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United States District Court,
S.D. Florida.

UNITED STATES OF AMERICA, Plaintiff,
v.
SOUTH FLORIDA WATER MANAGEMENT DISTRICT et al., Defendants.

No. 88–1886–CIV. | Jan. 4, 2011.

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REPORT OF THE SPECIAL MASTER (JANUARY 4, 2011)

MORENO, J.

***1** By its "Order Granting Motion to Adopt the Special Master's Report, Motion Seeking Declaration of Violations, and Motion for Declaration of Breach of Commitments" dated March 31, 2010 ("March 31 Order"), the Court referred a number of issues to the Special Master:

(a) compliance with the Consent Decree's Load Reduction Requirements;

(b) whether the phosphorus exceedances in the Everglades Protection Area (EPA) constitute a violation of Appendix A of the Consent Decree;

(c) whether the State Parties [1] are violating the Consent Decree by not employing PSTA technology as a viable tool to prevent future violations;

(d) whether discharges into the Western Basin constitute a violation of the Consent Decree; and

(e) whether the Consent Decree requires that phosphorus discharges be limited "to 10 ppb Everglades-wide," "as opposed to the 17 ppb goal."March 31 Order, p. 17.

With respect to issue (c) relating to the utilization of PSTA technology, there is a PSTA test cell in STA–1E that has been in operation for a number of years. There was an indication by the Army Corps of Engineers (ACOE or Corps) that it

was going to terminate this field test, prompting the Tribe to include in its motion a request to require the Corps to continue the project. The Corps elected to do so for the short term and promised to give the Tribe notice if it intended to terminate the PSTA field test. As a result, the parties deferred this issue. [2] By letter dated November 19, 2010, the Corps announced it was terminating the PSTA field test. The Tribe then advised the Special Master that it was renewing its motion with respect to issue (c). This issue will be heard at a hearing on January 19, 2011.

The Court also referred for a remedial hearing by the Special Master the admitted Consent Decree violation of the long term level in the Refuge. [3] This issue will also be heard in the hearing that will begin the week of February 14, 2011. [4]

On July 15, 2010, the United States filed its "Motion of Plaintiff United States of America for Resolution of Liability Issues."The Special Master advised the Court in his August 30, 2010 Report and Recommendation and in the Court's hearing on October 21, 2010 that the issues raised by the United States were either the same issues, or issues that overlap or were responsive to those already referred to the Special Master by the Court in the March 31 Order, and that he would consider them as part of the same referral. [5]

My Report and Recommendation on these issues is organized as follows.

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Hearing Procedure

***2** The evidentiary hearing was held October 25–29 in the courtroom of Florida International University Law School. [6] I heard testimony from the following expert witnesses in the following order.

Before the hearing, each expert submitted a declaration containing his or her expert testimony and was permitted to submit a rebuttal report. At the hearing, each witness was sworn, introduced, and then tendered for cross examination.

The hearing participants premarked and exchanged their exhibits and then identified exhibits to which they had objections. Counsel conferred and resolved most of the objections. I addressed the remaining objections during the hearing.

***3** The parties submitted a pre-hearing stipulation on October 1, prehearing memoranda on October 6 and October 19, and posthearing memoranda on November 24, 2010. I heard oral argument from counsel for the parties on December 3, 2010.

Stipulated Facts

The parties stipulated to the following facts.

1. The Everglades Protection Area is defined by the Settlement Agreement as Water Conservation Areas [(WCA)] 1, 2A, 2B, 3A, 3B, Loxahatchee, and Everglades National Park. Consent Decree, Para. 1E.

2. For [Water Year (WY)] 2008 and WY 2009 all discharges from the STAs into the Refuge were above 10 ppb. 2010 SFER at 5–9; 2009 SFER at 5–9.

3. The long-term limit [for inflows to Shark River Slough] for the time period from 10/1/2007 to 9/30/2008 was 10.2 ppb.

4. If the "flagged data" is used for the time period 10/01/2007 to 9/30/2008, the annual flow weighted mean for inflows to Shark River Slough was 10.2 ppb.

5. If the "flagged" data is excluded, the annual flow weighted mean for inflows to Shark River Slough is 10.6 ppb.

6. The L3, S 140, and L281 discharge from what the Tribe describes as the "western basins."

7. The S190 water control structure discharges into the L28 Interceptor canal.

8. The phosphorus levels in discharges from the western basins exceed 10 ppb.

Background

To understand the issues discussed in this Report, I must explain the relationship of the Settlement Agreement [7] to Florida's narrative and numeric phosphorus water quality standards generally and as they relate to litigation pending before Judge Gold.

Sugar farmers in the Everglades Agricultural Area (EAA) use phosphorus in fertilizer to support the growth of sugar cane. When stormwater leaves the farms, it carries phosphorus with it. Stormwater entering the Water Conservation Areas that form part of the Everglades travels through structures that are managed by the District and the ACOE to prevent flooding in South Florida at certain times of the year or to supply water to certain areas at other times of the year.

Phosphorus, a nutrient, is bad for the Everglades, which is a nutrient-poor environment. When phosphorus enters the Everglades it causes an imbalance in the natural flora: native sawgrass is replaced by cattail or other flora that thrive in a nutrientrich environment. Settlement Agreement, p. 7–8.

One might ask, "if there is a pollutant in a discharge to a water body like the Everglades, doesn't the Clean Water Act address

it?"The answer is, "not always." Following Congressional amendments in 1977, agricultural stormwater became exempt from regulation under the Clean Water Act.[8] Hence, unless the State of Florida decided to regulate phosphorus in stormwater leaving the sugar farms, the population of flora and fauna in the Everglades remained at risk from stormwater laden with phosphorus.

This condition prompted the 1988 filing of the lawsuit that began this matter. Among its claims, the United States alleged that the FDEP and the District were violating state law by failing to regulate "polluted waters from the Everglades Agricultural Area ... that contain harmful nutrients"; failing "to prevent violation of state quality standards for waters entering" the Refuge and the Park; and allowing the ambient water quality of the Park and the Refuge "to be lowered beyond the quality that existed when they were designated Outstanding Florida Waters in March of 1979."Second Amended Complaint (February 8, 1990), p. 10–12. The United States also alleged that the State was operating water control structures without State permits alleged to be required for such structures. *Id.*, p. 13–14.

***4** This complaint prompted counterclaims by the District. The District alleged that if the District was in violation of Florida's water quality standards by moving polluted water, then so was the Army Corps of Engineers because it, too, was operating water control structures without a State permit and moving "water polluted by third parties" into the Park. District's Answer and Counterclaim, p. 25–31.[9] It also prompted the FDEP to plead the affirmative defense of "unclean hands" based on (1) the ACOE's control over operation of water control structures that were being used to transmit the same water alleged by the United States to be polluted; (2) the promotion by the United States of "the agricultural activities in the EAA which the United States now claims is the major source of nutrients creating the alleged nuisance" by providing price supports for sugar cane, milk and dairy products, and rice crops; and (3) the exemption from regulation under the Clean Water Act of drainage water from farming or ranching activities. The FDEP also demanded that the ACOE obtain state permits for the operation of certain water control structures owned and operated by the ACOE. FDEP's Answer and Counterclaim, p. 8–9; 19–22.[10]

After three years of litigation, the United States, FDEP, and the District decided to settle their differences by entering the July 26, 1991 Settlement Agreement. In the Settlement Agreement, they agreed that the ecology of Everglades National Park and the Loxahatchee Refuge was threatened by the inflow of drainage water containing excess nutrients from the EAA.[11] Settlement Agreement, Para. 3A, p. 7. The "high levels of phosphorus in EAA discharges constitute the most immediate water quality concern facing the Everglades system," the parties stated. *Id.* The parties then added:

> Excess phosphorus accumulates in the peat underlying the water, alters the activity of microorganisms in the water, and disturbs the natural species composition of the algal mat (periphyton) and other plant communities in the marsh. These disturbed communities deplete the marsh of oxygen, and, ultimately, result in native sawgrass and wet prairie communities being replaced by dense cattail stands or other nutrient-tolerant ecosystems. The ability of the ecosystem to serve as habitat and forage for the native wildlife is thereby greatly diminished or destroyed. These changes constitute imbalances in the natural populations of aquatic flora and fauna or indicators of such imbalances.
>
> Settlement Agreement, p. 7.

"In recognition of the serious and potentially devastating degradation threatening the Park and the Refuge as a result of nutrient-laden waters, and to further a process that resolves ongoing litigation," the Settlement Agreement continued, "the Parties commit themselves to guarantee water quality and water quantity needed to preserve and restore the unique flora and fauna of the Park and the Refuge."Settlement Agreement, p. 9.

***5** Again with an emphasis on preserving natural flora and fauna, the parties also agreed "that nutrient-polluted water threatens to devastate the ecosystems in the Park and Refuge," and that "the actions set forth in this Agreement are necessary to halt or prevent imbalances in natural populations of aquatic flora and fauna and other water quality violations in the Park and Refuge."Settlement Agreement, p. 8.

This focus on the phrase, "imbalance in flora and fauna," stems from the establishment of water quality standards by the State of Florida. Under the Clean Water Act, Florida had to categorize its surface waters and establish water quality standards for each water body[12] to preserve the water body for its designated uses and protect the water body from degradation.

The Loxahatchee Wildlife Refuge (the "Refuge") and Everglades National Park (the "Park") are both "Class III" waters meaning that they have these designated uses:

"Recreation, Propagation and Maintenance of a Healthy Well–Balanced Population of Fish and Wildlife." [13] Rule 62–302.400(1), F.A.C.

Both the Refuge and the Park are also "Outstanding Florida Waters." Rule 62–302–700(9)(a)3 and (b)17, F.A.C. Under Section 62–302.700(1) F.A.C., it "shall be" FDEP's policy "to afford the highest protection to Outstanding Florida Waters and Outstanding National Resource Waters. No degradation of water quality, other than that allowed in Rule 62–4.242(2) and (3), F.A.C., [14] is to be permitted in Outstanding Florida Waters and Outstanding National Resource Waters, respectively, notwithstanding any other Department rules that allow water quality lowering."

At the time that the Settlement Agreement was executed, the water quality standard for nutrients to protect the quality of Class III waters was a narrative standard that focused on balancing natural flora and fauna in the protected water body:

> In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna.

Settlement Agreement, p. 3. [15]

However, the drafters of the Settlement Agreement recognized that to determine if there was too much phosphorus in the water, it would be too late for Everglades protection to wait for cattail to appear. Hence they realized the need to determine the concentration of phosphorus that would begin the alteration process that results in an imbalance of flora and fauna so that water quality, not the appearance of cattail, would trigger a regulatory response. Hence, the drafters planned for the adoption of a numeric phosphorus criterion to substitute for the narrative standard.

To "numerically interpret the narrative Class III nutrient water quality criteria," the Settlement Agreement contemplated a "Research and Monitoring Program." Settlement Agreement, Para. 11A .1, p. 15. The results of this research program would be used to determine "the nutrient levels which cause an imbalance of flora and fauna in the units of the EPA."Settlement Agreement, p. 3–4, 15; Appendix B, p. B–3; Appendix D, p. D–1.

***6** Judge Hoeveler converted the Settlement Agreement into a Consent Decree by his Order dated February 24, 1992. *United States v. South Florida Water Management District*, 847 F.Supp. 1567 (S.D.Fla.1987)*aff'd in part, rev'd in part*,28 F.3d 1563 (1994)*cert. denied*514 U.S. 1107 (1995). In doing so, he recognized the role that regulations might have to play in implementation of the Consent Decree and addressed the concerns of intervenors, who might be adversely affected by regulatory agency action, by adding these terms to the Consent Decree:

1. The Agreement does not predetermine the outcome of any state proceedings required under Chapter 120, Florida Statutes. Accordingly, any provision of the Agreement that under Florida law must be implemented by the state agencies through administrative proceedings governed by Chapter 120, Florida Statutes, shall have no binding effect upon the agencies within such administrative proceedings and with regard to the agencies' consideration of the hearing officer's recommended order. In any such proceedings, points of entry will be provided as required by law.

2. Nothing in the Agreement is intended or operates to abrogate the District's and [DEP's] duties to act in accordance with Florida law. Indeed, the Agreement requires the District and [DEP] to fulfill their obligations under existing state law, including the duty to weigh competing evidence on issues of fact or policy, particularly in light of an impartial administrative hearing officer's decision that the evidence warrants a conclusion at odds with the Agreement. Specifically, the Agreement does not require the agencies to favor the terms of the Agreement over a hearing officer's contrary findings of fact supported by competent, substantial evidence.

847 F.Supp. at 1572.

To reduce phosphorus concentrations so as to prevent a future imbalance of flora and fauna, the Settlement Agreement's remedial focus was on the construction of Stormwater Treatment Areas (STAs) to remove phosphorus from stormwater before discharge into the EPA, and implementation of Best Management Practices (BMPs) by sugar farm owners to reduce the amount of phosphorus in stormwater leaving sugar farms. See, e.g., Settlement Agreement, p. 13–15. 17–20.

All of the STAs were going to be built by the District except for STA–1E which was to be built by the ACOE. Settlement Agreement, p. 25. Each STA had an associated

completion date in the Settlement Agreement. *Id.*, p. 22.Based on estimates of phosphorus loading, the amount of acreage needed for STAs was also determined. *Id.*, p. 15.The Settlement Agreement also established interim limits for water quality in the Refuge (to be attained by February 1, 1999) and the Park (to be attained by October 1, 2003) to be followed by "long term" limits which went into effect for both the Park and Refuge after December 31, 2006. *Id.*, p. 4, A–2 (Shark River Slough and Taylor Slough and Coastal Basins); p. B–1 (Refuge).

***7** Within a few years after the Consent Decree was made final, the United States and the State Parties sought to modify the decree (1) to conform it to the Everglades Forever Act (EFA) which had been adopted by the Florida Legislature, [16] (2) to extend the deadlines for completion of construction of the STAs and (3) to extend the date by which long term limits would replace the interim limits. On April 27, 2001, Judge Hoeveler issued his Omnibus Order [DE 1623], which modified a number of terms of the Consent Decree including the extension to December 31, 2006 of the application of the long-term limits, as noted above. [17] In the Omnibus Order, Judge Hoeveler again acknowledged due process concerns raised by intervening parties, explaining:

> In its Order entering the original Settlement Agreement as a Consent Decree, the Court went to great lengths to address the due process concerns of the intervening parties and assure them "that the agreement is not self-executing, but rather is subject to Florida's Administrative Procedure Act ("APA"), Fla. Stat. § 120.50 (1991) et seq." Therefore, while the original Settlement Agreement may have been more specific than the state laws as they existed at the time, the parties were assured that any provision of the Agreement that must be implemented through state administrative proceedings would be done so, as required by state law, ... the intervenors would be able to challenge any provisions that directly affected their rights.
>
> Omnibus Order, p. 4 (citation omitted).

In the Omnibus Order, Judge Hoeveler also described the rare nature of the Consent Decree. Citing its Order entering the Consent Decree, the Court explained that the Decree "imposed 'a process rather than a result, in effect recognizing an administrative framework while preserving this Court's ultimate jurisdiction." ' The Decree bound "the defendant agencies to 'propose' the measures outlined in the Settlement Agreement," the Court explained, but "the state agencies' authority to act was circumscribed by their obligation to observe state law and to defer to the State's administrative process." Omnibus Order, p. 11–12 (citations omitted). The Court continued:

> In short, the original Consent Decree relied upon the provisions and requirements of state administrative law to preserve challenges to the shape and scope of its proposed remedies, and in that sense, "the [original] Agreement [did] not dictate how the dispute must be resolved."This, however, is not to say that the terms of the original settlement agreement were without any weight or binding force. The United States, and by implication other parties entitled to enforce the Consent Decree including the Tribe, retained the right to invoke this Court's jurisdiction, "if the settling parties are unable to agree to a modification of the Agreement after resort to dispute resolution."

Omnibus Order, p. 12 (citations omitted).

In 2004 and by amendment in 2005, the State of Florida adopted the numeric criterion of a long-term geometric mean (GM) of 10 ppb for phosphorus in surface water in the Everglades Protection Area. § 62–302.540(4)(a), F.A.C. The phosphorus criterion applies throughout the EPA, but achievement of the phosphorus criterion is measured separately for "impacted" and "unimpacted" areas of the EPA. [18] Sampling in "unimpacted" areas occurs at sampling stations that are intended to provide a fair depiction of water quality for the water body. [19] Impacted areas similarly have sampling networks from which compliance is measured.

***8** Under the "Phosphorus Rule," compliance is not measured by the concentration in water coming "out of the pipe" but rather by water quality within the EPA based on sample results from networks of sampling locations. Because water quality can vary over a given area and over periods of time, compliance with Florida's numeric phosphorus criterion is evaluated by accounting for both "spatial" and "temporal" variability in phosphorus concentrations. Specifically, Section 62–302.540(4)(a) provides:

> 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. Achievement of

> the criterion shall be determined by the methods in this subsection. [20]

The "methods" referred to in the rule are contained in what is called the "four-part test." The four-part test requires regular sampling at the monitoring network sampling stations and the calculation of the geometric mean [21] of the sampling data. The results are then evaluated under four separate criteria:

> 1. The "five year geometric mean averaged across all stations is less than or equal to 10 ppb";
>
> 2. "The annual geometric mean averaged across all stations is less than or equal to 10 ppb for three of five years";
>
> 3. "The annual geometric mean averaged across all stations is less than or equal to 11 ppb"; and
>
> 4. "The annual geometric mean at all individual stations is less than or equal to 15 ppb."

Section 62–302.540(4)(d)1, F.A.C. As Mr. Scheidt, a witness for the United States explained: "The first three parts of the four-part test allow concentrations to be averaged across a network of marsh monitoring sites within the Everglades waterbody to address the natural spatial and temporal variability within the EPA. The fourth part of the test provides an annual maximum concentration not to be exceeded at any individual site."Exhibit 1215 (Scheidt), p. 9. Part four of the test which provides an upper limit on the allowable annual geometric means at individual monitoring stations "is necessary to ensure that averaging across stations does not mask problems at individual sites, thereby allowing part of the EPA to become impacted without detection."*Id.*

The USEPA is required to approve a state's change in water quality standards unless the USEPA determines that the standards are not consistent with requirements of the Clean Water Act. 33 U.S.C. § 1313(c)(3). [22] With one exception, the USEPA initially approved Florida's phosphorus rule in a "determination" dated January 24, 2005. Exhibit 1218. After the FDEP addressed this exception, the USEPA approved the Phosphorus Rule in a Determination that was dated July 27, 2005, May 8, 2006, and finally May 31, 2006, as Judge Gold explained in *Miccosukee Tribe v. United States*, 2008 WL 2967654, *26 n. 44 (S.D.Fla. July 29, 2008).

***9** In this decision, Judge Gold addressed a Clean Water Act challenge to the propriety of USEPA's Determination. Judge Gold upheld the USEPA's conclusion that the four-part test satisfied the Clean Water Act's requirements for establishment of water quality standards. *Id.* at *35.However, Judge Gold determined that, contrary to USEPA's Determination, three sections of the Phosphorus Rule, in fact, represented changes in the water quality standards that had to be approved by the USEPA, and two other sections of the Rule which were changes in water quality standards in fact violated the Clean Water Act in part because they delayed until 2016 compliance with the phosphorus numeric criterion. *Id.* at *27–28, 32–33.On remand, he ordered the USEPA to comply with Section 1313(c)(3) in reevaluating the Phosphorus Rule consistent with his opinion. *Id.* at *43.

To put Judge Gold's order in perspective requires an understanding of the permits that the State issued in order to enforce the phosphorus numeric criterion.

