

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4  
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ATLANTA, GEORGIA 30303-8960

January 24, 2005

Ms. Mimi Drew, Director  
Division of Water Resource Management  
Florida Department of Environmental Protection  
Twin Towers Office Building  
Mail Station 3500  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Dear Ms. Drew:

The United States Environmental Protection Agency (USEPA) has completed its review, as documented in the enclosed, *USEPA Determination under section 303 of the Clean Water Act*, of certain provisions of Florida Administrative Code (FAC) 62-302.540, entitled "Water Quality Standards for Phosphorus Within the Everglades Protection Area" (Phosphorus Rule or Rule). These provisions were submitted to USEPA by letter dated January 12, 2005, from Gregory M. Munson, General Counsel of Florida Department of Environmental Protection (FDEP), to J. I. Palmer, Jr., Regional Administrator, USEPA Region 4, requesting USEPA's review under the authorities of section 303(c) of the Clean Water Act (CWA or the Act). Attached to the January 12, 2005 letter was a document entitled "Technical and Regulatory Information in Support of the State of Florida's Adopted Phosphorus Criterion Contained in Rule 62-302.540, F.A.C. (FDEP Technical Support Document), which provides additional information regarding the Rule.

Based on the State's submittal, USEPA's review of the Phosphorus Rule as a revision to Florida's Water Quality Standards was limited to Subsections (3), (4), (6) and (7). Specifically, Paragraph (4)(a) of FAC 62-302.540 is an adoption of a numeric water quality criterion of 10 parts per billion (ppb) for phosphorus for Class III waters in the EPA, and as such is a criterion adopted to protect a designated use that is reviewed by USEPA under the requirements of 40 CFR § 131.11. The remaining Paragraphs (4)(b) through (f) address how achievement of criterion shall be determined, adjustment of achievement methods, and data screening. These Paragraphs are general policies that affect the application and implementation of standards that states may, at their discretion, include within their water quality standards and submit for USEPA review under the provisions of 40 CFR § 131.13. USEPA's review of these general policies is based on consistency with section 303(c) of the CWA and meeting the substantive and relevant requirements of its implementing regulations at 40 CFR Part 131 as a whole. The water quality criterion as well as these policies and procedures must, together, assure the designated use of the water body, as a whole, is protected.

Based on USEPA's review of the submitted Phosphorus Rule, and supporting information provided by FDEP, it is USEPA's conclusion that, with the exception of

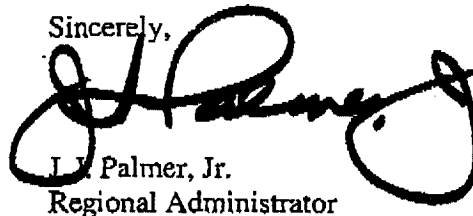
Subparagraph (4)(c)(1), the requirements of the Clean Water Act and provisions of 40 CFR Part 131 have been met. USEPA is approving Paragraph (4)(a) as a change in state water quality standards under section 303(c) and 40 CFR § 131.11. USEPA is also approving Paragraphs (4)(b), the remainder of (4)(c), (4)(d), (4)(e), (4)(f), and Subsections (3), (6) and (7), as general policies. USEPA is not approving Subparagraph (4)(c)(1) because, as discussed in the attached Determination, it limits applicability of the phosphorus criterion to certain portions of the Loxahatchee Wildlife Refuge and thus USEPA is not able to conclude that it is protective of the designated use of the entire Refuge.

The action USEPA is taking on the Rule is consistent with our consultation obligations under the Endangered Species Act. On January 20, 2005, USEPA initiated section 7 consultation under the Endangered Species Act with the U.S. Fish and Wildlife Service (the Service) on EPA's review of FAC 62-302.540. USEPA has determined that the provisions of FAC 62-302.540 that are being approved today are not likely to adversely affect listed species or result in the adverse modification of designated critical habitat of such species, and has requested that the Service concur with that determination. USEPA will notify FDEP of the results of the section 7 consultation upon its completion.

I want to congratulate both FDEP and others in the State for the development of these water quality standards. These standards will provide an important contribution to protection and recovery efforts in the Everglades. Progress toward CWA standards attainment is critical to recover, restore and protect the Everglades. These standards provide important benchmarks to state, tribal, local and federal governments, watershed councils and citizens as communities move forward on watershed recovery efforts.

I would like to extend my deep appreciation to you and your staff for FDEP's exceptional efforts and commitment to work with my staff concerning this matter. If you have any questions concerning this letter please contact me at (404) 562-5700 or Jim Giattina, Water Management Division Director, at (404) 562- 9345

Sincerely,



J. V. Palmer, Jr.  
Regional Administrator

Enclosure

cc: Gregory M. Munson, FDEP

**United States Environmental Protection Agency Determination  
Under Section 303(c) of the Clean Water Act  
Review of FAC 62-302.540  
Water Quality Standards for Phosphorus  
Within the Everglades Protection Area**

On January 12, 2005, the Florida Department of Environmental Protection (FDEP) submitted for U.S. Environmental Protection Agency (USEPA) review certain provisions of Florida Administrative Code (FAC) 62-302.540, entitled "Water Quality Standards for Phosphorus Within the Everglades Protection Area" (the Phosphorus Rule or the Rule). These provisions were submitted to USEPA by letter dated January 12, 2005 from Gregory M. Munson, General Counsel of FDEP, to J. I. Palmer, Jr., Regional Administrator, USEPA Region 4, requesting USEPA's review under the authority of section 303(c) of the Clean Water Act (CWA or the Act). The Rule establishes a numeric water quality criterion for phosphorus of 10 parts per billion (ppb) as a long-term geometric mean, as well as implementing provisions for the numeric criterion within the Everglades Protection Area (EPA). The State's letter included a certification consistent with the requirements of 40 CFR § 131.6(e), "... that the [revisions to the State's] water quality standards were duly adopted pursuant to state law." Attached to the January 12, 2005 letter was a document entitled "Technical and Regulatory Information in Support of the State of Florida's Adopted Phosphorus Criterion Contained in Rule 62-302.540, F.A.C." (FDEP Technical Support Document), which provides additional information regarding the Rule.

