, F.A.C..

10  
11 (f) Model Calibration: To calibrate the model, the model output shall be  
12 compared to the affected flow probability distribution(s) in Rule 40E-10.041  
13 and surface water, groundwater stage, and flow data from monitoring sites  
14 located within the model domain. The model shall be considered calibrated  
15 when surface water and groundwater stage and flow are calibrated as  
16 required by Subsections (i), (ii) and (iii), below, and the resulting flow  
17 probability distribution curves from the Applicant's model are consistent with  
18 the magnitude and timing of flows in the flow probability distribution curves  
19 identified in Rule 40E-10.041, F.A.C., for the time period including 1988  
20 through 2000. In the event that the simulated model output for a monitoring  
21 site(s) or the flow probability distribution(s) does not meet these criteria, the  
22 Applicant shall provide a justification of the deviation. If such justification  
23 adheres to documented physical conditions in the field and comports with  
24 professionally accepted principles of hydrology, the monitoring sites or flow  
25 probability distribution(s) that do not meet the criteria shall be accepted.

26  
27 i. Groundwater Stage Data: The mean error determined by comparing  
28 the model calculated groundwater stage as described in Subsection  
29 3.11.1.B.2.(b) with the corresponding measured data shall not exceed  
30 1.0 foot for the time period including January 1, 1995 through  
31 December 31, 1999. If the mean error is exceeded at a monitoring  
32 location, the groundwater calibration shall be considered acceptable  
33 when the absolute mean error of all the groundwater monitoring  
34 locations within the model domain do not exceed 1.0 foot and the  
35 deviation between the model simulation value and the measured value  
36 is explained as set forth in Subsection 3.11.1.B.2.(f).

37 ii. Canal Stage Data: The average mean error determined by comparing  
38 the model simulated surface water stages as described in Subsection  
39 3.11.1.B.2.(b) with the corresponding measured data should not  
40 exceed 0.3 foot for the time period including January 1, 1995 through  
41 December 31, 1999.

42 iii. Flow Data: The mean error determined by comparing the model  
43 simulated surface water flow as described in Subsection 3.11.1.B.2.(b)  
44 with the corresponding measured data shall not exceed ten percent for  
45 the time period including January 1, 1995 through December 31, 1999.  
46

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### 3. Impact Evaluation

Once the model is calibrated, Applicants shall demonstrate that water reserved for the Picayune Strand and Fakahatchee Estuary will not be withdrawn, based on the following:

(a) “Without scenario”: All existing legal uses in place at the time of the evaluation of the application shall be represented using the allocation in the permit. For the purposes of this evaluation and Subsection (b.), the annual allocation shall be distributed on a monthly basis based on the use type. For a public water supply use type, the monthly distribution shall be calculated based on the measured monthly pumpage divided by the annual total pumpage using the average of the three most recent representative years. Representative years shall not include years with water shortage restrictions, years with plant failures or other years that are not representative of normal pumpage. For an irrigation use type, the monthly distribution shall be determined using the Blaney-Criddle distribution calculated for each project per “Part B Water Use Management System Design and Evaluation Aids.” The annual allocation and the associated monthly distribution shall be simulated using the calibrated model developed in accordance with the criteria identified in Subsection 3.11.1.B.2 in order to generate a daily flow data for each represented inflow location identified in Subsection 3.11.1. These data shall be presented as daily hydrographs as well as seasonal and period of record flow probability curves.

(b) “With Scenario”: The “with scenario” includes the water use data described in Subsection (a) and the proposed use and pending applications for which the evaluation under this subsection is being conducted.

(c) The results of the “with” and “without” scenarios shall be compared to determine whether the proposed use withdraws reserved water. Withdrawals of reserved water occur when the predicted flow volume probability curves of the “with scenario” differs in flow distribution when compared to the “without scenario.”

In the event these criteria cannot be met, the applicant shall modify the application to otherwise meet the requirements of this Section.

#### **40E-2.301 Conditions for Issuance of Permits.**

(1) (a) through (j) No change.

(k) Will not withdraw water reserved under Chapter 40E-10, F.A.C.

(2) No Change.

*Specific Authority 373.044, 373.113, 373.118 FS. Law Implemented 373.036, 373.042, 373.103(4), ~~373.118, 373.2295, 373.223, 373.229, 373.470, 373.1501, 373.1502~~ FS. History—New 8-14-02, Amended 8-31-03, 4-23-07, 2-13-08, \_\_\_\_\_.*

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- 1  
2 **40E-2.331 Modification of Permits.**  
3 (1) through (3) No Change.  
4 (4)(a) Modification of an existing water use permit shall be approved by letter, provided  
5 the permit is in compliance with all applicable limiting conditions and the modification  
6 request:  
7 1. Does not result in an increase in the amount of the permit allocation;  
8 2. Does not modify the existing permit expiration date, except that when the permit  
9 duration is based upon the current lease expiration date, the permit duration shall be  
10 extended by letter modification to the new lease date, but shall not exceed the applicable  
11 permit duration pursuant to Rule 40E-2.321, F.A.C.;  
12 3. Does not potentially interfere with any presently existing legal use of water, cause  
13 environmental harm, saltwater intrusion, pollution of the water resources, harm to offsite  
14 land uses, does not withdraw water reserved under Chapter 40E-10, F.A.C., or does not  
15 otherwise raise issues requiring a Staff determination of whether such impacts would occur  
16 pursuant to the “Basis of Review for Water Use Permit Applications within the South Florida  
17 Water Management District”, incorporated by reference in Rule 40E-2.091, F.A.C.; and  
18 4. Does not change the permitted withdrawal source(s) or use classification.  
19 5. Does not result in a modification of the permit which must be approved by the  
20 Governing Board pursuant to Section 373.239(2), F.S.  
21 (b) No Change.  
22 *Specific Authority 373.044, 373.113 FS. Law Implemented 373.223, 373.229, 373.239 FS.*  
23 *History—New 9-3-81, Formerly 16K-2.09(1), Amended 4-20-94, 7-11-96, 4-9-97, 12-10-97,*  
24 *8-1-02, 4-23-07, 2-13-08, \_\_\_\_\_.*  
25