The District obtains NPDES permits from the State of Florida for its discharges to the Refuge and the Park from the STAs. Under Section 301(b) of the Clean Water Act, [23] these permits must contain what have become known as "Technology–Based Effluent Limitations," or TBELs. Under 40 C.F.R. § 125.3(a), technology-based treatment requirements "represent the minimum level of control that must be imposed" in an NPDES permit.

The initial TBELs for the STA permits were based on achieving phosphorus flow-weighted mean concentrations [24] of no more than 50 ppb in the outflow from the STAs. Exhibit 1215 (Scheidt), p. 11. "Achievement of this objective" was expected to achieve an 85 percent reduction of phosphorus loads to the Refuge and an 80 percent reduction of phosphorus loads to the Park in comparison to loads from similar EAA sources of water in the 1979–88 time period. Settlement Agreement, p. C–1, C–3.

To determine compliance with this objective, the Technical Oversight Committee (TOC) approved a 1996 compliance methodology developed by Dr. Walker. Exhibit 1003. Again to account for temporal variability and based on modeling and sample results then available, Dr. Walker's methodology required compliance with an outflow flow-weighted mean phosphorus concentration of no more than 76 ppb in any single year and no more than 50 ppb in three or more consecutive years. [25] Exhibit 1003, p. 3. If these tests were

met, this initial TBEL, which was incorporated into the initial STA permits, would have been satisfied. [26]

Accounting for additional data from STAs 1W, 2, 5 and 6 between 1996 and 2005, the 76 ppb figure in the 1996 Walker Methodology was revised downward to 68 ppb, as explained in a 2005 report prepared by representatives of the FDEP and the District. Exhibit 1031.

Again, the goal of a TBEL is to derive the outflow concentration from an STA that was technically practicable and would result in compliance with the interim levels, the long term limits, and ultimately the phosphorus numeric criterion within the Park and the Refuge, a subject which I discuss in greater detail below. However, as cataloged in the Report of the Special Master (May 4, 2005) (p. 14–15), the interim level was exceeded in October 1999, November 1999, October 2000, October 2001, July 2002, September 2003, and August 2004.

***10** In June 2007 Dr. Walker also revised his 1996 methodology. He explained that "in relying on concentration as a surrogate for load reduction" his 1996 methodology assumed that "current and future loads into the EPA and Refuge would be similar to those used in designing the STAs."Exhibit 1269, p. 2. But the 2002–06 data on loads to the STAs showed that that the amount of water and the amount of phosphorus in that water entering the STAs for treatment were higher than the STA design values. *Id.* [27]

In addition, the four-part test was being applied to the monitoring networks established in the Refuge and WCA–2 and WCA–3. The results are cataloged in Appendix 3A–6 of the 2010 South Florida Environmental Report. [28] In Water Years 2005 and 2006, the sample results failed part 3 (the annual geometric mean averaged across all stations is less than or equal to 11 ppb) of the test in impacted areas of the Refuge, WCA–2, and WCA–3 in both years. The sample results failed part 4 (the annual geometric mean at individual stations is less than or equal to 15 ppb) of the test at nine individual locations in the Refuge in 2005 and two locations in 2006; five individual locations in WCA–2 in 2005 and four in 2006; and one individual location in WCA–3 in 2005 and one in 2006.

With violations of the interim limit, more water, higher phosphorus loads, the long-term limit taking effect in 2007, and four-part test exceedances, there was a growing regulatory realization that more would have to be done to reduce phosphorus loading to the Park and Refuge.

Hence, in the permits issued in 2007, the District and the FDEP developed even further revised, reduced TBELs for the STAs. This process produced TBELs expressed as annual flow-weighted means of between 16 and 39.6 ppb for all of the STAs except STA–5 which had a TBEL of 42.9 to 116.4 ppb. Exhibit 1215 (Scheidt), p. 11; Exhibit 1225, p. 13; Exhibit 1226, p. 13; Exhibit 1227, p. 14; Exhibit 1228, p. 13; Exhibit 1229, p. 14; Exhibit 1230, p. 14.

STA 1–W and STA 1–E are the STAs that treat EAA stormwater before discharging to the Refuge. Mr. Marks, FDEP's Environmental Administrator for the Restoration Planning and Permitting Section in the Division of Environmental Assessment and Restoration at the FDEP, explained the permit history for these two STAs. The District was issued an EFA permit and an NPDES permit for STA 1–W in May 1999. The effluent limitation contained in the NPDES permit is that set in Dr. Walker's 1996 Methodology described above. Exhibit 1027 (Marks), Para. 7; Exhibit 1292, p. 5–17. [29] The 1999 permit expired in 2004 and has been administratively extended. Transcript (Tr.) 905.

STA 1–E was partially completed in 2005. An Everglades Forever Act permit and an NPDES permit were issued for this STA in August 2005. The NPDES permit was continued through issuance of an administrative order dated August 30, 2008. Exhibit 1292, p. 5–17. The effluent limitation in the NPDES permit reflects the reduction to 68 ppb described above in Exhibit 1031. Exhibit 1027 (Marks), Para. 9–10.

***11** In November 2007, the FDEP issued a STA–1E and STA–1W Everglades Forever Act permit, Exhibit 1290, that contains effluent limitations consistent with the 2007 revised, reduced TBELs described in Exhibits 1225 and 1226. The "maximum annual limit" for discharges from STA 1–W and 1–E was changed to 36 ppb. Mr. Marks referred to this reduction as a "continued ratcheting down of the annual maximum discharge limitation" for these two STAs. Exhibit 1027 (Marks), Para. 13.

"Racheting down" is a term of action, and if these maximum annual limits were exceeded such that these TBELs were immediately subject to enforcement, there would have, indeed, been a "ratcheting down." However, that is not the case.

The FDEP's permitting approach is to establish "phases" that correspond with obligations of the District. The first phase of an STA is the "start-up" phase, which ends after flow-through operations begin. Exhibit 1289, p. 4–5; Exhibit 1290, p. 15–16; Exhibit 1291, p. 8–10. [30]

"Stabilization" is the second phase. According to the 1999 Administrative Order, Exhibit 1291, p. 10, "The stabilization period for STAs is generally anticipated to last 2 to 3 years after the start-up phase ends."The 2005 Administrative Order, Exhibit 1289, p. 5, is more optimistic. It provides: "The stabilization period for STAs is where performance is improving toward the STA's optimal treatment performance and is generally anticipated to last one to two years after the Start–Up phase ends."The 2007 EFA permit, Exhibit 1290, p. 16, is less optimistic: "the overall performance of the STA is extremely difficult to evaluate and predict. It is anticipated that the treatment vegetation may require one to three years after flow-through operations begin for the affected cells to achieve optimal performance."

The phase is called "Post Stabilization Operations" or "Routine Operations." Exhibit 1289, p. 5–6; Exhibit 1290, p. 17; Exhibit 1291, p. 11.

The phases are significant because the status of the STA determines what discharge limits apply. The 2007 EFA permit for STA–1W/1E states: "During the Stabilization Phase, exceedance of the TBEL may occur; however, the STA shall be deemed in compliance with the permit as long as the actions described in Specific Condition 17 of this permit are being taken in conjunction with all other applicable permit conditions." [31] Specific Condition 17 describes projects that the District "shall proceed with":

1. STA–1W and STA–1E enhancements;

2. Complete flow-through operation of STA–1E following what was then anticipated to be the end of the PSTA Demonstration Project in 2009;

3. Completion of the L–8 Diversion Project that would divert between 75,000 and 100,000 acre feet per year of water away from STA–1W/1E;

4. Completion of the Compartment B STA that would provide treatment capacity for waters "that presently are captured and being treated" in STA–1W/1E; and

***12** 5. Improvements in conveyance capacity to get water to Compartment B. [32]

Exhibit 1290, p. 17–19.

STA–1W has been in the stabilization phase since 1999, or for ten years. STA–1E has been in the stabilization phase since it began operations in 2005, or for about five years. Exhibit 1294; Exhibit 1283 (Scheidt), p. 16.

When Judge Gold reviewed the permits and realized that the TBELs were not enforceable under the permits until an STA was in the "Routine Operations Phase," he observed, "In other words, there are currently no effluent limitations in effect at all for STAs 1E, 1W, 2, 5, and 6."706 F.Supp.2d at 1299 (emphasis in the original).

When TBELs are not adequate to achieve water quality standards for a water body, the CWA and its implementing regulations require discharge limits in NPDES permits that meet water quality standards. Exhibit 1215 (Scheidt), p. 12 citing 33 U.S.C. § 1311(b)(1)(C) [33] and 40 C.F.R. § 122.44(d)(1) and (5). [34] These limits are referred to as Water Quality Based Effluent Limits, or WQBELs. WQBELs "derive from and comply with" applicable water quality standards. Exhibit 1215 (Scheidt), p. 12 citing 40 C.F.R. § 122.44(d)(1)(vii)(A). [35]

The FDEP recognized the need to establish a WQBEL for the permits regulating discharges to the Refuge. In the 2007 EFA permits for STA–1W/1E, Exhibit 1290, Special Condition 18 provides for a study to be conducted that would result in the derivation of a WQBEL by December 31, 2010:

> The District shall conduct a study to determine the relationship between discharges from STA–1W and STA–1E and the resulting water quality in the Refuge. The final scope of work for this study shall be submitted to the Department by no later than December 31, 2007 for the Department's review and written approval. The District shall prepare and submit a report of its findings, based on the data collected over the course of this study for Department review by no later than December 31, 2009. Based on the findings of this study and Department

> concurrence with its methods and results, the Department shall establish a WQBEL in accordance with Rule 62–650 F.A.C. and 373.4592 F.S. by December 31, 2010. Establishment of a WQBEL for these facilities shall result in a major modification to this permit. [36]

The FDEP, in fact, developed draft WQBELs both before and after this 2007 EFA permit was issued. Mr. Scheidt testified that between 2005 and 2010, he reviewed eight drafts of WQBELs, or study plans for the development of WQBELs, that would result in attainment of the 10 ppb phosphorus criterion in the Refuge and the remainder of the EPA. Exhibit 1215 (Scheidt), p. 12.

In its latest public iteration of a WQBEL, a draft Technical Support Document dated May 3, 2010, the FDEP derived a WQBEL of 18 ppb "expressed as an annual" flow-weighted mean concentration and recommended incorporation of this WQBEL into the permits for all discharge to the EPA "to assure that discharges do not cause or contribute to exceedances" of the 10 ppb geometric mean numeric phosphorus criterion "in the downstream marsh receiving waters."Exhibit 1232, p. 9. [37] The draft Technical Support Document also recommended periodic reevaluation of the WQBEL "since a number of the discharge structures included in this analysis currently have a limited amount of data."*Id.* [38]

***13** The FDEP stopped work on this WQBEL, however. After explaining that the FDEP took the "unprecedented step of requiring itself, through a permit to a permittee, to establish a WQBEL consistent with the Phosphorus Criterion," Mr. Marks testified that, "This action has been overtaken by Judge Gold's April 14, 2010 ruling and the EPA's September 3, 2010 Amended Determination."Exhibit 1027 (Marks) Para. 18 and n. 4.

Judge Gold's April 14, 2010 Order required the USEPA to issue an Amended Determination by September 3, 2010. The Amended Determination "shall specifically direct the State of Florida to correct the deficiencies in the Amended EFA and the Phosphorus Rule that have been invalidated in a manner consistent with" Judge Gold's "strike-outs" of text in the Phosphorus Rule. The Court directed the USEPA to require the FDEP "to commence and complete rule-making for the Phosphorus Rule within 120 days from the date of the Amended Determination and shall require amendments to the Amended EFA to be enacted by July 1, 2011. In the event the State of Florida fails to timely act, the EPA shall provide timely notice, and the EPA Administrator 'shall promulgate such standard[s]' pursuant to 33 U.S.C. § 1313(c)."706 F.Supp.2d at 1324.

With respect to WQBELs and a compliance schedule, Judge Gold ordered USEPA to require the FDEP to establish "enforceable WQBELS within a time certain" consistent with applicable law:

> The EPA Administrator, through the Amended Determination, shall notify the State of Florida that it is out-of-compliance with the narrative and nutrient standards for the Everglades Protection Area. The Amended Determination shall provide clear, specific and comprehensive instructions to the State of Florida on the manner and method to obtain enforceable WQBELS within a time certain, consistent with the Clean Water Act and its implementing regulations, the Summary Judgment Order and this Order. The Amended Determination shall specify without equivocation that compliance must occur in accordance with specific milestones to be established in the Amended Determination that provides an enforceable framework for ensuring compliance with the CWA and its applicable regulations. Furthermore, it shall require the State of Florida to measure on a yearly basis the cumulative impacts and effects of phosphorus intrusion beyond the 10 ppb standard within the Everglades Protection Area until such time as full compliance with the 10 ppb standard is achieved. I underscore that the EPA must establish specific milestones to ensure that the State of Florida does not continue to ignore, and improperly extend, the compliance deadline for meeting the phosphorus narrative and

> numeric criterion in the Everglades Protection Area.

706 F.Supp.2d at 1323–24 (emphasis in original).

On September 3, 2010, USEPA issued its Amended Determination, Exhibit 1287, and announced that it had derived a WQBEL that consists of two parts:

1. Phosphorus concentrations in discharges from the STAs must not exceed 10 ppb as an annual geometric mean in more than two consecutive years;

***14** 2. The phosphorus levels in those discharges also must not exceed 18 ppb as an annual flow weighted mean.

The second part of this WQBEL is identical to the FDEP's one-part WQBEL announced in the draft Technical Support Document dated May 10, 2010 discussed above (Exhibit 1232). But USEPA felt that the WQBEL needed the first part, calling it "a longer-term component" that "assesses compliance with the water quality criterion well in advance of the criterion's longer timeframe" in contrast with the second part that is "a short-term (higher) annual limit" that "caps the maximum TP [total phosphorus] level that can be discharged in a given year."Exhibit 1287, p. 10. EPA, however, also invited the FDEP to propose an alternative approach if it elected to do so:

> Should FDEP propose an alternative approach to establishing a WQBEL, USEPA will evaluate its scientific rigor to ensure it appropriately implements the water quality criterion in accordance with the Clean Water Act (CWA) and its implementing regulations.

Id. [39]

EPA estimated that an additional 42,000 acres would be needed as STAs or "flow equalization basins" [40] to achieve the WQBEL. This estimate assumes no improvements in source control and is based on existing inflow phosphorus concentrations. *Id.*, p. 14.

The FDEP prepared NPDES/EFA permits and Administrative Orders for STAs 1 through 6 to conform to Judge Gold's April 14, 2010 Order, which required these documents "so as to eliminate all reference to the non-conforming elements of the Long–Term Plan, the moderating provisions and the extended compliance schedule through 2016, and to require compliance with the phosphorus narrative and numeric criterion in a manner consistent with the Clean Water Act and the forthcoming Amended Determination."706 F.Supp.2d at 1324.

Copies of the permits and the FDEP's accompanying November 2, 2010 Notice of Compliance and Additional Considerations appear at Docket Entry 2233 in this matter. In its November 2 Notice of Compliance, the FDEP explained that it had prepared the permits but that it could not issue them until it had "reasonable assurance" that the District could comply with all permit conditions. Saying that EPA's Amended Determination contains revised permits that require immediate compliance with the WQBEL, the FDEP advised Judge Gold that because it has no reasonable assurance that the District could satisfy the WQBEL immediately, it could not issue the permits under Florida law. The FDEP wrote:

> The Amended Determination sets forth a proposed suite of actions, mainly expansion of the STAs, that EPA believes could ultimately achieve the WQBEL. The Amended Determination asserts that those actions will enable the permittee to attain compliance therewith once the STA expansions are fully operational. EPA recognizes that it will take years until the STA expansions are operational and the WQBEL achieved. Achievement dates set forth in the Amended Determination range from 2014 to 2020. For the Department to lawfully issue conformed permits, provisions must be included to reflect the required actual timeframes for achievement of the WQBEL, to provide for interim milestones that require progress toward achievement, and to thereby give the Department reasonable assurance that the WQBEL is attainable by the dates EPA has prescribed.

***15** [DE 2233], p. 4. The FDEP then explained that it can satisfy the "reasonable assurance" requirement by (1) issuing a variance if one is justified by a "Use Attainability

Analysis,"[41] or preferably (2) through an individual compliance schedule imposed through an Administrative Order. *Id.*, p. 4–5.Because it read Judge Gold's Order as prohibiting an Administrative Order with a compliance schedule, it sought the Court's confirmation that it could proceed with an Administrative Order. It also advised the Court that it could not issue final permits without notice for public comment as required by Florida law, stating that it expects that one or more parties will file petitions challenging the permits, "given the controversy surrounding the WQBEL."*Id.*, p. 9–10.

Judge Gold held a hearing on December 17, 2010 to consider these and other issues pending before him. As a result of that hearing, further briefing, to be completed by January 14, 2011, is due to address (1) responses to the FDEP's Notice of Compliance; (2) whether the Court has "jurisdictional authority" to conform the State permit documents prepared in response to Judge Gold's April 14 Order with the FDEP's Notice of Filing; and (3) whether the FDEP can adopt a WQBEL only through rulemaking through the State of Florida Environmental Regulation Commission with approval of the Florida legislature prior to issuance of a permit with a WQBEL. [42]

If the matter before Judge Gold resulted in an agreement by the FDEP and USEPA on a enforceable WQBEL to implement the State's numeric phosphorus criterion, the District's STA permits would be modified to incorporate the WQBEL, the revised permits would be subject to public notice and comment, and, assuming no legal challenge, the permits would go into effect accompanied by a compliance schedule. The Consent Decree could still play a vital role in Everglades restoration, but, assuming meaningful enforcement of the WQBEL, the Consent Decree's role might also become the subject of fair debate.

However, as the following procedural summary (provided, at the request of the Special Master, by counsel for the State after review by all other counsel) reflects, the matter before Judge Gold is not likely to result in an agreed WQBEL any time soon. Among the appeals pending before the 11th Circuit or motions filed before Judge Gold are these:

1. The FDEP and an intervenor, New Hope Sugar Co., appealed the April 14 Order to the Eleventh Circuit. Opening briefs have been filed.

2. The appeal was abated by the Court of Appeals to allow Judge Gold to consider a Rule 60(b) motion filed by the United States to modify the April 14 Order because, in EPA's view, three elements of the Order exceeded EPA's statutory authority and "may present significant legal risk in any subsequent legal challenge." [43] Because of the appeal, USEPA sought an indicative ruling from Judge Gold under F.R.Civ.P. 62.1. [44]

3. EPA appealed two of Judge Gold's April 14, 2010 Orders. [45]

***16** 4. On December 13, 2010, one of the plaintiffs filed a motion for entry of an order declaring the District's NPDES and EFA permits null and void in part because the FDEP failed to conform the permits to the Court's April 14 Order. Response memoranda remain to be filed.

5. The District has filed a Petition for Review of EPA's September 3, 2010 Amended Determination. Under Section 509(b)(1) of the Clean Water Act, 33 U.S.C. § 1369(b)(1), the Petition was filed in the Eleventh Circuit. The FDEP, Sugar Cane Growers Cooperative of Florida, U.S. Sugar, and New Hope Sugar Company and Okeelanta Corporation have also filed separate petitions in the 11th Circuit to review the Amended Determination.

Against this backdrop, I now proceed to discuss the issues referred by the Court.

Is There a Violation of the Consent Decree With Respect to the Western Basins?

The Consent Decree contains one sentence concerning the Western Basins. In Appendix C, the District agreed to "design and implement control programs for other watersheds outside of the EAA discharging into the EPA, including the L3, S140, L28I."Consent Decree, p. C–5. In their pretrial stipulation, the parties framed the issue related to this sentence:

> Whether the State Parties have complied with the provision of the Consent Decree which requires that the State Parties "design and implement control programs for other watersheds outside of the EAA discharging into the EPA, including L3, S140, L28I [i.e., the western basins]"?