Based on the State's submittal, USEPA's review of the Rule as a revision to Florida's water quality standards was limited to Subsections (3), (4), (6) and (7). Subsection (4) of FAC 62-302.540 includes Paragraph (a), which is an adoption of a numeric water quality criterion for Class III waters in the EPA, and as such is submitted as a criterion to protect a designated use for USEPA review under the requirements of 40 CFR § 131.11. The remaining Paragraphs of Subsection 4, (b through f) address how achievement of that criterion shall be determined, adjustment of achievement methods, and data screening. Because these paragraphs are included in the state's water quality standards, these paragraphs are general policies that affect the application and implementation of standards that Florida has submitted for review under 40 CFR § 131.13. USEPA's review of these general policies is based on consistency with section 303(c) of the CWA and meeting the substantive and relevant requirements of its implementing regulations at 40 CFR Part 131 as a whole. Any specific implementation procedure for a particular numeric criterion must be consistent with 40 CFR § 131.11 which requires states to adopt those water quality criteria that protect the designated use.

USEPA has reviewed these state water quality standards for consistency with CWA section 303(c) and its implementing Federal Regulations at 40 CFR Part 131. To be approved as acceptable changes to the water quality standards, the criterion as well as the policies and procedures identified by the Rule, together must assure that the designated use of the water body, as a whole, is protected.

## **I. History**

In 1998, USEPA Region 4 reviewed the entire Everglades Forever Act (EFA) and concluded that it was not a change in Florida water quality standards but merely authorized the State to take future actions, such as the development of a numeric phosphorus criterion by December 31, 2003, that would at that time be a change in water quality standards subject to review.<sup>1</sup>

In accordance with a September 14, 1998 Omnibus Order in Miccosukee Tribe of Indians v. United States Case No. 95-553-CIV-Davis (S.D. Fla.), USEPA later reviewed Paragraph 4(f) of the EFA as a revision to Florida water quality standards. On September 15, 1999, USEPA approved Paragraph 4(f) as a compliance schedule for Florida's narrative criterion for nutrients for certain discharges.

On November 5, 2003, USEPA completed a review of the amendments to the EFA enacted on May 20, 2003 and July 1, 2003, and determined that these amendments did not comprise new or revised water quality standards for the State.

On May 28, 2004, USEPA determined that the "default" water quality criterion of 10 ppb total phosphorus established by Subparagraph 4(e)(2) of the EFA and effective under the state law as of January 1, 2004, when implemented as a long-term value taking into account spatial and temporal variability, complies with the provisions of 40 CFR § 131.11 and the CWA. Based on the authority of section 303(c) of the CWA, USEPA approved the "default" water quality criterion established in EFA Subparagraph 4(e)(2) as a revision to Florida water quality standards. The "default" criterion thereupon became the applicable water quality standard for phosphorus for the Everglades Protection Area (EPA) for CWA purposes.

USEPA began this current review as a result of the state adoption of FAC 62-302.540, entitled, "Water Quality Standards for Phosphorus Within the Everglades Protection Area (EPA)." Under Subparagraph 4(e)(2) of the EFA, the "default" phosphorus criterion is now superseded for purposes of state law by the Phosphorus Rule. To the extent approved by USEPA today, FAC 62-302.540 also becomes the applicable water quality standard for phosphorus for the EPA for CWA purposes.

## **II. Statutory and Regulatory Background**

Under section 303(c) of the CWA, water quality standards consist of three principal elements: (1) designated "uses" of the state's waters, such as public water supply, recreation, propagation of fish, or navigation; (2) "criteria" specifying the levels of various pollutants or pollutant parameters which may be present in those waters without impairing the designated

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<sup>1</sup>For a detailed summary of the EFA and its background, including the litigation that led up to the original 1994 statute and the subsequent litigation concerning the EFA, and a general description of the Everglades, see 1998 Determination, at 1-2 and 7-9, 1999 Determination, at 1-5, and 2003 Determination at 1-3.

uses, expressed in narrative form or numeric concentrations; and (3) an "antidegradation policy" providing for protection of existing water uses and limitations on degradation of high quality waters. USEPA has promulgated regulations at 40 CFR Part 131 which describe the minimum requirements for these three elements. Additional guidance is contained in USEPA's Water Quality Standards Handbook.<sup>2</sup> Further information can also be found in USEPA's Advanced Notice of Proposed Rule Making ("ANPRM") concerning the water quality standards program, 63 Fed. Reg. 36,742, (July 7, 1998).

Under the CWA, USEPA is responsible for reviewing standards adopted by the states to ensure their consistency with the requirements of the Act. On April 27, 2000, USEPA published 40 CFR § 131.21(c)(2), which now requires USEPA approval of new and revised standards adopted by States prior to those new or revised standards being effective for CWA purposes.<sup>3</sup> Under section 303(c), there are two distinct mechanisms by which USEPA oversees state development of water quality standards. First, pursuant to section 303(c)(2)(A), states submit all new or revised standards to USEPA for approval or disapproval.<sup>4</sup> Under section 303(c)(3), USEPA either approves or disapproves these standards within 60 or 90 days, respectively, of their submittal.<sup>5</sup> Second, section 303(c)(4)(B) allows USEPA, even in the absence of any

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<sup>2</sup> Water Quality Standards Handbook, USEPA-823-B-93-002, September 1993.

<sup>3</sup> 40 CFR § 131.21(c)(2) provides in pertinent part:

If a State or authorized Tribe adopts a water quality standard that goes into effect under State or Tribal law on or after May 30, 2000, then once USEPA approves that water quality standard, it becomes the applicable water quality standard for purposes of the Act unless USEPA has promulgated a more stringent water quality standard for the State or Tribe that is in effect, in which case the USEPA promulgated water quality standard is the applicable water quality standard for purposes of the Act until USEPA withdraws the Federal water quality standard.

<sup>4</sup> Section 303(c)(2)(A) of the CWA provides, in pertinent part:

Whenever the State revises or adopts a new standard, such revised or new standard shall be submitted to the Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter . . .

<sup>5</sup> Section 303(c)(3) of the CWA provides, in pertinent part:

If the Administrator, within sixty days after the date of submission of the revised or new standard, determines that such standard meets the requirements of this chapter, such standard shall thereafter be the water quality standard for the applicable waters of that State. If the Administrator determines that any such revised or new standard

submission of new or revised standards by a state, to publish revised water quality standards for the state "in any case where the Administrator determines that a new or revised standard is necessary to meet the requirements of the Act." This latter provision allows USEPA to assess the continued sufficiency of previously approved standards in light of changed circumstances or new data, and also ensures that states continue to meet the goals of the CWA.

### **III. Numeric Water Quality Criterion for Phosphorus for the Everglades**

FAC 62-302.540(4)(a) includes the numeric criterion for phosphorus for the EPA and USEPA has reviewed that numeric criterion for consistency with CWA section 303(c) and its implementing regulations at 40 CFR Part 131. The criterion as well as the policies and procedures discussed below must, together, assure protection of the designated use of the water body as a whole.

#### **Review of FAC 62-302.540(4)(a) - the numeric phosphorus criterion**

The federal water quality standards regulations at 40 CFR § 131.11 (Criteria) require the following with regard to water quality criteria:

States must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

The form of the criteria should be numerical values based on the "304(a) Guidance; or 304(a) Guidance modified to reflect site-specific conditions; or other scientifically defensible methods." (40 CFR § 131.11).

Florida's newly adopted Rule at FAC 62-302.540(4)(a) establishes a numeric criterion for phosphorus for waters of the Everglades Protection Area:

The numeric phosphorus criterion for Class III waters in the EPA shall be a long-term geometric mean of 10 ppb, but shall not be lower than the natural conditions of the EPA, and shall take into account spatial and temporal variability.

Florida's water quality standards define Class III waters as those waters having a designated use of "Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife." (FAC 62-302.400). Therefore, the numeric phosphorus criterion must be protective of these designated uses.

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is not consistent with the applicable requirements of this chapter, he shall not later than the ninetieth day after the date of submission of such standard notify the State and specify the changes to meet such requirements . . .

The Everglades has been the subject of intense scientific study. No other wetland system and few other bodies of water in the world have as much scientific information regarding phosphorus conditions and the ecological impacts of phosphorus enrichment. Over the past 10 years, USEPA has assembled and reviewed several hundred scientific reports relevant to Everglades phosphorus and eutrophication. The ecological conditions, including phosphorus concentrations in water and soil that represent a natural, unimpacted system (i.e., the reference condition), are well documented in the scientific literature. (McCormick et al. 1999, McCormick et al. 2002). FDEP has clearly documented the scientific basis for the proposed 10 ppb phosphorus criterion (FDEP 2000, 2001a, 2001b, 2001c, 2002, 2003). These reports summarize phosphorus-induced impacts on microbial activity, periphyton, aquatic invertebrates, macrophytes and dissolved oxygen. FDEP considered phosphorus threshold research performed by several scientific teams in all parts of the EPA over the last decade at a cost of about \$20 to \$30 million. FDEP considered data from several independent scientific approaches for deriving the numeric nutrient criterion, including: controlled short-term dosing experiments within the Everglades; controlled short-term dosing experiments in mesocosms; field studies across long-term phosphorus gradients within the Everglades; and a reference condition approach as recommended in USEPA CWA 304(a) guidance documents. These approaches together present scientific evidence that long-term phosphorus concentrations at or below 10 ppb would protect the balance of natural populations of aquatic flora and fauna and, therefore, maintain "a healthy, well-balanced population of fish and wildlife" as stated in the definition of the designated use.

Scientific demonstrations have indicated that a long-term phosphorus criterion exceeding 10 ppb would not be protective of the natural populations of aquatic flora or fauna in the Everglades, which is noteworthy given the vast body of science on this issue. Also, although background phosphorus concentrations in portions of the EPA, in fact, have long-term phosphorus concentrations less than 10 ppb, USEPA is unaware of scientific information indicating that adverse impacts to flora or fauna occur as phosphorus concentrations increase from background to 10 ppb.

In addition to the extensive scientific studies cited by the State to support the adoption of the numeric criterion, USEPA's own guidance recommends a surface water quality criterion for total phosphorus of 10 ppb, as a central tendency value such as the long-term geometric mean or median. (See CWA section 304(a) guidance document for wetlands in South Florida in Ecoregion XIII, (USEPA 2000)). Florida's long-term geometric mean phosphorus criterion for the EPA is consistent with the USEPA CWA section 304(a) guidance recommendation.

In two previous CWA section 303(c) decisions, USEPA has approved numeric phosphorus criteria that apply to the Everglades. On May 25, 1999, USEPA approved a 10 ppb numeric phosphorus criterion as a new water quality standard for the Miccosukee Tribe of Indians of Florida, implemented as a long-term average, for a portion of the Miccosukee Tribe's Federal Reservation in the Everglades. These Tribal waters have a designated use similar to Florida's Class III waters. On May 28, 2004, USEPA approved Florida's "default" water quality criterion value of 10 ppb for the EPA, which was established by Subparagraph 4(e)(2) of the EPA, as a revision to Florida water quality standards. In taking the May 28, 2004 approval action, USEPA determined that the default criterion of 10 ppb, when implemented as a long-term

value taking into account spatial and temporal variability, complies with the provisions of 40 CFR § 131.11 and the CWA.

The State's newly adopted Rule includes a "data screening" provision which allows the State to consider excluding certain types of ambient water quality data for use in measuring achievement of the phosphorus criterion. (See FAC 62-302.540(4)(f) - Data Screening). The State's intent to include these constraints is to assure that data used for this purpose have been generated using appropriate collection and analysis techniques, to exclude data collected during "authorized restoration activities" which may result in individual, temporary or localized perturbations of areas in the EPA, and to ensure that data are appropriate for use in comparison to the data that were used to establish the phosphorus criterion. Although this specific provision is not part of the criterion, USEPA reviewed it in support of the criterion. USEPA agrees that the exclusion of these types of data helps provide an appropriate assessment of ambient water quality conditions for the purposes of measuring achievement of the criterion.