A. Whether the State Parties have designed and implemented control programs for discharges from the

western basins, including L3, S140, and L28I, into the EPA?

B. Whether the State Parties are required to design and implement control programs for discharges from the western basins into the EPA to ensure that all discharges into the EPA meet the State's Class III criterion?

C. Whether discharges from the western basins exceed the State's Class III criterion?

This is not the first time the Western Basins have come before the Court. Judge Hoeveler's Omnibus Order (April 27, 2001) addressed requests by Conservation Intervenors and the Tribe for additional provisions in the Consent Decree "to bring basin discharges into compliance with state water quality standards."Omnibus Order, p. 29. The Court held that it "seems patently inequitable to permit parties who are not bound by the terms of the Agreement, to insert items into the Agreement that have obviously not been agreed on by the Settling Parties."The Court added:

> Moreover, the Tribe is reminded that this Court granted it limited intervention with the express understanding that the Tribe would "not seek to litigate any issues in this case *nor to alter the terms of the Settlement Agreement* or otherwise delay its implementation."

Omnibus Order, p. 29–30 (emphasis in original) (quoting [DE 1193], "Order Granting Tribe Limited Intervention," at 4).

Judge Hoeveler then addressed enforcement of this one sentence in the Consent Decree. After quoting the sentence, the Court wrote:

> ***17** The Court also notes with some concern that inflow phosphorus concentrations in Water Conservation Area 3 (WCA–3) appear[ ] worse today than the historical base period. See 2001 Consolidated Report, ch. 4, at 4–34, table 4–34 (showing an increase from 53 ug/L in Water Year 1999, to 67 ug/L in Water Year 2000, although still only a 4 ug/L increase from the inflow phosphorus concentrations for the 1978–1998 historical period).
>
> Nonetheless, the Western Basin Provision remains a part of the proposed Modified Settlement Agreement, and therefore, this issue really does not pertain to the Motion for Approval of Modifications to the Settlement Agreement Entered as a Consent Decree. In any event, "the proper method of enforcing a consent decree is *not* a 'motion to enforce' or similar plea for the court to 'do something' about a violation of the decree."*Thomason v. Russell Corp.*, 132 F.3d 632 n. 4 (11th Cir.1998) (emphasis in original). At this time, therefore, the Tribe's Motions to Enforce the Settlement Agreement are DENIED, without prejudice to seek relief by filing a motion requesting that the Court issue an Order to Show Cause....

Omnibus Order, p. 30–31. Insofar as the Special Master is aware, a motion for an Order to Show Cause has never been filed. [46]

Water Quality in the Western Basins

If the resolution of the issue referred by the Court turned only on water quality improvement, the data would determine the outcome. Water quality coming out of the Western Basins has not improved in the nearly ten years since Judge Hoeveler issued the Omnibus Order.

C–139 Basin

The C–139 Basin is west of the EAA as depicted in Figure 1. It covers approximately 168,450 acres or 263 square miles. This land is used for cattle and agricultural (sugarcane and winter vegetables) operations. Exhibit 1022 (Adorisio), p. 3. [47]

As depicted in Figure 1, water is conveyed in the C–139 Basin primarily through the L–1, L–2, and L–3 canals. Discharges from this basin are through STA–5.

Figure 1. C–139: Basin Location and Monitoring Structures

The table below is from Exhibit 1022 (Adorisio), p. 9, and shows that phosphorus loads are influenced by flow volume but that in the C–139 Basin, phosphorus loading (the third column in the table) has not materially improved since 1998 in this Basin. [48]

For purposes of measuring success with BMPs, the first year of measuring the success of phosphorus control programs was WY2003. As a comparison of the observed loads (third column below) to the target loads (fourth column) reflects, in the period 2003–2010, this basin's landowners who were engaged in BMP programs failed to achieve necessary

reductions in phosphorus loading in Water Years 2003, 2004, 2005, 2006, 2007, and 2009. Exhibit 1022 (Adorisio), p. 9.

Water Year	Flow Volume (thousand-acre ft)	Observed Total Phosphorus Load (metric tons)	Target Total Phosphorus Load (metric tons)
1998	170	35.6	42.9
1999	136	35.6	29.9
2000	202	52.4	36.4
2001	56	17.1	6.4
2002	200	65.9	35.8
2003 *	224	77.3	39.1
2004	204	69.0	25.4
2005	168	40.3	27.1
2006	333	106.9	34.6
2007	77	29.1	7.3
2008	39	5.4	12.4
2009	165	52.3	13.7
2010	199	41.9	53.6

***18** The average flow-weighted mean concentration of phosphorus for the period WY2003–WY2010 was 243 ppb. Exhibit 1022 (Adorisio), p. 8. The observed total phosphorus flow weighted mean concentration for Water Year 2009 (May 1, 2008—April 30, 2009) was 256 ppb. Exhibit 1407 (2010 South Florida Environmental Report), p. 4–49. This compares unfavorably to the observed annual average C–139 Basin phosphorus concentration in what is regarded as a baseline period (WY1980—WY1988) which was 227 ppb. *Id.;*Exhibit 1427 (August 12, 2009, District Governing Board Update on EAA and C139 Basin Compliance), p. 12; Tr. 1288–89 (Adorisio).

Feeder Canal Basin

The Feeder Canal Basin (FCB) represents an area of 68,883 acres, or 107.6 square miles. Land uses within the FCB include cattle on improved and unimproved pastures, citrus, row crops, and large tracts of undeveloped natural areas. A portion of the Big Cypress Seminole Indian Reservation is located within the FCB as well. Exhibit 1022 (Adorisio), p. 10.

Figure 2. Feeder Canal Basin: Sub-basins and Monitoring Structures

There are two major canals associated with the FCB: the North Feeder Canal and the West Feeder Canal. These two canals merge in the lower southeastern corner of the basin and discharge to the south through the S–190 structure into the L–28 Interceptor Canal and eventually thereafter to WCA–3A. The flow volume through the S–190 structure provides the data on phosphorus loading from the FCB. Exhibit 1022 (Adorisio), p. 10.

The quality of water passing through the S–190 structure has not materially improved since 1998. The following table from

Exhibit 1022 (Adorisio), p. 16, shows that total phosphorus flow-weighted mean concentration and phosphorus loads entering the EPA through the S–190 have trended up since 1998.

Water Year	Total Phosphorus Flow Weighted Mean Concentration	Flow Volume (thousand-acre ft)	Total Phosphorus Load (metric tons)
1998	80	66.89	6.64
1999	76	44.99	4.22
2000	110	92.47	12.65
2001	161	35.32	7.01
2002	88	81.22	8.86
2003	87	83.47	8.99
2004	99	111.5	13.65
2005	97	89.58	10.69
2006	155	142.47	27.20
2007	215	67.03	17.77
2008	101	24.02	2.99
2009	137	83.09	14.06
2010	73	84.76	7.62

L–28 Basin

The L–28 Basin totals 72,000 acres or 112 square miles in size. As Figure 3 depicts, there are four landowners in this basin. The Big Cypress Seminole Indian Reservation occupies approximately 34 percent of the Basin. The Miccosukee Tribe's

Figure 3. L–28 Basin: Location and Monitoring Structures

Reservation occupies 28 percent of the Basin. About 13 percent of the Basin is within the Big Cypress National Preserve. Exhibit 1022 (Adorisio), p. 18.

The remaining 25 percent of this basin, about 18,000 acres in what is called the "C–139 Annex," consists of a citrus grove formerly owned by Southern Garden Corporation, a subsidiary of U.S. Sugar. This property was acquired by the District on October 12, 2010 for eventual use in Everglades restoration. Tr. 1280–81 (Adorisio).

***19** Other than citrus groves and cattle ranches, a large portion of this Basin is undeveloped. The District has no authority to enforce phosphorus source controls within the L–28 Basin on the tribal or federal land that represents 75% of this Basin. Exhibit 1022 (Adorisio), p. 18. Hence, the focus of controls in this Basin is on the C–139 Annex. Stormwater from this part of the basin travels through the USSO structure (shown on Figure 3) where phosphorus measurements are collected.

The table below shows the total phosphorus flow-weighted mean concentration measured at the USSO and S–140 structures for the period 1998–2010. Contrasting just the first and last years, 1998 and 2010, there has not been meaningful improvement in the reduction of phosphorus concentrations,

but unlike in the other two basins, the overall trend line in this basin does show modest improvement.

Water Year	Total Phosphorus Flow–Weighted Mean Measured at USSO Structure	Total Phosphorus Flow–Weighted Mean Measured at S–140 Structure
1998	71	36
1999	105	55
2000	112	70
2001	138	144
2002	83	48
2003	97	62
2004	99	42
2005	96	42
2006	85	50
2007	135	47
2008	69	36
2009	75	40
2010	98	56

Arguments of the Parties With Respect to the Western Basins

While this overall water quality track record is not reassuring, the Consent Decree does not make any reference to water quality goals for the Western Basins. Rather it requires only that the District "design and implement control programs for other watersheds outside of the EAA discharging into the EPA, including the L3, S140, L28I." [49]

The District says it has done so. Without attempting to join issue on the phosphorus track record in discharges from these basins, the District argues: "The testimony at the evidentiary hearing established that the District has indeed designed and implemented such control programs, thereby meeting its obligations with regard to the Western Basins under the plain terms of the Consent Decree."State Parties' Posthearing Memorandum, p. 25–26.

Undeterred by the District's argument, the Tribe argues that the Consent Decree requires discharges from the Western Basins, and more broadly, all discharges into WCA–2 and 3, to satisfy the phosphorus numeric criterion of 10 ppb before water enters the EPA. [50] The Tribe references page 7 of the Consent Decree which provides:

> Water from the EAA eventually flows into the Park through the WCAs. Thus, maintenance of state water quality standards within the WCAs is crucial to the ecology of the Park.

It also cites the requirement of the Decree that the District build the six STAs which, the Tribe notes, discharge not just into the Refuge (STA–1W/1E) but also into WCA–2 and 3 (STA 2, 3/4, 5, and 6). Settlement Agreement, p. 13. It then quotes Paragraph 10A of the Settlement Agreement: "These (STAs) will be designed, operated and managed primarily to purify the water before it enters the WCAs, the

Park and the Refuge."Finally, it references this language in Paragraph 10B of the Settlement Agreement:

> ***20** The design sizes and configurations of STAs are based on the need to achieve an interim outflow concentration of approximately 50 ppb at each STA outflow point. The Class III phosphorus criteria when interpreted by research will be implemented by December 31, 2006, if lower than the long-term concentration levels.

The Tribe then concludes this portion of its argument by urging that the "clear structure of the Settlement Agreement is to purify phosphorus-laden water before it enters the WCAs and eventually flows into the Park."Tribe's Posthearing Memorandum, p. 16–17.

The Tribe argues that this language, and, more broadly, the purpose of the Decree, supports the conclusion that the Consent Decree requires compliance with the phosphorus numeric criterion throughout the EPA; otherwise WCA–2 and 3 are being used as a "de facto STA" to filter phosphorus. Tribe's Posthearing Memorandum, p. 18–20; 22–23; 30–32.

Even if the Consent Decree is not sufficiently encompassing to embrace this argument as it relates solely to the Western Basins, the Tribe makes the fallback argument that the "implementation of control programs" in the Western Basins must be reasonable. Where phosphorus concentrations have not improved over time, the Tribe argues, the control programs do not meet this test.Id., p. 24–29.

In its Initial Prehearing Memorandum, the United States argued that the Tribe was correct in its interpretation of the Consent Decree with respect to the control programs in the Western Basin. United States Initial Prehearing Memorandum, p. 10. Its expert, Dr. Walker, offered this opinion:

> Even if substantial progress is made, it will not be possible to achieve compliance with the [Phosphorus] Criterion in discharges using agricultural Best Management Practices alone. STAs sufficiently designed to treat the post-BMP flows and loads are also needed in order to achieve compliance with the WQBEL. The combination of source controls and expansions of STA–5 and STA–6 (Compartment C) will help to achieve compliance in the discharges from the C–139 basin, although further expansions and/or flow equalization basins will be needed, as prescribed in the EPA–AD. The Consent Decree requires control programs be implemented so that discharges from the other western basins (Feeder Canal/S190 and L–28) into the EPA also meet the Class III Criterion. Those discharges into WCA–3A indirectly impact inflows to the Park. I am unaware of a specific plan and schedule to provide sufficient treatment of those discharges to meet the Criterion.

Exhibit 1296 (Walker), p. 20.

Audubon stitched together different sentences in the Decree to reach the same conclusion as that advanced by the Tribe: that the Consent Decree governs water quality throughout the Everglades Protection Area. First it cites Paragraph 3(C) where the Settling Parties acknowledged that surface water entering the Refuge was causing an imbalance in the natural population of flora and fauna. Then it cites Paragraph 3(D) where the Settling Parties agreed that "nutrient-polluted water is, or is reasonably expected to be, a source of pollution in the Park."It then references Paragraph 8(A) and page C–1 for the proposition that the Consent Decree required an 80% reduction in loads from the EAA to the EPA as compared to mean levels measured from 1979 to 1988. Audubon's Posthearing Memorandum, p. 1.

***21** In the context of the "Research and Monitoring" section of the Settlement Agreement, Audubon notes that under Paragraph 11(A), the "State Parties" were required to assess "current and continuing responses of the EPA to nutrient input levels resulting from the efforts to achieve interim and long-term concentration limits and levels."It cites to Paragraph 11(C) for the proposition that an "array of indices will be used to measure sensitivity of the ecosystem to small changes in nutrients" and that these indices "will be used to determine the criteria for compliance in the EPA with the Class III nutrient criteria under the terms of this Agreement."It also points to Paragraph 11(E), which requires

an "intensive program of monitoring" to "track compliance with interim and long-term concentration limits and levels, as well as the response of Everglades flora and fauna to the phosphorus levels achieved."Audubon then joins the Tribe in citing Paragraph 3(A) quoted above ("maintenance of state water quality standards within the WCAs is crucial to the ecology of the Park").*Id.*, p. 2.

Audubon concludes this part of its analysis by stating: "Therefore, when construed as a whole, the Consent Decree obligates the State Parties to ensure water quality standards are met throughout the Everglades Protection Area."Citing data from the 2010 South Florida Environmental Report for the proposition that water quality standards are not being met "in the discharge zones" south of the Western Basins, it says that the State Parties have failed to do so. [51] *Id.*, p. 2–3.

Focusing only on the C–139 Basin, Audubon then argues:

- The 1994 Everglades Forever Act prohibited landowners in the C–139 Basin from exceeding an annual average loading of 28.7 metric tons and required these landowners to implement BMPs if the Basin discharges exceeded water quality standards.
- Loading from the C–139 Basin exceeded 28.7 metric tons each Water Year from 1995 through 2002, except for one (2001).
- The EFA was amended in 2003 to remove the 28.7 metric ton limit, changing the requirement to one where loading would not exceed historic levels.
- In 2002, the District first implemented BMPs in the Basin.
- The BMPs contained actions that gave landowners "points" depending upon the phosphorus-reduction practice implemented by the landowner. [52] Landowners had to acquire 15 points for "Level I" BMPs. If Level I BMPs did not improve the water quality conditions in the Basin, then Level II BMPs (inspections but no increase in points) occurred. If Level II BMPs did not work, then Level III BMPs (practices totaling 25 points had to be implemented) had to be achieved. And if they did not work, then Level IV BMPs (practices that resulted in 35 points had to be implemented). If the Basin remained out of compliance, then rulemaking would be initiated to bring the Basin into compliance.
- From 1992—1998, average annual phosphorus loads from the C–139 Basin totaled 38.48 metric tons. For the period 1992–2002, after BMPs were implemented, the average annual phosphorus load increased to 52.78 metric tons.

***22** • Rulemaking had to be initiated in 2006 because the Basin was not in compliance after Level IV BMPs were required. It took the District four years to complete rulemaking.

- No increase in BMP points beyond 35 points is required and what is called the "Target Load" calculation is now easier to satisfy than beforehand. [53]
- And the District in its own rule delayed "the first water year of compliance determination for which water quality improvement activities can be required" until WY2013. Exhibit 1037, p. 22.

Audubon's Posthearing Memorandum, p. 7–10.

Breadth of Compliance Obligations Under The Settlement Agreement Vis-à-vis WCAs 2 and 3

In my judgment, the Settlement Agreement does not create an enforcement regime or enforceable obligations with respect to WCAs 2 and 3.

First, the Settlement Agreement contains enforcement language only with respect to inflows to the Park and the Refuge. Consent Decree, Appendices A and B. These appendices set forth interim levels and long-term concentration limits that apply to phosphorus water quality at certain sampling or entry points for the Refuge and the Park. The absence of similar language for WCA–2 or WCA–3 means that there is no Consent Decree obligation imposed on the District to comply with the phosphorus numeric criterion in WCA–2 or WCA–3.

Second, the Second Amended Complaint relates to discharges to the Park and the Refuge. Second Amended Complaint, p. 10–17. [54] There is no reason for the State Parties to have intended to broaden their settlement obligations beyond the reach of the allegations of the complaint being made against them.

Third, the language extracted by the Tribe from page 7 of the Settlement Agreement falls under the Settlement Agreement subheading, "Introduction/Background of Problem." It is in

the nature of a recital that informs the interpretation of the obligations contained in the Settlement Agreement, but it is not itself an obligation agreed to by the State Parties.

Next, the Tribe invoked Paragraph 10, which falls under the subheading of the Settlement Agreement entitled, "Commitment to Restoring and Maintaining Water Quality."This section of the Settlement Agreement consists of Paragraphs 5 and 6. It is followed by five sections of the Settlement Agreement that are titled respectively:

- "Total Phosphorus Concentration Limits for the Park," which "are as set forth in Appendix A" (Settlement Agreement, p. 10);
- "Total Phosphorus Concentration Levels and Discharge Limits for the Refuge," which are "as set forth in Appendix B"(*Id.*, p. 11);
- "Implementation of Stormwater Treatment Areas," which is "as set forth in Appendix C"(*Id.*, p. 13);
- "Research and Monitoring," which is "set forth in Appendix D" (*Id.*, p. 15); and
- "Regulatory Program" which is "as set forth in Appendix E"(*Id.*, p. 17).

Leading into these five sections of the Settlement Agreement, Paragraph 6 provides that "if a conflict arises between the following summaries and the Appendices, the Appendices shall prevail ."Appendices A and B are specifically directed at the Park and the Refuge, respectively, and not generally at the EPA.

***23** Following these five sections, the next titled subsection is "Implementation and Enforcement Procedures." It begins with a reference only to the Park and Refuge:

> The State Parties shall use the full scope and authority of their planning, regulatory, permitting, enforcement and public works powers to bring the waters in the Park and Refuge into compliance with the interim and long-term concentration limits and levels in this Agreement by the following dates: by February 1, 1999, for interim compliance for the Refuge; and by December 31, 2006, for long-term compliance for the Park and Refuge.

Settlement Agreement, p. 20. There is no reference here to WCA–2 or WCA–3 or to the adoption of interim or long-term limits for either Water Conservation Area. The Court, in effect, is being asked to conclude that this was an oversight by the Settlement Agreement drafters. I cannot so conclude without infringing on the rights of the Settling Parties to define their own bargain.

Paragraphs 10A and 10B, cited by the Tribe, do not create an obligation to meet the phosphorus numeric criterion once it is developed. These paragraphs fall in the section entitled, "Implementation of Stormwater Treatment Areas." They describe what the STAs are supposed to do. The Tribe quotes from Paragraph 10B but the quote does not support the Tribe's position. Paragraph 10B refers to the "long-term concentration levels" and the "concentration limits and levels." The only such limits and levels in the Settlement Agreement relate to the Park and Refuge.

As for Audubon's efforts to weave words from the Decree to create an enforcement regime with respect to water quality in WCA–2 and 3, whether from the Western Basins or otherwise, that too fails for the same reasons set forth above. Paragraph 3 is part of the "Introduction/Background of the Problem." In any event, the cited paragraphs, 3(C) and 3(D), refer to waters entering the Refuge and Park, respectively, and to the damage done to the Refuge and the Park, not the WCAs.

Paragraph 8(A) does refer to reductions in phosphorus loading from the EAA to the EPA but this language does not create an enforcement regime for the numeric phosphorus criterion with respect to water quality in WCA–2 and 3. This paragraph is in the section of the Settlement Agreement relating to "Total Phosphorus Concentration Levels and Discharge Limits for the Refuge."As discussed further below, the drainage basins utilized to determine the baseline load against which to measure the reduction come from Appendix F to the Surface Water Improvement and Management (SWIM) Plan.[55] Exhibit 1419, p. F–6, Table 4. The referenced basins do not include any of the Western Basins.

The reference to Paragraph 11(A) is again tied to the interim and long-term limits, which apply under the Settlement Agreement only to the Park and Refuge. While Paragraph 11(C) refers to the determination of the criteria "for compliance in the EPA with the Class III nutrient criteria," this sentence ends with the phrase, "under the terms of

this Agreement."Those terms do not include an enforcement regime for the numeric phosphorus criterion in WCA–2 or 3. And Paragraph 11(A), again, refers to the interim and long-term limits and levels, which relate only to the Park and Refuge, as discussed above.

***24** It is true that if too much phosphorus-laden water enters the Water Conservation Areas, the WCAs will become "de facto" STAs by "filtering" phosphorus before the water reaches the Park. However, from the plain language of the Settlement Agreement, the drafters did not intend to address water quality enforcement or compliance in WCA–2 or 3. Rather, for water quality enforcement or compliance, they only addressed the Park and the Refuge.

The Settlement Agreement resolved discrete claims involving the Park and Refuge. Federal or state law, not the Settlement Agreement/Consent Decree, will have to be looked to for a remedy to the ambient water quality entering or in WCA–2 and 3. [56]

Control Programs in the Western Basins

This conclusion still leaves the issue of compliance with the obligation in the Consent Decree to implement control programs in the Western Basins. I am unable to conclude that the District has failed to satisfy the obligation in the Consent Decree.

Mr. Adorisio is the District's Engineer Supervisor for the Water Resource Regulation Department of the Everglades Regulation Division of the District. He described the District's activities to implement control programs in the Western Basins.

C–139 Basin

Discharges from the C–139 Basin are treated in STA–5. Compartment C is shown on Figure 1 and will provide needed capacity [57] to STA–5 to handle stormwater from the C–139 Basin for treatment.

In the C–139 Basin, Mr. Adorisio identified the following additional control programs taken by the District:

1. In 2002, the District established a mandatory BMP program (that was described above).

2. In 2002, the District also established the "C–139 and Western Basins Grant Program," which "accelerated implementation of infrastructure BMPs (e.g., tailwater reuse projects.)"The District provided $900,000 in grants over a three-year period.

3. In 2004, the District "conducted a phosphorus source and transport analysis in the canals with historically higher TP levels. The results highlighted substantial differences in TP concentration within the basin, the lack of information on runoff contribution, and the higher fraction of soluble reactive phosphorus."This study allowed the District to develop a "focused approach for a more effective BMP program. A subsequent evaluation was conducted in 2005, verifying the 2004 results."

4. In 2005, "a hydrologic study was conducted to determine hydrologic sub-basins and locations for sub-basin water quality and flow monitoring. A monitoring network of permanent TP and flow stations, and synoptic sampling locations for phosphorus speciation was established. Since then, the District has progressively instrumented additional stations and analyzed the resulting water quality and quantity data."

5. In 2005, C–139 Basin vegetable growers "were engaged to participate in a demonstration project to optimize phosphorus application rates on vegetables. The project continued for five years. The project evaluates a variety of strategies to reduce phosphorus in runoff including: varying application rates, phosphorus partitioning in C–139 Basin soils, use of different soil extraction methods, soil pH amendments, slow release phosphorus fertilizers, and reduced application through fertigation and foliar means."

***25** 6. In 2007, the District started the "C–139 Basin BMP Demonstration Grant" which funds "the compartmentalization of an above-ground impoundment (AGI) to optimize water quality treatment and detention" and "a chemical precipitation project to treat farm runoff that is not retained by an AGI or reused in a tailwater recovery system. The projects include water quality and quantity monitoring to determine effectiveness."

7. In 2007, also, the District initiated "a review of Surface Water Management (SWM) permits which address water quality treatment, attenuation and storage, and Consumptive Water Use (CWU) permits which address water use and conservation authorizations in the C–139 and Feeder Canal basins.""These permits work in concert with the BMP program permit requirements with regard to quantity and quality of discharges."

8. Since 2008, "the District has been funding the evaluation of the performance of an AGI by the University of Florida, Institute of Food and Agricultural Science (IFAS). The project will result in recommendations to optimize the AGI for TP removal, followed by implementation and verification of performance."

9. In 2009, the District initiated a feasibility analysis of potential regional projects to address water quality issues across the C–139, Feeder Canal, and L–28 basins.

10. In addition to the District's BMP program, "there is a statewide non-regulatory or incentive-based agricultural BMP program by the Florida Department of Agriculture and Consumer Services (FDACS). Agricultural landowners may opt to participate by submitting a Notice of Intent to Implement to the FDACS and receive a presumption of compliance with state water quality standards, including those established by the Total Maximum Daily Load (TMDL) program. In the C–139 Basin, landowners that have active Chapter 40E–63, FAC, BMP permits from the District, qualify for the FDACS BMP program without having to implement additional FDACS program requirements."

Exhibit 1022 (Adorisio), p. 6–7, Tr. 1282–1284. The effectiveness of these efforts aside, they do satisfy the requirement that the District implement a control program in this basin.

Finally, as Audubon noted, on September 12, 2010, the District's Governing Board approved sweeping changes" to the BMP rule, which became effective in November 2010 and "will require more stringent criteria for the 35–point BMP Plan."Exhibit 1022 (Adorisio), p. 7; Exhibit 1037 (C–139 BMP rule, Chapter 40E–63, Part IV, F.A.C.); Tr. 1285.

Feeder Canal Basin

As Mr. Adorisio explained, the FCB is divided into three major hydrologic areas:

1. The McDaniel Ranch area or North Feeder Canal Subbasin (comprised of 4 landowners) with a total area of 23,150 acres.

2. The West Feeder Canal area or Sub-basin (comprised of about 30 private owners) with a total area of 31,900 acres.

3. A portion of the Big Cypress Seminole Indian Reservation with total area of 13,850 acres. [58]

***26** Exhibit 1022 (Adorisio), p. 10. The District "has no jurisdictional authority to enforce the implementation of phosphorus source controls within FCB tribal and/or federal lands."*Id.* at 10–11. [59]

Mr. Adorisio again explained the control programs implemented in this basin.

The District has been working with the McDaniel Ranch owner to certify a surface water management system that the owner built under an Environmental Resource Permit. The system is supposed to provide for stormwater detention and pre-treatment of agricultural runoff prior to discharge. [60] Exhibit 1022 (Adorisio), p. 12–13.

A portion (3,256.8 acres) of the original McDaniel Ranch was sold to McDaniel Reserve Realty Holdings, LLC (MRRH). This portion is known as "Everglades Plantation." MRRH is not a party to the 1996 Landowner Agreement between the McDaniel Ranch and the Seminole Tribe of Florida. Exhibit 1022 (Adorisio), p. 13.

Stormwater discharges from the Everglades Plantation are directed to the PC–17A structure. In July 2010, the District and MRRH entered a Joint Agreement for implementation and maintenance of BMPs to reduce phosphorus levels in stormwater. Mr. Adorisio notes also that any proposed land use change on the Everglades Plantation will require an Environmental Resource Permit to address any water quality concerns from the proposed new land use. *Id.*

Beginning in 2002, the District also implemented a BMP grant program to promote BMP implementation for phosphorus reduction. "Between 2002 and 2006, the Everglades Program contributed almost $550,000 for BMP implementation in the FCB." Exhibit 1022 (Adorisio), p. 13. Tr. 1290.

In 2007 the District also introduced the "Integrated Permit Compliance Initiative" discussed above in reference to the C–139 Basin. The District reviews both Surface Water Management and Consumptive Water Use permits together "to ensure the water quality requirements of these permits are met, and to facilitate implementation of BMPs in the FCB." Exhibit 1022 (Adorisio), p. 14; Tr. 1291–1292.

Finally, Mr. Adorisio notes that the FCB is included in the feasibility analysis of potential region projects to address water quality issues across the C–139, Feeder Canal, and L–28 Basins. *Id* .

L–28 Basin

As noted above, only 25 percent of the L–28 Basin, consisting of the C–139 Annex, is under jurisdictional control of the District and, as of October 2010, the District now owns this land. Exhibit 1022 (Adorisio), p. 18; Tr. 1298.

Mr. Adorisio explained that C–139 Annex flows are expected to be diverted to STA–6 in WY2011. Exhibit 1022 (Adorisio), p. 19; Tr. 1297. An Environmental Resource Permit was issued authorizing the operation of a new C–139 Annex discharge structure to STA–6. This permit also required the former landowner to implement BMPs, monitor total phosphorus load in discharges, and maintain historic annual phosphorus loads in discharges.[61] Exhibit 1022 (Adorisio), p. 19.

***27** And, as noted already, the L–28 Basin is part of the C–139 Regional Feasibility Study which began in 2009. Exhibit 1022 (Adorisio), p. 14; Tr. 1291.

Reasonableness

The Tribe's fallback argument is that even if the District has designed and implemented "control programs for other watersheds outside of the EAA discharging into the EPA, including the L3, S140, L28I," the Consent Decree still requires these programs to be reasonable ones, and programs that have not reduced phosphorus levels over the past twenty years do not satisfy this standard.

I will assume, without deciding, that the Tribe is correct that a reasonableness requirement infuses this one sentence in the Decree. During the October 25–29 evidentiary hearing, I asked the Tribe's witness on this topic, Mr. Duncan, whether the State Parties' had taken "reasonable actions" with regard to the Western Basins. He acknowledged that they had:

> THE SPECIAL MASTER: Has what's been done historically, given the circumstances, given the knowledge at the time, would you describe actions that had been taken historically as reasonable actions?
>
> THE WITNESS: Reasonable and minimal, yes, sir.
>
> THE SPECIAL MASTER: All right.
>
> You are now looking forward and saying a heck of a lot more needs to be done.
>
> THE WITNESS: Yes, sir.

Tr. 52. With reference to the C–139 Basin, Dr. Walker gave similar testimony:

> But that process, in terms of the implementation of the BMPs and the enhancement to the monitoring program, all that, that is underway now. But it's pretty much flowing, although it's been slower than I would have hoped or expected, it's flowing in the direction where the program is functioning the way it should.

Tr. 720–21.

Given this testimony, I am hard pressed to conclude otherwise. I am also reluctant to conclude otherwise for these additional reasons:

1. Compartment C will enhance STA–5's capacity to treat stormwater from the C–139 Basin.[62]

2. The new BMP rules for the C–139 Basin went into effect in November 2010. They should be given an opportunity to work.

3. Only 25 percent of the L–28 Basin is under the District's jurisdictional control and beginning in WY 2011, stormwater from the C–139 Annex will be discharged to STA–6 for treatment before it enters the EPA.

4. In the Feeder Canal Basin, the McDaniel Ranch owner has now built a surface water management system and MRRH entered into a BMP agreement that went into effect in July 2010.

5. All three basins are part of a feasibility study that was initiated in 2009. Additional control programs may come out of that review.

6. The District has now acquired the C–139 Annex. This property adjoins STA–5 and 6 and gives the

District the ability to increase STA capacity for the Western Basins.

Summary With Respect to the Western Basins

In summary, I recommend that the Court adopt the following conclusions:

1. The Settlement Agreement/Consent Decree does not impose an obligation on the State Parties to satisfy the phosphorus numeric criterion in WCA–2 or WCA–3. In other words, discharges from the Western Basins into the EPA are the subject of enforcement under federal or state law, but not under the Settlement Agreement/ Consent Decree.

***28** 2. The State Parties are in compliance currently with the single sentence in the Decree that relates to designing and implementing control programs in the Western Basins.

3. If a reasonableness standard applies to this single sentence, currently the State Parties have satisfied that standard.

Is There a Phosphorus Load Requirement in the Decree? If So, Have the State Parties Complied With it?

The parties framed the issues in their pretrial stipulation:

1. Whether the State Parties complied with the provisions of the Consent Decree which provide that "Phosphorus loads discharged from the EAA will be reduced by approximately 80% to the EPA by October 1, 2003, and will be reduced by approximately 85% to the Refuge by February 1, 1999, as compared to the mean levels measured from 1979 to 1988."

A. Whether the phosphorus load reductions for the Everglades Protection Area ("EPA") and the Loxahatchee National Wildlife Refuge ("Refuge") are enforceable requirements of the Consent Decree or not?

B. How are the load reductions calculated?

C. Whether, assuming that the load reductions are enforceable requirements, the State Parties failed to achieve the load reduction requirements for the EPA and/or the Refuge?

2. Assuming the Special Master concludes that the phosphorus load reductions of the Consent Decree are not met, whether the State Parties are excused due to the acts of third parties (including acts or omission of the Army Corps of Engineers ("Corps"), weather events, legal barriers, or other defenses)?

Paragraph 8A of the Consent Decree provides:

> Phosphorus loads discharged from the EAA will be reduced by approximately 80% to the EPA by October 1, 2003, and will be reduced by approximately 85% to the Refuge by February 1, 1999, as compared to mean levels from 1979 to 1988.

These targets refer to reductions from the baseline loads from the EAA that were recorded in the time period 1979–88. In this ten-year period, approximately 205 tons entered the Water Conservation Areas from "the EAA, Lake Okeechobee, L–8 and C–51W basins through the S–5A, S–6, S–7, S–150 and S–8 structures."This figure of 205 tons was the basis of design for the four original STAs in the Settlement Agreement. During this same ten-year period, the average phosphorus loading from flows into the Refuge was "105 tons from the EAA, Lake Okeechobee, L–8 and C51W basins through the S–5A and S–6 pump stations."This figure of 105 tons was the basis for the design of STA–1 and STA–2. Report of the Special Master (December 1, 2003), p. 33.

There is no dispute that the 80% load reduction from these sources in the EAA to the EPA produces a figure of approximately 41 metric tons (20% x 205). There is also no dispute that the 85% load reduction from these sources to the Refuge produces a figure of approximately 15.75 metric tons. Report of the Special Master (December 1, 2003), p. 34; Tr., p. 713–714.

Arguments of the Parties With Respect to the Load Reduction Debate

***29** The Tribe argues that the State Parties have violated the load reduction provision. It says that the EAA delivered 87.75 metric tons of phosphorus to the EPA for the 12–month period ending October 1, 2003, compared to the load reduction target of 41 metric tons. The Tribe further states that the phosphorus loading to the Refuge for the 12–month period ending December 31, 2006 was 30.35 metric tons compared to the load reduction target of 15.75 metric tons. It also argues that since 2003 or 2006, loads into the EPA or the Refuge were below 41 or 15.75 metric tons, respectively, only in drought conditions. And for the 12–month period ending in

the months of June 2009 through July 2010, the Tribe says that the 12–month cumulative phosphorus inflow load to the Refuge was greater than 15.75 metric tons ten out of fourteen times, reaching a high of 20.5 metric tons for the 12–month period ending in April 2010. Similarly, for the 12–month period ending within this same fourteen—month period, the 12–month cumulative inflow load to the EPA was greater than 41 metric tons twelve times, with the peak 12–month load of 57 metric tons occurring in April 2010 also. Tribe's Posthearing Memorandum, p. 3–4; Exhibit 1404 (Erskine), p. 2–6.

The United States agrees with the Tribe that the load reduction language in the Consent Decree is prescriptive, not descriptive. However, through the testimony of Dr. Walker, the United States says that, in fact, the District has complied with the load reduction targets in the Consent Decree. Exhibit 1258 (Walker), p. 14–17; Exhibit 1296 (Walker), p. 18–20.

The State Parties disagree that the load reduction targets are "requirements" under the Consent Decree. They regard them as expectations of what would occur if the control programs were implemented as required by the Consent Decree. They explain that the Consent Decree provides that "if the Park or Refuge phosphorus limits or concentration levels are violated, then additional remedies will be taken."Settlement Agreement, p. C–4. Because no similar language exists with respect to load reduction targets,[63] they argue that if the Settlement Agreement drafters had intended for the load reduction targets to be independently enforceable in addition to the phosphorus concentration limits, "that requirement and an accompanying remedy would have been spelled out in the Decree with similar 'trigger' language."State Parties' Posthearing Memorandum, p. 23–25.

In support of their position, the State Parties cite *Sierra Club v. Meiburg*, 296 F.3d 1021 (11th Cir.2002) and *Reynolds v. Roberts*, 202 F.3d 1303 (11th Cir.2000) (Reynolds I).

Meiburg involved a consent decree that required the USEPA, under the Clean Water Act, to produce a timetable for establishing Total Maximum Daily Loads[64] for a number of water bodies in Georgia. The USEPA did so. Thereafter, the State of Georgia did not incorporate the TMDLs into its regulatory regime or implement them. 296 F.3d at 1027–28.After Georgia failed to act, Sierra Club moved the district court to order the USEPA to prepare implementation plans for the TMDLs. The USEPA responded that the decree only obligated the USEPA to prepare a TMDL timetable, not implementation plans. Georgia then prepared implementation plans and the USEPA sought dismissal of Sierra Club's motion as moot. Because of its belief that the implementation plans were flawed, Sierra Club pursued its interpretation of the decree. The district court then determined that the decree required the USEPA to develop implementation plans.[65] *Id.* at 1028.

***30** Looking at the plain language of the decree,[66] the Court of Appeals reversed. It held that there was no obligation imposed on the USEPA to develop implementation plans:

> The consent decree clearly and explicitly places a number of duties on EPA, including the requirement to establish TMDLs on a basin approach if Georgia fails to do so, but it just as clearly does not require EPA to develop implementation plans for those TMDLs once they are established. The decree contains seven pages setting out in detail EPA's obligations under it, and conspicuously absent from the list of those obligations is any mention of implementation plans. Indeed, implementation plans are not mentioned at all anywhere in the 28–page decree. If the parties had intended for the decree to put such an important and substantial responsibility on EPA, they would have spelled that out just [as] they spelled out its responsibility to establish TMDLs.
>
> 296 F.3d at 1030.

Reynolds I involved an employment discrimination consent decree. Plaintiffs sought back pay from the district court claiming that the decree had resolved the issue of liability for discrimination of the defendant against each member of the class. Defendant argued that the decree had not adjudicated the defendant's liability to individual class members for back pay. The district court sided with the plaintiff and awarded back pay and interest totaling $34.7 million to individual class members. The district court later acknowledged[67] that "at first blush" the issue of individual liability had been left open for later litigation. 202 F.3d at 1313.The district court, however, determined that a phrase in a Preamble to the decree that the decree constituted the "final and complete resolution of all class issues" was ambiguous and, after turning to extrinsic evidence of the parties' intent, held that this phrase meant that the defendant had discriminated against every member of the class, warranting individual relief. *Id.* at 1314.