#### Conclusion

USEPA has concluded that the 10 ppb phosphorus criterion contained in FAC 62-302.540(4)(a) is based on sound scientific rationale. The synthesis of available scientific information indicates that the 10 ppb criterion, applied as a long-term geometric mean taking into account spatial and temporal variability, meets the requirements of the CWA and 40 CFR Part 131 to protect the designated use of the water body.

#### **IV. Achievement Methods for the EPA**

##### **A. Water Conservation Areas 2 and 3 Methodology**

FAC 62-302.540(4)(d) establishes the methodology to measure achievement of the phosphorus criterion in Water Conservation Areas (WCAs) 2 and 3. In a letter to FDEP dated July 7, 2003, USEPA expressed some concerns with a previous version of the Rule with respect to its method of determining achievement of the criterion in WCA 2 and WCA 3. Specifically, USEPA expressed concern that applying a criterion of 10 ppb to data averaged across a network of stations would likely not be protective of the designated uses of the EPA because it could mask localized phosphorus enrichment impacts. USEPA recommended assessing data from individual stations, and the use of a five-year geometric mean of 10 ppb and an annual geometric mean of 15 ppb, measured at the individual stations.

The 2003 Everglades Consolidated Report includes a summary of the development of a numeric phosphorus criterion for the EPA. (FDEP 2003). An extensive evaluation of biological and chemical data supports the 10 ppb criterion as a long-term geometric mean value. These data also demonstrate that phosphorus concentrations in reference areas exhibit spatial and temporal variability for reasons unrelated to anthropogenic inputs, such as rainfall, water depth, sediment type, and vegetation type. To account for natural variation among individual annual geometric mean values, an "upper annual concentration limit" of 15 ppb was derived from the 95<sup>th</sup>



percentile of long-term annual geometric means. This value complements the long-term value of 10 ppb and is useful for assessing data on an annual basis.

The Phosphorus Rule submitted to USEPA for review as a water quality standard includes a four-part assessment methodology ("four-part test") for WCA 2 and WCA 3 that addresses natural spatial and temporal variability.<sup>6</sup> A four-part test was developed that would allow the natural temporal and spatial variation observed at Everglades marsh reference sites, be sensitive enough to detect long-term increases in phosphorus above 10 ppb, and place an upper limit on phosphorus at individual marsh locations. The first part is a five-year average of annual geometric means of 10 ppb averaged across the network of monitoring stations. This part is supplemented by three additional parts which limit the allowable spatial and temporal variability. The second part specifies that the annual geometric mean, when averaged across stations, is less than or equal to 11 ppb each year. This value was derived as the upper 95 percent confidence limit using a pooled value of spatially averaged annual variances from individual stations within reference areas, and is intended to limit the temporal range of annual concentrations across the network of monitoring stations to the range exhibited by a network of reference sites. The third part specifies that the annual geometric mean, when averaged across stations, is less than or equal to 10 ppb for three of five years, and is intended to limit the allowable temporal variability on a frequency of exceedance basis. The fourth part is the "upper annual concentration limit" of 15 ppb described above, applied to annual geometric mean values at each individual monitoring station. This part provides an upper limit for allowable annual geometric means at individual monitoring stations and most directly addresses USEPA's concerns expressed in the July 7, 2003, correspondence to FDEP.

Florida specifies that each component of the four-part test must be satisfied to achieve the criterion. To help assess its utility and protectiveness, Florida applied the four-part test to existing data within WCA-2 and WCA-3. This analysis, provided in supporting documentation for the Rule, indicates that, as would be expected, all components of the four-part test are consistently satisfied in unimpacted areas where the criterion is achieved. Where the impacted portion of the marsh does not achieve the criterion, the first three parts of the test are consistently failed and the fourth part (i.e. upper annual limit of 15 ppb) is not satisfied most of the time, as would also be expected.

For this review, USEPA evaluated available independent analyses of data from the EPA with respect to the "upper concentration limit" of 15 ppb, the fourth part of the four-part test. (Walker 2004). A detailed analysis of 20 years of data from a reference site within WCA 2A indicated that when annual geometric mean values fell below 15 ppb, the long-term geometric mean was also below 10 ppb. An analysis of historical data from WCA 2, WCA 3, the

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<sup>6</sup> Under FAC 62-302.540(4)(c) of the Rule, "[i]f the Settlement Agreement is no longer in force, achievement of the criterion shall be determined based on the method provided for the remaining EPA [the four-part test]." As discussed below, because of this provision, USEPA also analyzed whether the four-part test, if it is applied to the Arthur R. Loxahatchee National Wildlife Refuge (Refuge) and the Everglades National Park (Park), would be protective of the designated use of both the Refuge and the Park. (See below).

Everglades National Park (Park) and the Arthur R. Loxahatchee National Wildlife Refuge (Refuge) showed that in the vast majority of cases, maintenance of the long-term geometric mean of 10 ppb did not coincide with an annual geometric mean value above 15 ppb. In contrast, it is highly likely that long-term geometric means above 10 ppb will include at least one annual geometric mean above 15 ppb. Quantification of the 15 ppb "failure rate" during a five-year assessment period through mathematical simulation indicates a high probability of failure when the true long-term geometric mean exceeds 10 ppb. For example, at a site where the true long-term mean equals 14 ppb, the simulation suggests there would be an approximate 90 percent chance of at least one failure in five years. Thus, USEPA concludes that this component of the four-part test, together with the other components, comprise a useful and protective methodology for determining achievement of the adopted phosphorus criterion.

FAC 62-302.540(4)(d)(1) specifies that achievement of the criterion in unimpacted areas of each WCA shall be determined based upon data from stations that are evenly distributed. The data and analysis supporting the four-part test are appropriately derived from measures of central tendency and variability exhibited at the reference sites. In application, Florida will ensure an adequate monitoring network to detect the potential effects of a pollution gradient from phosphorus discharges, particularly along the upstream fringes of unimpacted areas. Information submitted by Florida with the Rule states that "permits for existing as well as any new discharges to the EPA will also require monitoring downstream of the inflow points as needed."