Explaining that a district court "may not impose obligations on a party that are not unambiguously mandated by the decree itself," the Court of Appeals held the district court

improperly "rewrote" the decree. 202 F.3d 1212.[68] Then, applying common law contract interpretation principles to the decree,[69] the Court of Appeals held that the district court's back pay determination "is flatly inconsistent with the parties' agreement that, absent settlement, each class member (including the members of the merit-employee class) would have to establish entitlement to relief in post-decree proceedings before the court."*Id.* at 1315.[70]

The State Parties say that under *Meiburg* and *Reynolds I*, the Tribe's position is unsustainable since it results in a requirement not spelled out in the Settlement Agreement.

The State Parties add that Appendix C supports this interpretation. Appendix C starts out explaining that the control program of the Decree—STAs and BMPs—"is designed" to achieve "approximately an 80% reduction in phosphorus loads" from the EAA to the EPA by October 1, 2003, and "greater than an 85% reduction in phosphorus loads" to the Refuge by December 31, 2006, "relative to the average annual loads measured in Water Years 1979 through 1988."Consent Decree, Appendix C, p. C–1. Then, on page C–3 of the Consent Decree (emphasis added), the drafters of the Settlement Agreement wrote:

> ***31** Based on overall phosphorus loads and flows estimated to result from implementation of the STAs and BMP program, the combined flow-weighted mean concentration in discharges from the S5A, S6, S7, S150, and S8 will be reduced from 168 ppb to 50 ppb. Accordingly, the STAs are located and sized to deliver a uniform long term annual flow-weighted mean concentration of 50 ppb or less at each inflow point to the EPA. *Accomplishment of this objective will provide an overload reduction of 80% from the EAA into the EPA and a load reduction of at least 85% from the EAA into the Refuge.*

The State Parties argue that this language in Appendix C supports their interpretation that the load reductions would be a "by-product of achieving the phosphorus concentration limits."State Parties' Posthearing Memorandum, p. 24–25.

In any event, the State Parties explain that in 2002, the TOC approved a concentration-based method for determining whether load reduction targets had been met and the resulting loads have consistently been within the load reduction targets applying that method. Exhibit 1024 (Van Horn) p. 5.

The methodology to which the State Parties refer for calculating the load reductions from the EAA into the EPA and the Refuge is the "Walker Methodology" prepared in 1996 by Dr. Walker.[71] The State Parties explain that in approving the Walker Methodology, the TOC acted in accordance with Paragraph 18 of the Consent Decree that provides that the TOC "will plan, review and recommend all research, monitoring and compliance conducted pursuant to the terms of this Agreement."

Dr. Walker agrees that the data show compliance with the Walker Methodology approved by the TOC.[72] He explained that he developed the Walker Methodology in part to address additional sources of flows and loads that were delivered to the EPA and the Refuge compared to those contemplated in the 1992 Settlement Agreement. In 2007, he generated an improved methodology to determine compliance with load reduction targets to account for the differences in sources of flows and loads delivered to the EPA and the Refuge. Exhibit 1269. With respect to loads to the Refuge, the net result of Dr. Walker's 2007 analysis was an increase in the target load from 15.75 metric tons to 24 metric tons for measuring achievement of the 85% reduction. The increase is attributable to additional sources of flows from Acme Basin B, refinements to the estimates of historical loads from the S5A and S6 pump stations, and accounting for loads associated with offsetting reductions in runoff expected to result from implementation of BMPs but not considered in the 1992 Settlement Agreement calculation. Exhibit 1258 (Walker), p. 15–16.

With respect to the EPA, the load reduction target was increased from 41 metric tons to 84 metric tons. The increase was attributable to additional flows from ACME Basin B (5 metric tons), BMP replacement flows (11 metric tons), and an overall net increase of 24 metric tons due to revision of historical load estimates and expansion of the project scope to treat additional loads from the C–139 basin and additional flows released from Lake Okeechobee for hydrologic restoration purposes. Exhibit 1258 (Walker), p. 16.

***32** In response to these arguments, the Tribe refocuses on Paragraph 8A of the Settlement Agreement arguing that the verb "will" makes an obligation to reduce phosphorus loads a mandatory one. It further argues that because the date in Paragraph 8A was changed from 1997 to 1999 (reduction of loads to the Refuge) or 2003 (reduction of loads to the EAA) when the Omnibus Order was entered means that the load reduction language is prescriptive: "If these requirements were not meant to be prescriptive, then there would be no reason to amend the Settlement Agreement to extend the dates for achieving compliance."Tribe's Posthearing Memorandum, p. 7.

The Tribe adds that making the load reduction language a requirement of the Consent Decree is consistent with the "clear structure and evident purpose of the Settlement Agreement."Relying on testimony of Dr. Rice and Dr. Jones, the Tribe explained that the Consent Decree's emphasis on reducing the concentration of phosphorus in outflows while interim discharge limits were in effect would not make sense if load reduction also did not occur. "Since the load reduction requirements are intended to minimize the harm to the Everglades during the interim phase, they must be given force and effect."Tribe's Posthearing Memorandum, p. 7–8. [73]

With respect to the TOC's adoption of the 1996 Walker Methodology as the means to measure load reduction under the terms of the Settlement Agreement, the Tribe argues that (1) Dr. Walker himself has revised his methodology (Exhibit 1269), and therefore, the use of the 1996 methodology is improper; (2) the TOC did not have the ability under the Settlement Agreement to modify the "express load reduction requirements" of the document; (3) the State Parties should have sought a modification of the Decree to apply the Walker Methodology; and (4) "it makes no sense from an environmental standpoint to apply a test that allows for significantly more phosphorus loading than is contemplated by a plain reading of the Settlement Agreement."Tribe's Posthearing Memorandum, p. 8–11.

And as to the argument of the United States that loads have satisfied Dr. Walker's 2007 methodology which accounts for additional sources of phosphorus loading that were not included in the phosphorus load accounting at the time that the Settlement Agreement was negotiated, the Tribe argues (1) the TOC has not adopted the 2007 methodology and could not do so, in an event, under the plain language of the Consent Decree; (2) the 2007 methodology allows too much of a phosphorus load and accounting for additional sources of phosphorus since the Settlement Agreement was executed is improper without a modification of the Decree.

Finally, the Tribe argues that from a compliance perspective load reduction should be measured annually on a 12–month rolling average and not over any longer period of time as suggested by the District's witness, Stuart Van Horn. Mr. Van Horn had testified that the 1979–88 base period of annual phosphorus loads to the Refuge averaged 105 metric tons per year, but that the annual variability ranged from 38 to 154 metric tons. Hence, he testified, that a compliance methodology must take annual natural variability into account. Exhibit 1024 (Van Horn), p. 3.

Analysis of the Load Reduction Language in the Settlement Agreement

***33** The advocates of a load reduction requirement in the Settlement Agreement rely on Paragraph 8A, which states:

> Phosphorus loads discharged from the EAA will be reduced by approximately 80% to the EPA by October 1, 2003, and will be reduced by approximately 85% to the Refuge by February 1, 1999, as compared to mean levels measured from 1979 to 1988.

Paragraph 8A, however is included in one of the "summaries" identified in Paragraph 6. Paragraph 6 directs that "if a conflict arises between the following summaries and the Appendices, the Appendices shall prevail."Hence, before considering the meaning of Paragraph 8A, one must determine if there is a conflict between this paragraph and one of the appendices in the Settlement Agreement.

The topic of a load reduction is discussed in Appendix C, which is entitled, "Stormwater Treatment Areas (STAs)." Appendix C begins by focusing on the scope of a control program that should meet the interim and long-term concentration levels and limits for the Park and Refuge. Its first paragraph on page C–1 states:

> The control program described below and in Appendix E is anticipated to meet interim and long term concentration levels and limits for Everglades National Park (Park) and

> Loxahatchee National Wildlife Refuge (Refuge). The control program is designed to achieve approximately an 80% reduction in phosphorus loads from the Everglades Agricultural Area (EAA) to the Everglades Protection Area (EPA) by October 1, 2003 and greater than an 85% reduction in phosphorus loads to the Refuge by December 31, 2006, relative to the average annual loads measured in Water Years 1979 through 1988. This objective can be achieved through the combined use of agricultural best management practices (BMPs) and stormwater treatment areas (STAs) designed and operated to maximize phosphorus removal.

The focus of this appendix language is the control program. As designed, it is supposed to produce a significant load reduction to both the Park and the Refuge by 2003 and 2006 respectively. The load reduction is then referred to as an "objective" achievable through BMPs and STAs.

Appendix C then continues by describing how the 80% reduction could be achieved.

> Based upon worldwide experience with whole-system wetland treatment areas, the STAs should be capable of removing approximately 70% of their influent phosphorus loads. A further load reduction of approximately 6% is expected to result from conversion of existing agricultural lands to STAs. The combined load reductions attributed to land-use changes (6%), BMPs (25%) and STAs (70%) applied in series can therefore be reasonably expected to achieve a total reduction of approximately 80% relative to the amount of phosphorus that was historically discharged from the EAA into the EPA.

Settlement Agreement, p. C–2.

Once again, the focus is on actions that must be taken. The result that can reasonably be expected to be achieved if those actions are successful is an 80 percent load reduction into the EPA.

***34** Appendix C has yet another reference to load reduction on page C–3 and the focus remains on the control programs:

> Based on overall phosphorus loads and flows estimated to result from implementation of the STAs and BMP program, the combined flow-weighted mean concentration in discharges from S5A, S6, S7, S150, and S8 will be reduced from 168 ppb to 50 ppb. STAs are located and sized to deliver a uniform long term annual flow-weighted mean concentration of 50 ppb or less at each inflow point to the EPA. Accomplishment of this objective will provide an overall load reduction of approximately 80% from the EAA into the EPA and a load reduction of at least 85% from the EAA into the Refuge.

Once again, load reduction is a consequence of compliance with the control program. Assuming that Paragraph 8A contains a mandatory obligation, Appendix C contains no such obligation. It speaks only of objectives or expectations that flow from implementation of control programs. Hence, based on the directive in Paragraph 6 that appendices control over the text in the summaries that follow Paragraph 6, I conclude that Appendix C controls the interpretation of the load reduction language. I further conclude that the load reduction language of Appendix C—objectives and expectations—does not impose a compliance obligation.

There are a number of other reasons why I reach this conclusion.

Paragraph 8A appears in a section of the Settlement Agreement entitled, "Total Phosphorus Concentration Levels And Discharge Limits For The Refuge."The title focuses on levels and limits, not loads. Paragraph 8 which begins this section also focuses on interim and long-term phosphorus concentration levels for the Refuge:

> 8. The Parties agree that the interim and long-term total phosphorus concentration levels for the Refuge are as set forth in Appendix B. Total

> phosphorus concentration levels for the Refuge were calculated from water quality data collected by the District from 1978 to 1983.

Paragraph 8A follows this paragraph. Paragraph 8A does not say that the State Parties will reduce phosphorus loads by the stated percentages. Rather it says in a passive voice that "phosphorus loads ... will be reduced." That distinction may seem like a slight one but read in the context of the title of this section and the lead-in paragraph, both of which focus on meeting levels and limits, it shows that Paragraph 8A is describing the consequence of meeting interim and long-term phosphorus concentration levels.

The use of the words "approximately" 80% and "approximately" 85% also supports the conclusion that the load reduction language in Paragraph 8A does not create a mandatory compliance obligation. Suppose that the reduction was 76% and not 80% or 81% and not 85%? Would there be "compliance"? For it to be mandatory, the load reduction percentage would have to be fixed in a way that would make it enforceable.

I also find it persuasive that the Settlement Agreement contains no recourse obligation in the event these load reduction targets are not met. If there is a violation of the Park or Refuge phosphorus concentration limits or levels, the Settlement Agreement defines a response:

> ***35** then additional remedies will be taken, such as expansion of STAs, more intensive management of STAs, a more stringent EAA Regulatory Program, or a combination of the above. The State Parties shall not implement more intensive management of the STAs as the sole additional remedy.

Settlement Agreement, p. C–4. There is no comparable language application to the load reduction language.

The language in Appendix C—again, the drafters decided that the Appendices control any conflict with the text of the Settlement Agreement—is not the language of a compliance obligation. At page C–1, the drafters wrote that the control program "*is designed to achieve* approximately an 80% reduction of loads to the EPA and "greater than an 85% reduction" of loads to the Refuge. "Designed to achieve" does not have the same meaning as "must achieve" or "shall achieve."

At page C–2, there is a reference only to the load reduction into the EPA and here the drafters wrote that a combination of land-use changes, BMPs, and STAs "can ...*reasonably be expected to achieve"* a reduction of "approximately 80% relative to the amount of phosphorus that was historically discharged" into the EAA. Again, the words are not "must" or "shall" achieve, but "can reasonably be expected" to achieve, and then only "approximately."

At page C–3, the drafters wrote that accomplishment of the objective of a phosphorus concentration of 50 ppb or less at each inflow point to the EPA from an STA "will provide an overall load reduction of approximately 80% from the EAA into the EPA" and "a load reduction of at least [74] 85% from the EAA into the Refuge."The focus is on the phosphorus levels in outflows from the STAs. If they are reduced to 50 ppb or less, then, as a consequence, the loads reduction should be reduced by 80% or 85%.

Even if I were to conclude that the Consent Decree imposes an enforceable obligation to reduce loads into the EPA by 80% and into the Refuge by 85%, I would not conclude that the obligation has been violated by the data provided by the Tribe for several reasons:

1. Loads are going to vary over time as rainfall increases or decreases. As noted above, there was enormous annual variability in the baseline period (38 to 154 metric tons).

2. Paragraph 18 of the Settlement Agreement enables the TOC to "plan, review and recommend all research, monitoring and compliance, conducted pursuant to the terms of this agreement, and will consider technical advice and assistance for each activity as necessary from the appropriate agencies and from other state and federal agencies and consultants."The TOC unanimously adopted the 1996 Walker Methodology as a way to address variability and that methodology was, as noted above, incorporated into State permits. The use of a methodology to compare current loads to the baseline loads by trying to account for variability comfortably falls within the TOC's mandated jurisdiction under the Settlement Agreement.

***36** 3. It would be inappropriate to use a 12–month rolling average as a compliance measure in the absence of any language in the Settlement Agreement supporting such

an approach and in the absence of a TOC determination that doing so is the best way to measure success from a load reduction perspective.

4. It would also be inappropriate to compare the baseline loads based on defined sources of stormwater in the 1992 Settlement Agreement to current loads that include additional sources of stormwater. To conclude otherwise would result in rewriting the Consent Decree which *Meiburg* and *Reynolds I* both teach is impermissible.

If there is a criticism to be leveled here, it is that Dr. Walker has revised his methodology and the TOC has done nothing about that. But even under his 2007 methodology, the phosphorus load reductions to the Refuge and the EAA come within the objectives in the Settlement Agreement taking into account the additional sources of water being treated by the STAs.

Let me also add that I agree with the Tribe that now that long-term limits have gone into effect, if they are met, the issue of load reduction becomes "irrelevant." Tr. 28–29. [75]

Summary With Respect to the Load Reduction Issue

In summary, I recommend that the Court adopt the following conclusions:

1. The load reduction language in the Consent Decree does not establish a compliance obligation.

2. Even if it does, the obligation has been met.

The focus of the Settlement Agreement, and therefore, the Consent Decree is on (1) meeting the long-term limits and (2) addressing the role that the Class III numeric phosphorus criterion plays under the Decree, [76] the two subjects to which I now turn.

Was There a Violation of the Appendix A Long Term Limit in September 2008?

The Settlement Agreement's Appendix A compliance equation applies to measuring phosphorus concentrations in water entering Shark River Slough. The District collects weekly samples and reports monthly data based on bi-weekly samples. However, compliance is measured not month-by-month but instead annually at the end of September for the prior 12 months.

In the 2007–2008 compliance period (October 1 to September 30), the monthly data exceeded the long-term limit computed through August 31, 2008. When the September data was added to the equation, the flow weighted phosphorus inflows to Shark River Slough (10.2 ppb) equaled the long-term limit (10.2 ppb); in other words, the long-term limit was met as required by the Consent Decree.

Compliance was achieved by utilizing all of the weekly data collected in September 2008. That is what one would expect unless the quality of the data had been compromised.

Samplers and laboratories apply quality assurance protocols to ensure data integrity. For the September 3, 2008 sample at Station 12A, a quality assurance problem arose. A field-cleaned equipment blank (FCEB), part of the quality assurance program for the sampling event, was contaminated. The equipment used in the field to collect samples should not have any phosphorus associated with it. Hence, the fluid used to clean the equipment between samples that was collected in the quality assurance sample bottle also should not have contained any phosphorus. Because this rinsate did contain phosphorus, however, the District's laboratory followed a protocol that automatically "flagged" the associated sampling data.

***37** In most environmental circumstances, flagged data do not present a major obstacle: one can resample the surface water to determine if the flagged data are accurate or were impacted by the procedures followed by the samplers.

Here, however, where data are generated weekly to plug into a formula to determine compliance on an annual basis, the clock cannot be turned back to collect another sample during the same weekly sampling period. Hence, a decision had to be made: exclude the sampling data that had to be flagged by the laboratory because of a potential quality assurance concern, or include it because the reason for the flagging had nothing to do with the integrity of the sampling data?

In this particular setting, the answer to this question has important consequences. The long-term limit for the time period from 10/1/2007 to 9/30/2008 was 10.2 ppb. As noted above, if the "flagged data" are used, the annual flow-weighted mean of phosphorus inflows to Shark River Slough was 10.2 ppb. If, however, the "flagged" data are excluded, the annual flow weighted mean is 10.6 ppb, or .4 ppb higher than the Appendix A long term limit for this time period, resulting in a potential violation of the Consent Decree.

Against this backdrop, the parties framed the issues in their pretrial stipulation as follows:

> Whether phosphorus inflows to Shark River Slough in the Park during Water Year 2008 exceeded the long-term concentration limits defined in Appendix A of the Consent Decree?
>
> A. Whether the District improperly deviated from their normal QA/QC protocols in determining Shark River Slough's compliance with the long-term limits by including "flagged data" for Water Year 2008?
>
> B. Whether the phosphorus inflows to Shark River Slough in the Park during Water Year 2008 were a violation of the Consent Decree in the absence of a finding by the Technical Oversight Committee that the exceedance was due to error or extraordinary natural phenomena?

Background Facts

The Settlement Agreement Report for the period July–September 2008, Exhibit 1023 (Redfield) (Exhibit 3) was presented to the TOC at its January 29, 2009 meeting. The Settlement Agreement Report contained a compliance tracking chart for Shark River Slough that, for the compliance period October 1, 2007 through September 30, 2008, showed discharges to Shark River Slough in compliance.

The Quality Assurance Report for Water Quality Monitoring dated November 14, 2008, Exhibit 1023 (Redfield) (Exhibit 4), accompanied the Settlement Agreement Report. Table 3 of this report reflects the detection of 3 ppb phosphorus in a field-cleaned equipment blank collected on September 3, 2008 at the S–12A station. As a result, the District's laboratory "flagged" compliance samples collected also on September 3, 2008 at Station 12A as well as Stations 12B, 12C, 12D, and S–333. (See Figure 4 below). Each of sample results from these stations was assigned a "J" qualifier by the laboratory. *Id.* (Table 5).[77] The quality assurance report contains this explanation:

> ***38** As indicated in July–August 2003 TOC report, effective 10/1/03, the qualifier is applied when the analyte is detected in a field blank and associated samples are reported at concentrations equal or less than 5 times the detected blank value.
>
> *Id.*, p. 4.