### Conclusion

USEPA is satisfied that the provisions of FAC 62-302.540(4)(d) meet the requirements of the CWA and its implementing regulations at 40 CFR Part 131, protecting the designated use of the water body. USEPA's approval of the achievement methodology for WCAs 2 and 3 is based upon documentation provided by the State with the Rule and USEPA's understanding that, as specified in Paragraph (4)(d)(1), the State's implementation of a monitoring station network will have evenly distributed stations with adequate spatial coverage throughout the water body so as to protect the entire water body.

### B. Achievement Methodology for the Everglades National Park (the Park)

FAC 62-302.540(4)(c)(2) establishes the methodology to measure achievement of the phosphorus criterion in the Everglades National Park (the Park). "For the Park, the Department shall review data from inflows into the Park at locations established pursuant to Appendix A of the Settlement Agreement and shall determine that compliance is achieved if the Department concludes that phosphorus concentration limits for inflows into the Park do not result in a violation of the limits established in Appendix A."

The technical derivation of the Appendix A methodology for determining phosphorus compliance at inflows to the Park has been described by South Florida Water Management District (SFWMD 1992) and Walker (Walker 1999, 2000). The methodology will provide phosphorus inflow concentrations equivalent to those that occurred during the base period (1978-1979) while accounting for natural hydrologic variations. This base period represents water

quality at the time the Park was designated an Outstanding Florida Water. Although the annual phosphorus limit at Park inflows to Shark Slough varies depending upon hydrologic conditions, compliance with the limits set out in Appendix A is expected to provide a long-term average flow-weighted mean inflow phosphorus concentration of approximately 8 ppb (U. S. v. SFWMD 2001). For the Taylor Slough and Coastal Basin compliance with the requirements in Appendix A is expected to provide a long-term average flow-weighted mean inflow phosphorus concentration of approximately 6 ppb (U. S. v. SFWMD 2001). This methodology establishes phosphorus concentration limits for inflows into the Park that will result in attainment of the 10 ppb long-term geometric mean phosphorus criterion in the Park. Therefore, the Park methodology is protective of the designated use.

Paragraph (4)(c) of the Rule specifies that the four-part test will apply to the Park if the Settlement Agreement is no longer in force. USEPA evaluated an independent analysis of data from the Park with respect to the four-part test. (Walker 2005). These simulations indicate that when the long-term geometric mean exceeds 10 ppb there is a high probability that the four-part test will detect failure. For example, by the time the long-term mean reaches 12 ppb, there is more than a 90 percent failure rate in the four-part test, as would be expected. Therefore, USEPA has concluded that the four-part test is an appropriate and protective methodology for determining achievement of the adopted phosphorus criterion in the Park and its application would be expected to protect the designated use.

### Conclusion

USEPA is satisfied that the subparts of FAC 62-302.540(4)(c)(2) meet the requirements of the CWA and 40 CFR 131 to protect the designated use of the water body. USEPA has also concluded that, based on an independent analysis of existing data, the four-part test applied to the Park would also meet the requirements of the CWA and 40 CFR Part 131 to protect the designated use of the Park. This conclusion assumes that monitoring stations in the Park are evenly distributed with adequate spatial coverage to protect the designated use of the entire Park.

### C. Achievement Methodology for the Arthur R. Loxahatchee National Wildlife Refuge (the Refuge)

FAC 62-302.540(4)(c)(1) establishes the methodology to measure achievement of the phosphorus criterion in the Arthur R. Loxahatchee National Wildlife Refuge (the Refuge) and restricts that measurement to certain locations. "For the Refuge, the Department shall review data from the interior marsh stations established pursuant to Appendix B of the Settlement Agreement and will determine that the criterion is achieved if the Department concludes that average phosphorus concentration levels at interior marsh stations will not result in a violation of the total phosphorus concentration levels established for the interior marsh stations using the methods set forth in Appendix B."

The use of the specific network of 14 interior marsh stations for the purpose of determining achievement of the phosphorus criterion does not fully represent water quality conditions throughout all areas of the Refuge. In order to determine the achievement of the

phosphorus criterion throughout the entire water body, other monitoring stations are needed in addition to the 14 existing interior marsh stations. Because this Subparagraph limits application of the water quality criterion by restricting measurement to the 14 interior stations, USEPA is not able to conclude that it is protective of the designated use of the entire Refuge.<sup>7</sup>

Paragraph (4)(c) of the Rule specifies that the four-part test will apply to the Refuge if the Settlement Agreement is no longer in force. USEPA evaluated an independent analysis of data from the Refuge with respect to the four-part test. (Walker 2005). These simulations indicate that when the long-term geometric mean exceeds 10 ppb there is a high probability that the four-part test will detect failure, with about a 90 percent failure rate at 13 ppb. In addition, as desired, the four-part test consistently identified failures at impacted sites evaluated (the impacted portion of the marsh would not achieve the criterion, as expected). Therefore, USEPA has concluded that the four-part test is an appropriate and protective methodology for determining achievement of the adopted phosphorus criterion in the Refuge and its application would be expected to protect the designated use.

### Conclusion

Since USEPA is approving Paragraph (4)(a) (see previous discussion in "Water Quality Criterion"), the numeric criterion for phosphorus of a long-term geometric mean of 10 ppb for Class III waters in the EPA (identified in Paragraph (4)(a)), which includes the entire Refuge, is now in effect for CWA purposes for the entire water body. USEPA is *not* approving Subparagraph (4)(c)(1) of FAC 62-302.540 for the reasons stated above based on 40 CFR § 131.11(a) which requires that "states must adopt those water quality criteria that protect the designated use." It is the methodology in Subparagraph (4)(c)(1) that is not in effect for CWA purposes.