The S–12A result for the September 3, 2008 sample was 7 ppb. The results for S–12B, S–12C and S–12D were 6 ppb, 8 ppb, and 10 ppb respectively. Exhibit 1023 (Redfield), p. 4. Each of these results is less than five times the detected value in the blank.

Figure 4. Everglades National Park Inflow Structures

When I inquired about the reference to a 2003 "TOC Report," Dr. Redfield, the sole witness offered by the District on this topic, could not explain it.

> THE SPECIAL MASTER: Take a look at the paragraph under table five. It says, as indicated in July, August 2003 TOC report, effective 10/1/03, the qualifier, which I assume is a reference to the J flag, is applied when the analyte is detected in a field blank and associated samples are reported at concentrations equal or less than five times the detected blank value.
>
> What is the July, August, 2003 TOC report effective 10/1/03?
>
> THE WITNESS: I do not know.

Tr. 1227–28 (Redfield).

At my request the District followed up and submitted documents which are marked as Exhibit 1638. In 2003, the District developed an automated data validation program in cooperation with the FDEP. The program was called "ADaPT." It is described in a September 16, 2003 email from the District's Quality Assurance officer to a number of persons on the subject of "Changes in Data Validation Protocol and Criteria."Exhibit 1638 (Attachment 4), p. 118. The email explained that, at the time, the District's laboratory was flagging data if there was a blank with a detection of phosphorus at two times (or more) the Method Detection Limit (MDL).[78] Under ADaPT, however, the laboratory would qualify all blanks that exceed the MDL and would flag all sample results with concentrations less than five times the blank value. Here the blank was 3 ppb. Because, as noted above, the results from the samples collected at the S–12A–D were less than 15 ppb, they were flagged under this 2003 protocol.

The TOC was informed of this change in the Water Quality Monitoring Report for July–September 2003. Exhibit 1638, p. 120. Specifically, through this report, the TOC was advised of the following changes in Data Assessment Protocols:

> Effective 10/01/03, EB [Equipment Blanks] and FCEB > MDL will be qualified. Also, affected samples (samples with concentrations < 5x the EB or FCEB value) will be *qualified.*This change is consistent with DEP, EPA and new automated data review process "ADAPT" being implemented at the District and its contract laboratories.

Id., p. 125 (emphasis added).

In 2004, the Phosphorus Rule was adopted by the FDEP. Section (4)(f) of the Rule specifically addresses "Data Screening." Section 4(f) states that data "from each monitoring station shall be evaluated prior to being used for the purposes of determining achievement of the criterion."It then provides that data "shall be excluded from calculations for the purpose of determining achievement of the criterion if such data"

***39** 1. Do not comply with the requirements of Chapter 62–160, F.A.C.; or

2. Are excluded through the screening protocol set forth in the Data Quality Screening Protocol....

Rule 62–302.540(4)(f), F.A.C. [79]

The Data Quality Screening Protocol is "Incorporated by Reference" in Rule 62–302.540(7) "as the protocol dated 7–15–04."With respect to "Blank Contamination" it, like the ADaPT validation program adopted by the District in 2003, provides that a blank will be considered contaminated if the laboratory result "is greater than the MDL (i.e., the parameter was detected)." Exhibit 1271.

It further provides that if "any analytical result associated with a contamination blank is less than 5 times the value of the contamination blank, all the associated samples for that sampling event shall be *disqualified."Id.* (emphasis added). Except for the last word, this approach is identical to the District's 2003 protocol. The District's protocol does not "disqualify" the associated sample data; it "qualifies" them.

Chapter 62–160, F.A.C., also referenced in the Phosphorus Rule, is the FDEP's quality assurance rule that became effective in its modified form relevant here on December 3, 2008. Its purpose is to "assure that chemical ... data used by the Department are appropriate and reliable, and are collected and analyzed by scientifically sound procedures."Rule 62–160(1), F.A.C. Under Section 62–160.670, all data "generated for Department activities are subject to data verification and data validation to determine if the data are suitable and usable for a specified purpose."Rule 62–160.670 sets forth eleven assessment factors which the Department considers to determine if data "are usable." Rule 62.160.670(2), F.A.C. In addition to the assessment of these factors, the Department also evaluates data according to "the procedures outlined in the Department's document 'Department of Environmental Protection Process for Assessing Data Usability (DEP–EA–001/07),' dated March 31, 2008, which is incorporated by reference in Rule 62–160.800, F.A .C."Rule 62.160.670(3).

The "Data Usability Analysis" is attached to the Declaration of Michael Blizzard, the Environmental Administrator in the FDEP's Standards and Assessment Section, Exhibit 1026 (Exhibit 2). Section 1.1 of this document explains that, "Determining if data are usable for a particular purpose is a complex task, requiring a reasonable and balanced evaluation of many factors."It then proceeds to explain that the procedural components of the assessment "must be performed by auditors with sufficient scientific expertise in environmental data verification and validation."Those procedural components include the following:

- Understanding the purpose for auditing the data (project or program data quality objectives provide the context for the audit);
- Identifying the set of data to be audited, the types of analytes or parameters in the data set and the reported values (e.g., concentration) for the analytical results for all components;

***40** • Determining the relationship between each analytical result, the associated decision or action level (e.g., water quality standard or cleanup target) and the laboratory's quantitation limit;

- Evaluating the documented calibration, quality control and other supporting data against designated Data Quality indicators;

- Establishing the pattern, frequency, and magnitude of any failures or other deficiencies associated with the results;
- Determining the extent to which the audited data set fulfills the Data Quality Objectives of the project or Program;
- Evaluating corroborative data (e.g., performance tests, data from other laboratories);
- Providing usability recommendations to the Program data users.

Id., p. 1

Section 1.2 of the Data Usability Analysis explains that data are not automatically excluded: "Exceeding the acceptance criteria for one or more Data Quality Indicators does not necessarily mean the data are unusable. The factors mentioned in 1.1 above must be systematically evaluated before a usability decision can be made."Sections 1.2.1 and 1.2.2 then provide this additional guidance to data assessors:

> 1.2.1. The purpose for which the analytical data were collected can vary widely, and may include such diverse activities as: initial screening or scoping studies, permit compliance monitoring, assessing waters for Total Maximum Daily Load development or determining whether a permitted waste facility has met "clean closure" site contamination assessment requirements.
>
> 1.2.2. A Data Quality Indicator failure that is acceptable for a screening study may not be acceptable for declaring a site free from contamination.

The TOC held a meeting on January 29, 2009 at which the Settlement Agreement Report for July–September 2008 was presented. Exhibit 1023 (Redfield) (Exhibit 3). The Shark River Slough compliance tracking chart showed compliance: 10.2 ppb was the long term limit and the flow-weighted mean for the period October 1, 2007 through September 30, 2008, was reported as 10.2 ppb. [80]

A District representative explained the FCEB phosphorus detection and the resulting flagging of data by the District's laboratory and also explained the impact on exclusion of the data: the 2007–08 flow-weighted mean concentration of phosphorus would have been 10.6 ppb, not 10.2 ppb. [81] However, the District representative explained that when the data for August and September were examined, the District felt it was still appropriate to use the September 3, 2008 data in part because grab sample and autosampler data the week before and after September 3 were consistent with the September 3 results; various other combinations of data in the August–September 2008 time period or for the entire time 12–month period produced a compliance concentration that was equal to or lower than the long-term limit; and the appearance of phosphorus in the rinsate from cleaning sampling equipment, if anything, would have biased a compliance sample result to the high side.

***41** The FDEP representative supported the District's conclusion. Its representative explained the adoption of the Data Usability Analysis by the FDEP on December 3, 2008, offered to post it on the TOC website, and suggested that it be considered in the future should the TOC decide to adopt a protocol on data usability. He also indicated that the District's handling of the flagged data was consistent with what the FDEP would have done under its quality assurance rules.

There was no mention of the Data Screening Protocol by the FDEP representative or the dichotomy between "disqualifying" flagged data under that 2004 FDEP protocol and determining "data usability" under the 2008 FDEP Data Usability Analysis.

The representative of Everglades National Park said he was not arguing the scientific logic behind the District's analysis, but instead wanted to focus on the process. He was concerned about the potential arbitrariness of unilateral decision making; if exclusion, rather than inclusion, of the flagged data would have resulted in compliance, he appeared to be asking what the District would have done.

A consultant to Everglades National Park, Dr. Walker, also did not focus on the "numbers," but raised broader questions about the process followed by the District as well. He added that looking back over the history of the data on samples collected at the Shark River Slough structures, the water quality should be better than it is and the TOC should be interested in trying to figure out why it isn't better.

The representative from the Refuge felt that the District should have reported the data without the flagged results which would have resulted in an exceedance of Appendix A and then the TOC together, not the District alone, should decide whether the noncompliance was a result of "error" looking at the factors identified by the District that supported the use of the data.

The representative of the ACOE did not address the subject.

No vote was taken. The minutes of the meeting [82] state only that the Settlement Agreement Report was presented, that "the TOC discussion focused on the September 3, 2008 data for Shark River Slough and TP detected in a field-cleaned equipment blank," and that Dr. Walker and a consultant to the District "will discuss what can be studied to better understand why TP concentrations have not been reduced in Shark River Slough."

Dr. Walker subsequently produced a paper for the Department of Interior (DOI) dated June 23, 2009 entitled, "Comments on the Compliance Report for Shark River Slough Inflow Phosphorus Limits in Water Year 2008" which was provided to the TOC. Exhibit 1630.

In these comments, Dr. Walker offered the following:

1. "Data rejected under normal QA/QC protocols were revived and used in the compliance calculations. To my knowledge, flagged data have not been used in previous compliance determinations under the Consent Decree. The unusual procedure resulted in reversal of the initial compliance result, which would have otherwise triggered TOC review of the data to determine whether the excursion resulted from error or extraordinary natural phenomena. The procedure followed ... essentially short-circuited the two-step process specified under the Consent Decree for compliance determinations by the TOC."

***42** 2. There is a need to establish an "explicit protocol to handle similar situations in the future" to avoid "unnecessary controversy and to ensure that future compliance determinations are accurate and consistent with Consent Decree requirements. It would have been far simpler and less controversial to simply follow the Consent Decree's formula. In my opinion, that formula could have been followed by discussing the data in the (Settlement Agreement) report but not changing the bottom line ... before discussing the topic at a TOC meeting."

3. The Phosphorus Rule's Data Screening Protocol provides that flagged data must be "disqualified." While the FDEP representative at the January 29 meeting told the TOC that "subjective intervention to over-ride QA/QC results was within other guidelines, there is no provision for that type of intervention in the FDEP (2004) document."

4. During 2007–08, there was another example of flagged data. The April 1, 2008 data were flagged because of a blank quality assurance issue. In that case, the data were excluded rather than included. "While including the April 1 data would not have affected the ultimate compliance determination, it would have been appropriate to discuss the April 1 flagged samples in the report and subject the data to the same degree of scrutiny as that applied to the September 3 flagged samples."

5. With respect to the District's use of supplementary data around the September 3, 2008 time period to support its inclusion of the September 3, 2008 data, "supplementary data can be used in the context of compliance measurement to identify sampling or analytical errors, as opposed to random variations, in the compliance data during the second phase of the compliance-determination process conducted jointly by the TOC. If the initial flagging of the September 3 data were interpreted as an error, consideration of this excursion in the second phase would be appropriate. Examples of supplementary data or information demonstrating error would include ... a documented contamination event that affected the blank sample but could not have impacted the structure samples."

6. Based on his review of the historical data, he recommended that the TOC "begin tracking long-term trends in the mass balances, water balances, and stage of each WCA."

The TOC met again on June 20, 2009. The minutes for this meeting state that the representative of the Park mentioned "that Bill Walker, DOI, submitted comments regarding Shark River Slough sampling and would like to discuss them at a future TOC meeting."The TOC has not had that discussion.

Almost a year later, at the May 18, 2010 TOC meeting, the minutes reflect a concern that I expressed about the 2009–2010 Shark River Slough data that was followed up by comments from the Park's representative and Dr. Walker. The minutes state:

> John Barkett, Special Master, expressed his concerns regarding the flow-weighted mean TP concentration being at or over the long-term limit

> for several months in a row. Nick Aumen shares those concerns and has mentioned them at previous TOC meetings. Bill Walker, DOI, recommends further examining data from WCA–3A to better understand how the system is responding relative to long-term levels.

***43** As it turns out, for the third year in a row, the compliance data for Shark River Slough equaled the long-term limit for 2009–2010.[83] The TOC has not otherwise reviewed the 2007–08 compliance determination or considered Dr. Walker's comments on behalf of the DOI.

Arguments of the Parties With Respect to the Use of Flagged Data

The District argues that it was proper to use the flagged data because such use was "in accordance with existing FDEP Rule 62–160, best scientific judgment principles and with the principles and rules governing quality assurance at the time the Consent Decree was entered into."State Parties' Posthearing Memorandum, p. 29.

More specifically, the State Parties offered a number of justifications for the use of the flagged data. First, the presence of contamination in a field-cleaned equipment blank does not "directly" signal "any contamination of the associated samples."Rather, the State Parties say, "they are used to check the effectiveness of the field equipment cleaning procedures between sampling stations by determining if artificial contamination contributed to any 'high bias' in the associated samples."Tr. 1002–03 (Blizzard).*Id.*, p. 30.

Based on the declaration of Mr. Blizzard, Exhibit 1026 (Blizzard), p. 6, who for purposes of the hearing conducted a data usability analysis on the flagged data and agreed with the District's conclusion to use the flagged data, they also argue that no evidence of contamination or high bias "has been found in the SRS data."*Id.*, p. 30–31.

Relying on Dr. Redfield, Exhibit 1023, p. 3, they argue that review of the sampling data from adjacent weeks and the historical period of record support the inclusion of the September 3, 2008 data "because it is entirely consistent with the other data collected."*Id.*, p. 31.

They also argue that the field-cleaned equipment blank value of 3 ppb "is so small" that "it is below the current 4 ppb TP Method Detection Limit" used by the FDEP laboratory and would not have been reported at all by FDEP, thereby illustrating the "large uncertainty" associated with discarding the flagged data results. *Id.*, p. 31, citing Exhibit 1023 (Redfield), p. 4–5.

The State Parties also argue that it is "standard practice for scientists to review flagged data and make an individualized determination based on their sound scientific judgment whether that individual flagged data is usable."*Id.*, p. 30.They cite the testimony of Dr. Walker:

> Q. Hypothetically then, if you were on the TOC and the issue came up in terms of an appropriate QA/QC protocol, would that include language automatically precluding the use of flag data, regardless of the circumstances?
>
> A. Likely not. It's likely that my recommendation would be to have interpretation of the data and a reasonable interpretation of the data jointly among the members of the TOC when decisions such as excluding or overriding the flags were made.

***44** Tr. 747 (Walker).[84]

With respect to the 2004 Data Screening Protocol referenced in the Phosphorus Rule, the State Parties argued that, since it did not exist in 1992, this protocol was not one contemplated by the parties at the time they executed the Settlement Agreement. They add that since the Decree "does not specify a particular quality assurance protocol," that the Court must determine the understanding of the parties on a quality assurance protocol at the time the Settlement Agreement was executed,[85] and then suggest that "the most probable understanding was that the best scientific judgment would be applied."*Id.*, p. 29, n. 12.

The Tribe begins its argument by quoting from the Settlement Agreement

> Any proposed changes in field sampling protocol or laboratory procedure must be justified and brought to the attention of the TOC before implementation. The sampling designs, frequency, analytical methodology, and QA/QC protocols employed in the monitoring

> program shall be subject to mutual acceptance by all parties.

Tribe Posthearing Memorandum at 33 quoting the Settlement Agreement, p. D–5–D–6.

The Tribe then argued that because

- Paragraph 5A of the Settlement Agreement provides that the State Parties "shall take such action as is necessary so that waters delivered to the Park and the Refuge achieve state water quality standards, including Class III standards,"
- The Class III standards are set forth in the Phosphorus Rule,
- The Phosphorus Rule contains a Data Screening Protocol, and
- The Data Screening Protocol requires disqualification of flagged data,

the September 3, 2008 flagged data should not have been used. Tribe Posthearing Memorandum, p. 33–35.

The Tribe sought to bolster its position by (1) citing to testimony that the cause of the contamination in the field-equipment cleaned blank was not determined, and (2) noting that no individual actually involved either in the sampling exercise on September 3, 2008 or from the District's laboratory testified. *Id.*, p. 35–26.

It also argued that the unilateral decision of the District to include the data bypassed the TOC and undermined the Consent Decree. Believing that there was an exceedance, the Tribe argued that the District's preemption of a TOC vote on whether the exceedance was due to "error" in effect converted the Consent Decree's requirement of a 4–vote majority to support any TOC determination into a single member's vote. *Id.* at 36–37.

The Tribe also cited Dr. Walker for the proposition that the use of supplementary data to support a compliance determination was inconsistent with the protocols followed in the baseline period from which the Consent Decree's long-term concentration levels were determined. *Id.* at 37–38 quoting Exhibit 1258 (Walker), p. 20. It cited Dr. Wise for the proposition that data usability determinations may be appropriate in a research project but are not proper in a compliance setting. *Id.* at 38 quoting Tr. 883 (Wise).

***45** Finally, the Tribe argued that the Data Usability Analysis was not in effect at the time that the September 3, 2008 samples were collected and cited to Dr. Redfield's response that under the 2004 Data Screening Protocol the flagged data would have been disqualified as of September 3, 2008, "because the data usability document had not been finalized at that time."*Id.* at 39–40 quoting Tr. 1196 (Redfield).

The Conservation Intervenors constructed the following legal theorem to support their position that the flagged data had to be disqualified:

1. The District laboratory's 2003 protocol was never approved by the TOC.
2. Dr. Redfield testified that the FDEP's quality assurance rules govern the treatment of flagged data.
3. Section 62–160.110(4) provides that the FDEP's quality assurance rules "take precedence" over quality assurance requirements in any other Department rule "except as otherwise specifically provided for elsewhere in this chapter."They then focus on the next sentence: "However, nothing in this subsection shall be construed to prevent additional or more stringent requirements imposed by any specific contract, order, permit, or Title 62 rule."
4. The Phosphorus Rule contains the Data Screening Protocol that is more stringent because it requires disqualification of flagged data.
5. Therefore, there is an exceedance under Appendix A of the Consent Decree unless the TOC determines the exceedance is due to error or extraordinary natural phenomenon.

Conservation Intervenors' Posthearing Memorandum, p. 2–6. Audubon also argued that the Phosphorus Rule's Data Screening Protocol is applicable and results in the disqualification of flagged data. Audubon's Posthearing Memorandum, p. 4–7.

Analysis of the Appendix A Issue

There was very little focus in the parties' arguments on the provisions of the Settlement Agreement that bear on the resolution of this dispute. Yet, it is that document which controls the outcome here.

As noted earlier, Paragraph 18 of the Settlement Agreement describes the role of the TOC.

> The TOC will plan, review and recommend all research, monitoring and compliance, conducted pursuant to the terms of this agreement, and will consider technical advice and assistance for each activity as necessary from the appropriate agencies and from other state and federal agencies and consultants. The TOC will make technically based recommendations by consensus approach; when a technically based recommendation cannot be reached by consensus, a 4 out of 5 majority, the impasse will be reported back to the Parties for mediation as provided for in paragraph 19. [86]

Paragraph 17 of the Settlement Agreement is entitled "Mutual Cooperation." It provides:

> The Parties agree that mutual cooperation is essential to implementing the actions necessary to achieve the commitments set forth in this Agreement. To accomplish this the Parties will provide assistance to each other in their responsibilities under this Agreement....