As discussed above, Paragraph 4(c) of the Rule notes that if the Settlement Agreement is no longer in force, achievement of the criterion in the Park and the Refuge shall be determined based on the method provided for the remainder of the EFA [the four-part test]. USEPA evaluated an independent analysis of the four-part test using existing available data and

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<sup>7</sup>The methodology for determining compliance with the criterion for the Refuge in Subparagraph (4)(c)(1) also states: "Concentration levels of phosphorus in inflows to the Refuge that are above the average for the interior marsh stations shall not result in a violation of the criterion, provided the levels do not exceed the TBEL (Technology-Based Effluent Limitation) established for the discharge." USEPA reviewed this phrase in conjunction with Subsection 62-302.540(5), "Long-Term Compliance Permit Requirements for Phosphorus Discharges into the EPA" and (6) "Moderating Provisions." To the extent this phrase relates to permitting, it is not a revision to state water quality standards. As discussed below, the substitution of such effluent limitations for the numeric criterion may be appropriate in the case where a moderating provision is being established for a discharge. Moderating provisions must be reviewed and approved by USEPA on a case-by-case basis for each permit application. (See discussion below, "Moderating Provisions").

concluded that the four-part test applied to the Refuge would meet the requirements of the CWA and 40 CFR Part 131 to protect the designated use of the Refuge. (Walker 2005). This conclusion is based on USEPA's understanding that if the four-part test is applied, the Refuge will have a monitoring station network with adequate spatial coverage to protect the entire Refuge.

## V. Moderating Provisions

Paragraph 62-302.540(6) establishes "moderating provisions" for discharges into or within the EPA. The two types of "moderating provisions" identified in the Rule are a "net improvement moderating provision" for discharges into impacted areas, and a "hydropattern restoration moderating provision" for discharges into unimpacted areas. The Rule authorizes the "net improvement moderating provision" to be available to applicable discharges through December 31, 2016. The Rule establishes no time limit for application of the "hydropattern restoration moderating provision." FDEP has clarified in its January 12, 2005 Rule cover letter that "[t]he Department is submitting [to USEPA] Paragraphs (6)(a) and (6)(b) as policies affecting application and implementation of this rule for your [USEPA's] review and approval of the conceptual approach [for application of the moderating provisions] under 40 C.F.R. 131.13. Any issuance of a moderating provision under Paragraphs (6)(a) and (6)(b) will be in association with permits on a case-by-case basis. Upon review and approval of a request [by a permittee] under these subsections of the rule by the Department, the moderating provision will be submitted to U.S.EPA for review and approval."

Temporary water quality standards revisions, when associated with a permitting action, are considered by USEPA to be "variances" to the otherwise applicable water quality standard. (63 Fed. Reg. 36742, 36759 (July 7, 1998)). Procedures for "variances" may be approved as part of state water quality standards as long as the provisions of each variance are consistent with the substantive and relevant requirements of 40 CFR § 131.10 with respect to removal or establishing a subcategory of a designated use.<sup>8</sup>

### A. Background Information on Variances as Revisions to Water Quality Standards

A water quality standard variance is a short-term exemption from meeting the otherwise applicable water quality standards. USEPA authorizes States and Tribes to include variances in their water quality standards. (See 40 CFR § 131.13).

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<sup>8</sup> CWA regulations allow uses to be removed *permanently* (with a proper demonstration as required under 40 CFR § 131.10). From this, USEPA has made an interpretation that a use could be removed *temporarily*, under circumstances where the § 131.10 requirements are met. (See Memorandum from USEPA's Office of Water, Variances in Water Quality Standards, March 15, 1985; Decision of the General Counsel No. 58, In Re Bethlehem Steel Corporation, March 29, 1977, (General Counsel Decision No. 58), and ANPRM, 63 Fed. Reg. at 36,759. Since the applicable water quality criterion protects the designated use of a waterbody, a less-protective criterion (i.e., a variance from the otherwise applicable criterion) would not protect the designated use, and is considered to be a temporary removal of designated use.

Historically, the intent of a variance policy in standards has been to: (1) provide a mechanism by which permits can be written to meet a different standard, or "variance" from the otherwise applicable standard, for a limited time frame where a discharger has demonstrated that compliance with the applicable water quality standard is not feasible at the present time within the meaning of 40 CFR § 131.10(g); (2) encourage maintenance of original standards as goals rather than removing uses that may be ultimately attainable; (3) ensure the highest level of water quality achievable during the term of the variance; and (4) provide for iterative review of new information to determine if the otherwise applicable water quality standard has become attainable.

As part of the overall water quality standards program, states may adopt general variance procedures as well as subsequent individual variance applications. General variance procedures identify the situations in which a specific, individual variance application, once approved, will be utilized; the intended scope of the individual variance (i.e., pollutant, applicability to a discharger or a water body, timeframe, etc.); specific threshold requirements to qualify for a variance; and actions to be conducted during its period of applicability. Individual variance applications are considered by USEPA to be specific changes to water quality standards that apply to specific waters and/or dischargers, which must be supported by sufficient information to demonstrate adherence to the terms of the general variance provision and must meet the substantive and relevant requirements of Federal regulations, including public participation requirements, and review and approval/disapproval by USEPA under CWA section 303(c). (See 63 Fed. Reg. 36759 (July 7, 1998) and 40 CFR § 131.20(a)). States adopt general variance procedures in advance of individual variance applications to create a clear pathway and terms for individual variance applications, which help to establish stakeholder expectations in the context of the overall water quality standards. (See also 48 Fed. Reg. 51400, 51403 dated Nov. 8, 1983; Water Quality Standards Handbook at pages 5 through 12; Memorandum from USEPA's Office of Water, Variations in Water Quality Standards, March 15, 1985; and General Counsel Decision No. 58).

#### B. FAC 62-302.540(6) - Moderating Provisions

The Phosphorus Rule at FAC 62-302.540(6) establishes moderating provisions that may be available for permits authorizing discharges into the EPA. This Subsection describes two types of moderating provisions: (a) net improvement in impacted areas; and (b) hydropattern restoration. These provisions apply to permitted discharges of phosphorus. The supporting documentation provided by FDEP with the Rule explains that the specific demonstrations to support application of the moderating provision will be provided by each individual applicant during the permit issuance/re-issuance process. After FDEP determines that the application of a moderating provision is appropriate for a particular permit and the proper demonstration has been made, the application of the moderating provision will be submitted to USEPA for review. USEPA anticipates that public participation on the specific application of the moderating provision will occur during the initial stages of FDEP's public participation of its surface water discharge permitting programs.