***46** Appendix D of the Consent Decree is entitled "Research and Monitoring Plan." It requires the State Parties to initiate a "comprehensive, long-term, multi-agency cooperative research and monitoring program."The State Parties are "primarily" responsible for the research and monitoring program "with support from the United States.""The National Park Service, the U.S. Fish and Wildlife Service, the USEPA, and the Corps will assist in the research and monitoring."Settlement Agreement, p. D–1.

With respect to the monitoring plan, Appendix D explains that the monitoring program's objective is "to measure effectiveness of the total phosphorus limits and concentration levels and document evidence of further disturbances, or recovery processes, in the Refuge, Water Conservation Areas, and Park."*Id.*, p. D–3–4.

There are "minimum" requirements for the monitoring program. Data must be "timely" even if that means use of provisional or unofficial data that may change after verification. Monitoring "shall be implemented to identify variation (temporal and spatial) in biological and water quality parameters" along certain fixed locations, or "transects" in the WCAs, the Park, and the Refuge. *Id.*, p. D–4–D–5. And specifically with respect to quality assurance, Appendix D provides:

> All monitoring programs must have a DEP [87] approved QA/QC plan in place within 9 months of the date of this Agreement. Any proposed changes in field sampling protocol or laboratory procedure must be justified and brought to the attention of the TOC for approval before implementation. The sampling designs, frequency, analytical methodology, and QA/QC protocols employed in the monitoring program shall be subject to mutual acceptance by all parties. The overall objective will be to maximize the accuracy and precision of the monitoring data, while insuring that any new sampling techniques or analytical procedures will not introduce bias relative to historical monitoring data upon which the limits are based. The plan should include measurements of concentrations due to contamination during field sampling and processing as well as laboratory analysis, and comparison of these levels to interim and long-term standards.

Settlement Agreement, p. D–5–D–6.

The Appendix D drafters had the foresight to give the TOC assistance. The last section of Appendix D is entitled "Review and Oversight." It provides for designation of a "panel" for the purpose of, among others, insuring the accuracy and quality of data interpretation. In full, it provides as follows:

> The TOC will designate a panel for review oversight and interpretation of the research and monitoring program. The purpose of this panel is to:
>
> 1) Review QA/QC documentation and requirements for consistency and approve modifications necessary to insure accuracy and quality of data collection, analysis, and interpretation,
>
> 2) Review and define suitability of measurement parameters and experimental designs,
>
> ***47** 3) Establish priorities within each component of research and monitoring program and
>
> 4) Review any proposed monitoring and research for consistency with objectives as defined in these Appendices or recommend modifications to objectives, experimental design, and monitoring based on analysis of results.

Finally, I turn to Appendix A. It provides that an exceedance occurs for discharges to the Park if the flow-weighted mean concentration for the water year ending September 30th "is greater than the 10% rejection level of the computed limit."It then states:

> Based upon review of trends for flow-weighted means, trends for the frequencies of samples exceeding 10 ppb, and other information found relevant by the panel, the TOC members will forward their opinions and recommendations to their respective agencies for appropriate action. An exceedance will constitute a violation unless the TOC determines there is substantial evidence that it is due to error or extraordinary natural phenomena.

Settlement Agreement, p. A–3–A–4.

Without expressing any views on the merits of the District's position (that the flagged data were technically sound and that it was reasonable to use them given that the reason for the flagging could not have affected the quality of the compliance sample results), the agreement of the parties does not permit the District to unilaterally determine that flagged data should be included for compliance purposes.

The Settlement Agreement requires "the TOC" to "plan, review and recommend" "all monitoring and compliance." It obliges "the TOC" to make technically based recommendations by consensus. It emphasizes the agreement of the "Parties" that "mutual cooperation is essential to implementing the actions necessary to achieve the commitments set forth" in the Settlement Agreement. It requires "the Parties" to assist "each other in their responsibilities under this Agreement."It tasks the State Parties with primary responsibility for a monitoring program but also requires support in this effort from federal agencies and departments. It establishes the objective of the monitoring program to "measure effectiveness" of the concentration levels. It requires a DEP-approved QA–QC plan for all monitoring programs, and approval of "the TOC" before implementation of changes in a "field sampling protocol" or "laboratory procedure." It directs "the TOC" to maximize the accuracy of data without introducing bias relative to "historical monitoring data upon which the limits are based."And it specifically establishes multilateral, not unilateral, decision making on QA/QC protocols:

> The sampling designs, frequency, analytical methodology, and *QA/QC protocols employed in the monitoring program shall be subject to mutual acceptance by all parties.*

Hence, the District did not act consistently with the Settlement Agreement by unilaterally presenting in the Settlement Agreement report a concentration in the water year ending September 30, 2008 of 10.2 ppb when flagged data existed. The proper approach was to show 10.6 ppb as the compliance concentration and then to invoke the review process of the Settlement Agreement to show that this concentration was due to error since, for compliance tracking, the September 3, 2008 data were not compromised by the contamination detected in the rinsate resulting from cleaning the field equipment. Then, if for some reason the TOC could not reach a consensus or a 4–vote majority, the option of designating a panel to review the QA/QC "documentation and requirements" and "approve modifications necessary to insure accuracy and quality of data collection, analysis, and interpretation" would be available. [88]

***48** Hence, if the Settlement Agreement parties do not choose to act without awaiting the Court's resolution of this issue, I recommend that the Court direct the District to modify the Appendix A compliance tracking result for the water year

ending September 30, 2008 to show a concentration of 10.6 ppb and then to direct the TOC to follow the Settlement Agreement's terms as outlined above to determine if the "exceedance" was due to "error."

In reaching this conclusion, I also make the following determinations with respect to the arguments of the parties.

Parties on each side of this issue have focused on the absence of a TOC-approved quality assurance protocol. The State Parties argue that the TOC "has yet to adopt its own quality assurance protocol for Consent Decree compliance determinations" to support the conclusion that it was proper to look to Rule 62–160, exercise scientific judgment, and follow quality assurance rules in place when the Consent Decree was executed. State Parties Posthearing Memorandum, p. 29. This argument does not help the State Parties. The current form of Rule 62–160, of course, was also not in place in 1992 so the first and third arguments are inconsistent. Moreover, the Settlement Agreement required the State Parties to initiate a monitoring program with support from the United States, required a QA/QC plan to be in place for monitoring programs within 9 months of the date of the Settlement Agreement, required any changes in field sampling protocols or laboratory procedures to be approved by the TOC, and then provided for designation of a panel "for review, oversight and interpretation" of the monitoring program. I do not regard this language as requiring adoption of whatever quality assurance protocol on flagging data that may have been in place in 1992. [89] It requires just the opposite: looking forward, the TOC was to make decisions on quality assurance protocols.

If the State Parties' argument is meant to say that that there was no protocol adopted by the TOC in place to govern quality assurance under the Consent Decree, then the logical conclusion is not that the District could exercise its own scientific judgment on how to treat the flagged data, but that the TOC should exercise its collective scientific judgment on how to proceed. [90]

There is danger in unilateral decision making. When inclusion of flagged data would produce noncompliance, it is too easy to exclude them and invoke the laboratory protocol of flagging as the reason. When inclusion of flagged data is necessary to achieve compliance, it is too easy to exercise unilateral scientific judgment to accept the data despite the laboratory's qualification. Good process—smart, transparent process—requires the TOC, not the District, to subject the flagged data to appropriate scrutiny.

I also reject the opposite conclusion: that because the TOC has not adopted a quality assurance protocol to address the situation raised here, that the Data Screening Protocol in the Phosphorus Rule is applicable and requires disqualification of the data.

***49** Quality assurance under the Settlement Agreement is governed by the TOC and where assistance is needed by a "panel" of persons qualified to render assistance to the TOC. The TOC is free to adopt whatever quality assurance rules it chooses to adopt as long as those rules meet the requirements of the Settlement Agreement outlined above. The testimony of witnesses—favorable to one side of this debate or the other—does not control; the language of the Settlement Agreement controls.

While this conclusion is dispositive, I also have reached these other conclusions. First, the purpose of data screening in the Phosphorus Rule is discussed in the Final Order of the Administrative Law Judge dated June 17, 2004, approving the Phosphorus Rule. Exhibit 1036a. The ALJ emphasized the importance of transparency in dealing with data and obtaining sample results that are representative of ambient water quality. *Id.*, p. 160.With respect specifically to exclusion of sampling data, the ALJ emphasized testimony about contamination of equipment "such as bottles by phosphorus residues left after rinsing" that "will produce artificially high levels of phosphorus in samples. Data obtained by means of contaminated equipment must be excluded."*Id* ., p. 160–61.In other words, contamination would be shown to exist that was not really there. That is not the issue presented here.

Second, if there is an inconsistency between the FDEP's Data Usability Analysis, Exhibit 1026 (Blizzard) (attachment), and the Data Quality Screening Protocol referenced in the Phosphorus Rule, Exhibit 1271, as I understand the FDEP's practices, the FDEP follows the former, not the latter. Exhibit 1026 (Blizzard), p. 1–3. [91]

Third, Rule 62–160.110(4) provides that Chapter 62–160"takes precedence over quality assurance requirements" in any other FDEP rule "except as otherwise specifically provided for elsewhere in this chapter."As Conservation Intervenors point out the next sentence reads, "However, nothing in this subsection shall be construed to prevent additional or more stringent requirements imposed by any specific contract, order, permit, or Title 62 rule."Conservation Intervenors read the Data Quality Screening Protocol as

having "more stringent requirements." When one FDEP document says data are not automatically disqualified and another FDEP document says that data are automatically disqualified, the issue is not stringency, it is inconsistency. [92]

Fourth, laboratory flags are neutral. When a FCEB is contaminated, flags are automatically raised based on the laboratory's protocol. The laboratory is not passing judgment on the integrity of sample data. Here, the rinsate from the cleaning of the field equipment at Station 12A had phosphorus in it, but that does not necessarily jeopardize the reliability of the phosphorus concentration from the sample collected at Station 12A, or the samples collected from Stations 12B, 12C, 12D, or S–333. [93]

***50** The other arguments of the State Parties go to the merits of using the flagged data, a topic that, as I have determined, should be addressed first by the TOC. [94] However the TOC decides to deal with data usability, I do not agree with the Tribe that the FDEP's Data Usability Analysis could never be considered because it was not in effect on the date that the sample was collected. I do not regard that as a sound legal proposition where the data are not presented to the TOC until January 2009 and have to then be evaluated by the TOC and where the Settlement Agreement makes reference to DEP-approved quality assurance plans. Settlement Agreement, p. D–5. And for reasons expressed in the FDEP's rules, and by Mr. Blizzard, Dr. Walker, and Dr. Wise, there is room for the application of scientific judgment in interpreting data here as long as the Settlement Agreement process is followed.

Finally, to avoid any possible argument in the future over what is "error," if the TOC reaches a consensus that supports the District's evaluation of the flagged data, I regard that consensus as qualifying as "error" for purposes of Appendix A.

One final word on the Shark River Slough data. As I wrote in 2006, the Consent Decree is designed to succeed, not to punish. It is a remarkable document in that representatives of the United States and the State of Florida attached themselves to each other to restore the flora and fauna of the impacted Everglades by reducing phosphorus concentrations despite being unable to predict how well STAs would actually function in relation to their design, how much STA acreage would actually be needed, how much it would rain, where it would rain, what the water needs would be of South Florida, and how to deal with Lake Okeechobee water levels, among other factors involving Mother Nature over which there is never any control.

Even if the TOC decides that the 2007–08 exceedance is the result of "error," from my humble vantage point reviewing the monthly data, and in light of what appear to me to be very thoughtful comments by Dr. Walker, the Shark River Slough data should be getting more attention than the TOC is giving it. I understand that any such review is always accompanied by concerns about budgets and I know that governmental revenues are scarcer these days. I have no control over budgets and I certainly have no ability to increase ad valorem revenues for the District or appropriations from the Florida legislature or the Congress for Everglades restoration. But as far as the District, the FDEP, the Refuge, the Park, the Corps of Engineers, and all of the other state and federal agencies who are working so diligently on Everglades restoration have come, there is still a long way to go. I would hope that those who control purse strings will recognize the good that has been done and the dire need to fund the good that is yet to be completed.

Summary With Respect to the Appendix A Issue

In summary, I recommend that the Court adopt the following conclusions:

***51** 1. The District should report the compliance data for 2007–2008 for Shark River Slough without the flagged data.

2. There is an exceedance of the Appendix A limits for the water year ending September 30, 2008.

3. The TOC must evaluate the exceedance to determine if the exceedance was due to error or extraordinary natural phenomena.

To avoid issues like this in the future, it would behoove the TOC to decide on quality assurance protocols that will be applied under the Settlement Agreement consistent with the TOC's mandated authority under the Settlement Agreement. A panel of scientists could serve the functions provided for it in Appendix D well to assist the TOC. I do not recommend that these topics should be the subject of a Court order. The TOC can decide for itself whether it will become proactive to avoid future issues like this or remain reactive or non-active to prompt yet more litigation over what it is supposed to be doing.

The Class III Phosphorus Criterion Issue

The parties framed the issues in their pretrial stipulation as follows:

> Whether the State Parties have complied with the Consent Decree's water quality requirements throughout the EPA, including the Refuge and the Everglades National Park ("Park")?
>
> A1. Whether the required concentration levels for the Refuge are determined by both the State's Class III criterion and the Appendix B long-term concentration levels, or only the Appendix B long-term concentration levels?
>
> A2. If the State's Class III criterion also applies, whether the concentration levels in the Refuge exceed the State's Class III criterion?
>
> A.3 Whether the inflows to the Refuge are required to achieve and/or result in compliance with the State's Class III criterion?
>
> A.4 If the inflows to the Refuge are required to achieve and/or result in compliance with the State's Class III criterion, whether the inflows to the Refuge have failed to meet this requirement?
>
> A5. Whether discharges into the Refuge exceed the maximum annual discharge limit applicable to the Refuge under the Consent Decree?
>
> B.1. Whether the inflows to the Park are required to achieve the State's Class III criterion or only the Appendix A criterion?
>
> B2. If the State's Class III criterion applies, whether the inflows to the Park exceed the State's Class III criterion?
>
> C1. Whether the Consent Decree requires all discharges into the EPA to achieve the State's Class III criterion or does the Consent Decree only apply to the Park and the Refuge?
>
> C2. If the State's Class III criterion applies, whether the discharges into the EPA failed to achieve the State's Class III criterion?
>
> D. Assuming the Consent Decree requires compliance with the State's Phosphorus Rule, Rule 62–302.540, is compliance dependent upon achieving the phosphorus criterion or the phosphorus water quality standard?
>
> E. Assuming the Special Master concludes that any applicable phosphorus concentration limit, level, discharge limit, effluent limit and/or load reductions of the Consent Decree are not met, whether the State Parties are excused due to the acts of third parties (including the acts or omissions of the Corps, weather events, legal barriers, or other defenses)?

***52** Let me break down these issues into more manageable parts.

Background Facts

When the Settlement Agreement was adopted, it embraced "interim concentration levels" as the initial compliance concentration for protection of the Refuge. There were 14 interior Refuge sampling locations for which there existed a history of data. These 14 stations, depicted in Figure 5, became the sampling network for compliance under the Settlement Agreement. They are sampled monthly as long as there is sufficient water to permit a sample to be taken at three depth gauge locations (1–7, 1–8C, and 1–9) also depicted on Figure 5. The sample results are then fed into a formula to derive the geometric mean of the phosphorus concentration for all 14 stations. After February 1, 1999 and before December 31, 2006, that geometric mean was then compared to the "interim level," a concentration computed under a formula depicted in Appendix B as long as the level of water, or stage, at certain locations was within certain depth parameters. That computation was expected to produce an interim level of approximately 10 ppb. Settlement Agreement, p. B–1–B–2.

Figure 5. 14–Station Appendix B Monitoring Network and Stage Gauge Locations

After December 31, 2006, the "long-term" level came into effect. It too is computed under a formula set forth in Appendix B to the Settlement Agreement. It was expected to generate a long-term limit of approximately 7 ppb. Id., p. B–3.

As of January 1, 2007, therefore, the 14 interior stations were being sampled monthly and would begin to be compared to the long-term limit for compliance purposes.

But what of the Class III numeric criterion that was adopted in Florida in 2004? There was no question that the Settlement Agreement drafters contemplated the conversion of the Class III narrative standard (no imbalance in the natural population of flora and fauna) to a numeric standard (the concentration of phosphorus that could be permitted in ambient water without causing such an imbalance). The Settlement Agreement specifically states that the "numerical interpretation of the Class III criteria for total phosphorus for the Refuge shall be determined by a research program designed by a panel of scientists designated" by the TOC. Settlement Agreement, p. B–3.

Ultimately, this research was conducted more broadly than by the TOC and resulted in the adoption by the FDEP in 2004 of the Phosphorus Rule described earlier in this Report. The Phosphorus Rule contains the Class III numeric criterion for water quality in the Everglades Protection Area: 10 ppb computed as a long-term geometric mean. § 62–302.540(4)(a), F.A.C.

But what does that mean? Is the long-term geometric mean of 10 ppb measured at the point of discharge from an STA into the Refuge? As I explained earlier, the answer in the Phosphorus Rule is "no." Compliance is measured by water quality within the EPA based on sample results from networks of sampling locations under the four-part test.

***53** Within the Refuge, the monitoring network used for compliance with the Phosphorus Rule consists of 24 stations depicted in Figure 6: [95]

- 14 stations of the original sampling network
- 6 stations that are part of an expanded water quality program conducted by the Refuge
- 3 stations that are part of a long-term State transect monitoring program, and
- 1 new station

Exhibit 1201 (Aumen), p. 4.

Figure 6. Map of the 24–Station Monitoring Network for the Four–Part Test (squares depict the impacted station network and circles depict the unimpacted station network)

As a refresher on the four-part test, it was designed to account for "spatial" and "temporal" variability in phosphorus concentrations. The four-part test requires regular sampling at the monitoring network sampling stations and the calculation of the geometric mean of the sampling data. The results are then evaluated under four separate criteria:

1. The five-year geometric mean averaged across all stations is less than or equal to 10 ppb.

2. The annual geometric mean averaged across all stations is less than or equal to 10 ppb for three of five years;

3. The annual geometric mean averaged across all stations is less than or equal to 11 ppb; and

4. The annual geometric mean at all individual stations is less than or equal to 15 ppb.

Section 62–302.540(4)(d)1, F.A.C.

The sampling results from the Refuge monitoring network for the time period 2005, 2006, 2007, 2008, and 2009 are published in the 2010 South Florida Environmental Report, Appendix 3A–6 (Exhibit 1205) and for the Refuge are replicated in Exhibit 1201 (Aumen), p. 6–7. There is no dispute that water quality in the Refuge failed the first part of the test for 2005–09—the five-year geometric mean averaged across all stations is less than or equal to 10 ppb—and the third part of the test—the annual geometric mean averaged across all stations is less than or equal to 11 ppb—in the impacted monitoring network stations in the Refuge as depicted in the following table:

Year	*What Network*	*<11 ppb Pass/Fail*	*≤ 10 ppb Pass/Fail*
2005	Impacted	Fail	
2006	Impacted	Fail	
2007	Impacted	Fail	

2008	Impacted		Fail
2009	Impacted		Fail
2005–2009	Impacted	Five–Year Network Average:	Fail

Water quality also failed the fourth part of the test—the annual geometric mean at all individual stations must be less than or equal to 15 ppb—at eight individual stations in the impacted monitoring network in 2005, two individual locations in 2006, and two more each in 2007, 2008, and 2009. In the unimpacted monitoring network, one individual station failed the fourth part of the test in 2005. Exhibit 1201 (Aumen), p. 6–7.