USEPA must approve the application of the moderating provision before a change in the water quality standard is in effect for CWA purposes. USEPA's review of permit-specific variances will be based on consistency with the substantive and relevant requirements of 40 CFR Part 131 as a whole, including whether one or more of the factors listed in 40 CFR § 131.10(g) have been met. For example, the State could demonstrate that attaining the numeric criterion that protects the use is not feasible at this time because human caused conditions or sources of pollutants cannot be remedied (given the specific constraints of the particular circumstances involved) or would cause more environmental damage to correct than to leave in place (i.e., available alternatives would cause more environmental damage than would result from discharge at Best Available Phosphorus Reduction Technology (BAPRT)).

The variance procedures in the Rule essentially allow FDEP to substitute the implementation of BAPRT, expressed as a Technology Based Effluent Limit (TBEL), in lieu of the otherwise applicable numeric phosphorus criterion. The individual applicant's authorization to discharge above the criterion will be specific to the circumstances of that discharge, and the TBEL for the specific discharge will be the numeric phosphorus criterion as soon as technically feasible. Also, each application of the variance procedure for an individual discharge is subject to the review requirements of 40 CFR 131.20(a), in that each variance "shall be re-examined every three years to determine if any new information has become available. If such new information indicates that the uses specified in Section 101(a)(2) of the Act are attainable, the State shall revise its standards accordingly."

The Rule defines BAPRT (by reference to EFA Paragraph 373.4592(2)(a), F.S.) as "a combination of BMPs [Best Management Practices] and STAs [Stormwater Treatment Areas] which includes a continuing research and monitoring program to reduce outflow concentrations of phosphorus so as to achieve the phosphorus criterion in the Everglades Protection Area." The EFA defines a BMP for agricultural areas, (i.e., areas within the Everglades Agricultural Area and the C-139 Basin), as "a practice or combination of practices determined by the district, in cooperation with the department, based on research, field-testing, and expert review, to be the most effective and practicable, including economic and technological considerations, on-farm means of improving water quality in agricultural discharges to a level that balances water quality improvements and agricultural productivity." This definition is consistent with the term "cost-effective and reasonable best management practices" as appears in the relevant Federal regulations at 40 CFR § 131.10 because these are the types of factors USEPA intends for states to consider. When the moderating provision is applied, the State will also need to demonstrate that appropriate BMPs are being implemented for nonpoint sources in urban basins.

As general variance provisions, the moderating provisions clearly identify the situations in which they may be applied; "net improvement in impacted areas," and "hydropattern restoration in unimpacted areas," which are defined in terms of the overall purpose they serve for achieving long-term water quality improvement. The terms "impacted" and "unimpacted" are clearly defined in other parts of the Rule. In terms of scope, the applicability is limited to the specific discharger, to the pollutant phosphorus, and, for the net improvement moderating provision, for a timeframe not to exceed 2016. Threshold requirements to qualify for a variance, and interim actions pursuant to conditions of a variance, focus on implementing BAPRT. The

Rule states that BAPRT "shall use an adaptive management approach based on the best available information and data to develop and implement incremental phosphorus reduction measures with the goal of achieving the phosphorus criterion" and "shall also include projects and strategies to accelerate restoration of natural conditions with regard to populations of native flora and fauna." The Rule establishes a specific Long-Term Plan, which can be modified, as the planning tool to implement BAPRT. The Rule provides FDEP the authority to review and approve or disapprove any changes to the Long-Term Plan including incremental phosphorus reduction measures. These provisions of the Rule are sufficient for reviewing and implementing advances in technology that will ultimately achieve the criterion.

FDEP is authorized to allow application of the "net improvement moderating provision" until the end of 2016. However, the duration of *individual variance applications* may not extend to 2016 in all cases. The variances will be developed and evaluated basin-by-basin, and the duration period will depend on the timing of specific actions and the expected results. For some basins, significant progress could be achieved sooner than 2016. This flexibility is inherent in the management approach selected by FDEP.

In the July 7, 2003 letter to FDEP, USEPA expressed concern about the definition of "impacted area" and its relationship to use of the net improvement moderating provision. USEPA stated, "Since the moderating provision is intended to allow discharges of phosphorus above the protective criterion of 10 ppb, additional adverse impacts to the receiving waters of the EPA could occur. Therefore, a scientifically defensible definition of 'impacted' is critical." The letter further expressed concern that a definition based only on soil concentration greater than 500 mg/kg might include unimpacted areas as impacted. The Rule directly addresses this concern in Subparagraph 4(d)(2)(c) which states "Notwithstanding the definition of Impacted Area in Subsection (3), individual stations in the network shall be deemed to be unimpacted for purposes of this rule if the five-year [water column] geometric mean is less than or equal to 10 ppb and the annual geometric mean is less than or equal to 15 ppb."<sup>9</sup> As reported in the 2003 Everglades Consolidated Report, this definition applies a protection level that closely matches expected biological conditions characteristic of unimpacted areas. The addition of this provision augments the distinction between impacted and unimpacted areas, and clearly provides a scientifically defensible definition. The effect is to ensure that the added test of "environmental benefits outweighing potential adverse impacts" of the hydropattern restoration moderating provision would appropriately apply to all unimpacted areas. This alleviates USEPA's concern expressed in the July 7, 2003, letter to FDEP.

USEPA believes the moderating provisions can be exercised in a manner that protects the existing use of the water body. The specific facts of a particular variance are best addressed at the time the variance is issued. The goal of the EFA is to restore and protect the remaining Everglades. The intent of the long-term activities specified in the EFA, such as construction and

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<sup>9</sup>Although this language is found in Subparagraph 4(d)(2)(c) which applies to WCA 2 and 3, the supporting documentation provided by FDEP explained that the intent of the language, "for the purpose of this rule" was to apply this test to all water bodies in the EPA, which would include the Park and the Refuge. See FDEP Technical Support Document, P. 1.



optimization of STAs and adoption of a numeric phosphorus criterion, collectively, provide for maintenance and restoration of the remnant Everglades as a whole to the greatest extent possible. USEPA recognizes that some portion of areas currently considered unimpacted may become impacted in the process of achieving net improvement or hydropattern restoration. However, USEPA expects that modeling results and other evidence could demonstrate that steady progress continues towards the long-term goal of restoring and protecting the Everglades as a whole as direct result of the State's adoption of these water quality standards and the management approaches that support their implementation. Therefore, USEPA does not consider adoption of the moderating provisions, as a general variance procedure, to constitute a removal of an existing use (uses actually attained on or after November 28, 1975) within the substantive meaning of its regulatory definition.

### Conclusion

USEPA is satisfied that the moderating provisions at FAC 62-302.540(6) are consistent with the requirements in 40 CFR § 131.10 and USEPA is approving this provision as a revision to state water quality standards. The process authorized in the Rule, including application of BAPRT and the Long-Term Plan as a planning tool for implementing BAPRT, should ensure the highest level of water quality achievable during the term of the subsequent individual variance applications.

Today's decision applies only to the *general variance procedure* set out in FAC 62-302.540(6). USEPA will review and approve or disapprove each application of a *permit-specific variance* on a case-by-case basis as applied to each individual permittee. USEPA's review of permit specific variances will be based on consistency with the substantive and relevant requirements of 40 CFR Part 131 as a whole, including whether one or more of the factors listed in 40 CFR § 131.10(g) have been met.

### VI. Definitions and Document Incorporated By Reference

FAC 62-302.540(3) "Definitions," and FAC 62-302.540(7) "Document Incorporated By Reference" were also submitted by FDEP as revisions to Florida water quality standards. These provisions are not themselves new or revised water quality standards. Instead, they serve to provide the rationale for, or the details of, implementation of other provisions in FAC 62-302.540. Based on a review of how these provisions function in association with the other standards provisions of FAC 62-302.540, USEPA is satisfied that FAC 62-302.540(3) and FAC 62-302.540(7) meet the requirements of the CWA and 40 CFR Part 131.

### VII. Protection of Downstream Waters

Federal regulations state, "In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters." 40 C.F.R. §131.10(b). The regulations do not compel states to adopt the same criteria and uses as downstream waters, nor

do they suggest that this is the only way a state can meet these requirements. States are obligated to ensure that actions that result from the adoption of upstream standards result in attainment and maintenance of downstream standards. The water quality program is structured to provide states with flexibility to determine the best way to meet their obligations under 40 CFR § 131.10(b).

One means of meeting these obligations is through National Pollutant Discharge Elimination System (NPDES) permit implementation. Under the NPDES permitting regulations, no permit may be issued "when the imposition of conditions cannot ensure compliance with applicable water quality requirements of all affected States[.]" 40 C.F.R. §122.4(d). To obtain approval of a state NPDES program, the CWA requires that the state to have the authority to notify other affected states of applications for permits and provide an opportunity for a hearing. CWA section 402(b)(3). Further, the state must allow any state whose waters may be affected by the discharge to submit recommendations. If the permitting state rejects the recommendations, it must notify the affected state and USEPA Administrator. CWA section 402(b)(5). Where USEPA determines the permitting state rejected the recommendations for inadequate reasons, USEPA may exercise its discretionary authority to object to the permit. If the objection is not resolved, USEPA may issue a federal permit. 40 C.F.R. §123.44 (c)(2) and (h).

In the case of Florida's revised water quality standards, the numeric phosphorus criterion itself is the same as that in place for the waters of a downstream Tribe, the Miccosukee Tribe of Indians of Florida (the Tribe). Also, each criterion is implemented as a long-term average, although the methods for determining achievement of the criterion are slightly different. Florida plans to monitor water north of the Tribal lands. See FDEP Technical Support Document, P. 9. Also, the Tribe has monitoring stations located to capture flows onto their Federal Reservation. To the extent that water moves from Florida into Tribal lands, the water quality entering the Tribal lands should achieve Tribal water quality standards. In addition to the NPDES process described above, USEPA expects that Florida will address attainment and maintenance of downstream standards in any submitted application of the moderating provisions through such means as hydrologic modeling demonstrations and analysis of water transfer and transport plans.

### **VIII. Summary of Conclusions**

Based on USEPA's review of the Rule, FAC 62-302.540, FDEP's Technical Support Document and other supporting documentation submitted with the Rule, USEPA concludes that the revisions to Florida's water quality standards submitted by the State, (with the exception of Subparagraph (4)(c)(1)) meet the requirements of the CWA and 40 CFR Part 131. Therefore, FAC 62-302.540 (with the exception of Subparagraph (4)(c)(1)) is approved for all purposes of the CWA. Since USEPA is not approving Subparagraph (4)(c)(1), this provision is not in effect for CWA purposes.

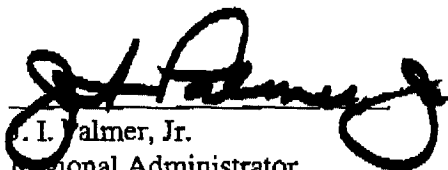
USEPA's decision to approve Paragraph 4(a) and not approve Subparagraph (4)(c)(1), means the numeric water quality criterion for phosphorus of a long-term geometric mean of 10 ppb for Class III waters in the EPA, which includes the entire Refuge, will be in effect for CWA purposes. By approving Subparagraph 4(c)(2) and Paragraph 4(d), USEPA's determination leaves in place for CWA purposes the provisions for achievement of the criterion in the

Everglades National Park, Water Conservation Area 2, and Water Conservation Area 3. USEPA also reviewed Paragraph 4(c) which alternatively applies the four-part test to the Park and the Refuge if the Settlement Agreement is not in force, and concluded that given an adequate number and proper location of monitoring stations in each water body, the test would be protective of the designated use of those water bodies.

The CWA and other provisions of this Rule will assure that the criterion is appropriately implemented through the application of such measures as the moderating provisions in Subparagraph (6), NPDES permits, and the CWA section 303(d) listing and Total Maximum Daily Load (TMDL) development process as required at 40 CFR § 130.7.

1-24-05

Date

  
J. I. Palmer, Jr.  
Regional Administrator