Is there a consequence to these test failures under the Settlement Agreement? That is a focal point of the parties' arguments: the State Parties say there is none because the four-part test has no application under the Consent Decree. Farm Interests and U.S. Sugar agree with the State Parties. The United States and the Tribe disagree. Conservation Intervenors and Audubon agree with them.

Interim Marsh Concentration Level (14 station geometric mean)	Effective Date February 1, 1999
Marsh—Class III Standard (Applies to entire Marsh)	December 31, 2006
or	
Long–Term Concentration Level (14 station geometric mean)	

How to interpret the disjunctive "or" is an issue of contention that 1 address below.

Then at page B–2, in the discussion of the "Interim Concentration Levels," Appendix B (emphasis added) provides:

> The current control program, consisting of on-line STAs and BMPs, as described in Appendices C and E, is designed to achieve a long-term average annual flow-weighted concentration of 50 ppb for each discharge to the Refuge and WCAs from the EAA. If the interim, *or the lower of the long-term Refuge interior marsh station concentration levels or Class III criteria*, are not met with the current control program, DEP will require additional components to be added to the control program to meet a maximum annual discharge limitation of 50 ppb for all discharges into the Refuge from the EAA.

***54** To understand these differences, I must explain the debate over the "whichever is lower" language in the Settlement Agreement.

The "Whichever Is Lower" Debate

Some form of this phrase appears several times in the Settlement Agreement. It appears in Paragraphs 8C, [96] 8D, [97] and 10B [98] but this text is not controlling since Paragraph 6 directs that the Appendices control interpretation of the Settlement Agreement at least with respect to the summaries that appears in Paragraphs 8 and 10. [99]

On Appendix page B–1, the following statement appears:

> Effective dates for the phosphorus concentration levels are as follows:

Then on page B–4, there are two references to the "or lower" phrase. Here is the text, beginning page B–3 (emphasis added):

Class III Criteria

The numerical interpretation of the Class III criteria for total phosphorus for the Refuge shall be determined by a research program designed by a panel of scientists designated by the Technical Oversight Committee. The research program must be recommended by the TOC. Such research shall begin no later than July 1, 1992 and a final report shall be completed no later than December 1, 2001. The purpose of the research will be to determine water column total phosphorus concentrations above which imbalances in populations of the natural flora and fauna within the Refuge will occur and to determine the numerical interpretation of the Class III nutrient criterion for total phosphorus. Effective December 31, 2006, the long-term total phosphorus concentration levels for the Refuge will be the 10% rejection level of stations CA1–5, CA1–6 and CA1–16 at a given mean daily stage. These three stations had the lowest geometric mean total phosphorus concentrations during the 1978–1983 baseline period. The long term concentration levels will apply to all 14 stations. Compliance with these concentration levels is expected to provide a long term average 14 station interior marsh concentration of approximately 7 ppb. Precise values for the levels can be calculated for a given mean daily stage using the equations given in Attachment II. Approximate values are as follows:

	Low Stage (15.42 ft msl)	High Stage (17.14 ft msl)
Interior Marsh—Long Term Concentration Levels (14 station geometric mean)	17	7

***55** *If the TOC determines Class III total phosphorus concentration levels are lower than the long term total phosphorus concentration levels then the lower levels shall apply.*

If the lower of the Class III or long-term levels is not met by December 31, 2006 and the 50 ppb maximum annual discharge limit is being met at all inflow structures into the Refuge from the EAA,[100] the TOC will recommend a lower maximum annual discharge limit for the structures to be enforced by DEP. Additional actions, such as regulatory measures and increased STA acreage, as appropriate from the empirical data on performance of each program, will be required by either DEP or the District to meet the lower discharge limit.

I reconcile these various references to what is "lower" in my analysis below, but to round out this foundation for the contentions of the parties, I must also quote Paragraph 5 of the Settlement Agreement. It discusses the "Class III standards" but makes no reference to what is "lower":

5. The State Parties shall take such action as is necessary so that waters delivered to the Park and the Refuge achieve state water quality standards, including Class III standards by December 31, 2006. The State Parties commit:

A. To achieve interim phosphorus concentration limits and levels as reflected in Appendices A and B, by October 1, 2003, and February 1, 1999 respectively.

B. To achieve long-term phosphorus concentration limits and levels, as reflected in Appendices A and B, by December 31, 2006.

In addition to the meaning of "whichever is lower," the scope of Paragraph 5 and the relationship between subparagraphs A and B to Paragraph 5 are also the subject of debate, as will be seen in the following summary of the parties' and intervenors' arguments.

Arguments of the Parties

I begin with the arguments of the United States.

Citing the results of the sampling in the Refuge under the four-part test and noting the compliance start date of December 31, 2006 in Paragraph 5 of the Settlement Agreement and page 1 of Appendix B, it first says that waters within the Refuge have failed to satisfy Florida's Class III numeric phosphorus criterion during the two water years (2007–2008, and 2008–2009) that followed December 31, 2006. United States' Posthearing Memorandum, p. 3–5.

The United States then relies on Paragraph 5 of the Settlement Agreement as establishing an "unqualified obligation" on the State Parties "to take such action as is necessary so that waters delivered to the Park and the Refuge achieve state water quality standards, including Class III standards by December 31, 2006."

It then references the "whichever is lower" language in Paragraph 8C and argues that for the 14 stations historically sampled in the Refuge, the monthly geometric mean is compared to the Appendix B long-term level or the Class III numeric criterion, "whichever is lower." However, for the rest of the Refuge, where the "long-term concentration levels of Appendix B do not apply," the Class III numeric criterion must be met, the United States contends. *Id.*, p. 9.

***56** The State Parties have a different view of "whichever is lower." They cite the vote of the TOC at its December 20, 2006 meeting on the "whichever is lower" question referring to the four-part test or the Appendix B long-term level determination. According to the minutes of the meeting (Exhibit 1006):

> There were 3 'no' votes from the Federal TOC representatives and 2 'yes' votes from the State representatives. Therefore, the motion did not carry and as a result, the TOC made no determination of which test is lower. Note that 4 or 5 representatives must vote for a motion for it pass the committee. [101]

Id. at p. 10.

The United States does not regard this TOC vote as material in its analysis. It explains that the 14–station network sampled under Appendix B covers only about 60% of the Refuge, in contrast with the 24–station network used for compliance with the four-part test. [102] In part for this reason, the United States rejects the State Parties' view that the Settlement Agreement requires an election between the "Class III and Appendix B regimes," explaining:

> If the State's interpretation were correct, a TOC determination that the Appendix B long-term concentrations were lower than Class III would mean that the State would be relieved of any Consent Decree obligation to achieve Class III level water quality in the approximately 40% of the Refuge not covered by the 14 interior stations used in Appendix B testing.
>
> United States Posthearing Memorandum, p. 11.

The United States argues that the State Parties' interpretation does not withstand scrutiny under federal common law contract interpretation principles. Saying that the goal of interpretation is to effect the intent of the parties, and that extrinsic evidence of intent is unnecessary if there is no ambiguity in the contract, the United States invokes Restatement (Second) of Contracts as an "appropriate resource for resolving disputed Consent Decree language."United States Posthearing Memorandum, p. 12–13. The United States then identifies these contract interpretation principles as applicable here:

- "Words and other conduct are interpreted in the light of all the circumstances, and if the principal purpose of the parties is ascertainable it is given great weight."
- A "writing is interpreted as a whole, and all writings that are part of the same transaction are interpreted together."
- "[w]here an agreement involves repeated occasions for performance by either party with knowledge of the nature of the performance and opportunity for objection to it by the other, any course of performance accepted or acquiesced in without objection is given great weight in the interpretation of the agreement.
- "[w]herever reasonable, the manifestations of intention of the parties to a promise or agreement are interpreted as consistent with each other and with any relevant course of performance, course of dealing, or usage of trade."

***57** Restatement (Second) of Contracts § 202(1)-(2), (4), (5). The United States also cites § 203(1): "an interpretation which gives a reasonable, lawful, and effective meaning to all the terms is preferred to an interpretation which leaves a part unreasonable, unlawful, or of no effect."

Focusing on the purpose of the parties, the United States quotes extensively from Paragraph 3 of the Settlement Agreement where the parties

- described the Refuge as a "unique and irreplaceable natural resource" (Paragraph 3);
- that the ecosystem of the Refuge is "changed by even slight increases in nutrient concentrations, particularly increases in the concentration of phosphorus"(*Id.*);

- that "the ecological integrity, and ultimately the survival of the ... Refuge [is] threatened by the inflow of EAA drainage water containing excess nutrients" (Paragraph 3A); and

- that "the high levels of phosphorus in EAA discharges constitute the most immediate water quality concern facing the Everglades system."(*Id.*)

The United States then references Paragraph 3C where the Settling Parties agreed that "surface water entering the Refuge, including water entering through the S–5A and S–6 pumping stations, contains nutrient levels that are causing imbalances in the natural populations of aquatic flora and fauna in violation of state water quality standards."The United States also cites Paragraph 3E where the "Parties further agree that the actions set forth in this Agreement are necessary to halt or prevent imbalances in natural populations of aquatic flora and fauna and other water quality violations in the ... Refuge."

Continuing with the section of the Settlement Agreement entitled, "Commitment to Restoring and Maintaining Water Quality," the United States cites Paragraphs 4 and 5:

> 4. In recognition of the serious and potentially devastating degradation threatening the Park and the Refuge as a result of nutrient-laden waters, and to further a process that resolves ongoing litigation, the Parties commit themselves to guarantee water quality and water quantity needed to preserve and restore the unique flora and fauna of the Park and the Refuge.
>
> 5. The State Parties shall take such action as is necessary so that waters delivered to the Park and the Refuge achieve state water quality standards, including Class III standards by December 31, 2006.

The United States concludes that the State Parties' interpretation of the "whichever is lower" language would thwart these purposes. The State would not have to deliver water to the Refuge that achieves Class III level water quality and would allow inflow to the Refuge of water containing excess nutrients as long as there is compliance with Appendix B at the 14 interior Refuge sampling stations. Unites States' Posthearing Memorandum, p. 15.

Further, the United Sates says, if the State Parties' interpretation was accepted, Paragraph 5 of the Settlement Agreement and the reference on page B–1 to "Marsh—Class III Standard (Applies to entire marsh)," which do not contain the "whichever is lower" text, would have no meaning. United States' Posthearing Memorandum, p. 15–16. [103]

***58** The United States concludes that because (1) the Class III numeric criterion is applicable under the Decree, and (2) the Refuge's water quality failed the four-part test that is employed to measure compliance with the Class III criterion, (3) there is a "violation" of the water quality requirements of the Decree. *Id.*, p. 20.

This conclusion then takes the United States to Paragraph 8D of the Settlement Agreement which provides in pertinent part (emphasis added):

> DEP will require compliance with a *maximum annual discharge limit* of 50 ppb for Refuge inflows if the interim or the lower of the long-term marsh concentration levels Class III nutrient criteria are not being met by the effective dates. By December 31, 2006, *if the 50 ppb maximum annual inflow discharge limit is being met but the* lower of the long-term marsh concentration levels or *Class III nutrient criteria is being violated, DEP will enforce more stringent inflow discharge limits.*

In Water Year 2009 (May 1—April 30), the flow-weighted mean concentration in waters discharged from STA–1E and STA–1W was 21 ppb and 36 ppb respectively, [104] obviously less than 50 ppb. The United States reasons that because the 50 ppb maximum annual inflow discharge limit was met, but the Class III nutrient criterion was not met, the FDEP has an obligation to enforce "more stringent inflow discharge limits."

What should the more stringent inflow limits be? Using the phrase "maximum annual discharge limit" in Paragraph 8D, the United States answers this question by proposing that the Court establish the maximum annual discharge limit and that it should be the WQBEL contained in EPA's September 3, 2010 Amended Determination prepared in response to Judge Gold's April 14, 2010 Compliance Order: discharges from the STAs may not exceed (1) 10 ppb as an annual geometric mean

in more than two consecutive years, or (2) 18 ppb as an annual flow-weighted mean.

The United States defends its proposed "maximum annual discharge limit" as needed to achieve the Class III criterion throughout the Refuge. United States Posthearing Memorandum, p. 21. Accepting this premise, the United States says that the WQBEL it derived to achieve the Class III criterion throughout the EPA should be applied by FDEP under the Consent Decree.

The first part of the WQBEL is the Class III numeric criterion (10 ppb as a long-term geometric mean) but based on at least three consecutive years of data, not one. Why three years and not every year? One of the experts for the United States, Daniel Scheidt, explained that, from a regulatory standpoint, the Class III criterion represents a *long-term* value, meaning *decades* of time. The statistical challenge is how in the *short term* (a *few* years) to establish discharge limits that will achieve that long-term result. Mr. Scheidt explains that assuming random variation in annual geometric means, if an STA is discharging at the long-term criterion of 10 ppb expressed as a geometric mean, the probability of exceeding 10 ppb in more than two consecutive years would be about 10%, meaning that there is a 90% likelihood that if part one of the WQBEL (proposed as the maximum annual discharge limit) is not met, then the long-term criterion of 10 ppb would also not be met. Phrased another way, there is a ten percent risk [105] that the STA would be declared in violation of the proposed maximum annual discharge limit when in fact the STA is discharging at or below the long-term criterion. Exhibit 1215, p. 17.

***59** Part two of the proposed maximum annual discharge limit—18 ppb as an annual flow-weighted mean STA outflow concentration—is, as noted earlier, the same limit proposed by the FDEP in its May 3, 2010 Technical Support Document (Exhibit 1232) that was presented publicly at the TOC meeting held on April 20, 2010. [106]

Again, as explained earlier, the numeric criterion of a geometric mean of 10 ppb is a long-term criterion. To require annual discharge limits of a geometric mean of 10 ppb would turn a long-term criterion of 10 ppb into a much lower number. [107] Hence, EPA, like FDEP, had to determine statistically how best to translate a long-term criterion of 10 ppb expressed as a geometric mean, into an annual flow-weighted mean. Mr. Scheidt explains what was done:

> Derivation of the annual discharge limit (18 ppb FWM) requires a statistical model (described by Dr. Walker) that accounts for the variability in TP at the STA discharge, and it requires determining the relationship between the annual GM TP and FWM TP at STA discharges. This necessitates the development of a database for TP at STA discharges. As of WY 2010, there were 54 STA-years of data. USEPA used 50 STA-years of data (over 90% of the data) generated from May 1995 through April 2010 from the six STAs for the derivation of the maximum annual discharge limit. Four years of data were excluded from use because STA performance was significantly impaired due to phosphorus overloading, hurricane damage, or construction associated with repair. Data were included for conditions reflecting extreme drought, construction, and implementation of optimization measures that contributed to elevated TP concentrations in the discharges. Retaining these latter data in the data set used for WQBEL derivation provide a broader basis for calibration and a range of variability to account for future STA performance and disturbances. These retained data are indicative of conditions that USEPA reasonably expects to recur. The resulting period of record STA database used by USEPA to develop the WQBEL (50 STA-years) is comparable with the number of station-years of data used by FDEP (55) to derive the TP criterion and the four-part test (72).
>
> Exhibit 1215 (Scheidt), p. 18.

Translating, USEPA took a large part of the available STA inflow and outflow data and input them into a statistical model [108] to predict what annual flow-weighted mean phosphorus concentration in water coming out of an STA would, at the 90th percentile of frequency distribution, achieve compliance with a long-term geometric mean phosphorus concentration of 10 ppb for the water throughout the entire 145,000 acres [109] of the Refuge.

EPA has confidence in the derivation of the 18 ppb flow-weighted mean. Using the historic annual geometric mean and flow-weighted mean concentrations for each STA, Mr. Scheidt depicted data that showed that a flow-weighted mean concentration is about 23% higher than a geometric mean concentration (for a 10 ppb geometric mean, the flow-weighted mean would be 12 ppb). To add confidence to the derivation of the 18 ppb portion of the WQBEL (proposed as one part of the maximum annual discharge limit here) as consistent with achieving the numeric criterion for the entire Refuge, Mr. Scheidt takes the annual geometric mean of 15 ppb at each individual Refuge monitoring station from part

4 of the Phosphorus Rule's four-part test, and converts this geometric mean to a flow weighted mean by multiplying by 1.23, producing a flow-weighted mean equivalent of 18 .45 ppb, or close to the 18 ppb derived in part 2 of the WQBEL. [110] Exhibit 1215 (Scheidt), p. 20; Exhibit 1258 (Walker), p. 9–10.

***60** The United States had one more hurdle it felt it had to overcome. EPA's WQBEL has two parts, one of which (less than or equal to 18 ppb as an annual outflow flow-weighted mean phosphorus concentration) is identical to FDEP's draft 2010 WQBEL. Why is part one, requiring that each STA discharge water that does not exceed a geometric mean concentration of phosphorus of 10 ppb for more than two consecutive years, also needed?

Mr. Scheidt answered this question.

> Requiring a one-part WQBEL with only the requirement not to exceed 18 ppb (FWM) as an annual maximum limit is inadequate for providing assurance that the criterion will be met at the STA effluent and the adjacent marsh over the long-term. If the future variability in TP at the discharges is less than the variability assumed in the derivation, and the discharges are near 18 ppb, it is possible that STAs could discharge in a range that does not achieve compliance with the TP criterion (i.e., exceed a long-term GM of 10 ppb or the equivalent FWM of 12 ppb). The facility could be found to be "in compliance" while the long-term concentration at the effluent could be as high as 18.4 ppb (18 ppb after rounding), well above the long-term FWM of 12 ppb or the equivalent long-term GM of 10 ppb. Therefore, an STA discharging at a one-part WQBEL of 18 ppb (FWM) over the long term would not be expected to result in attainment of the 10 ppb criterion throughout all of the EPA.

Exhibit 1215 (Scheidt), p. 20–21. Dr. Walker adds:

> The simulations that I performed to evaluate the WQBEL test confirmed that including the maximum 2–year test (USEPA Part 1) significantly improved the power of the test (probability of detecting a violation when the discharge is above the Class III criterion, LTGM = 10 ppb) especially if there is less year-to-year variability in the future STA discharge FWMs, as compared with the WQBEL calibration dataset.

Exhibit 1258 (Walker), p. 11.

The remainder of the United States Posthearing Memorandum (p. 27–36) on this subject addressed challenges made by the State Parties under a 1991 Technical Support Document, Exhibit 1039, which provides guidance on how to develop a WQBEL for toxic pollutants. For reasons explained below, I have elected at this time not to address either the challenges [111] or the United States' responses to them.

Finally, the United States addressed the State Parties' alternative argument that the Army Corps of Engineers' failure to build STA–1E in a timely manner, followed by the delivery of STA–1E with construction defects that affected not only its performance but also the performance of STA–1W, represent either "unclean hands" or "estoppel" that shifts responsibility for any Class III violation to the United States. I discuss this subject separately below.

The State Parties begin their posthearing memorandum by identifying principles for "consent decree interpretation." They maneuver their way through a number of Supreme Court and 11 th Circuit decisions to argue the following:

***61** • Consent decrees are construed as written, and should be construed "basically as contracts." *ITT Continental Baking Co.*, 420 U.S. 223, 426 (1975); *Reynolds I*, 202 F.3d at 1312–13.

• The meaning of a consent decree "must be discerned within its four corners."*United States v. Armour & Co.*, 402 U.S. 673, 682 (1971).

• Courts should not "imbue" a consent decree with "any type of overarching purpose not explicitly found in the text" of the decree, State Parties' Posthearing Memorandum, p. 6, relying on this quote from *Armour*, 402 U.S. at 681–82 (footnote omitted):

> Consent decrees are entered into by parties to a case after careful negotiation has produced agreement on their precise terms. The parties waive their right to litigate the issues involved in the case and thus save themselves the time, expense, and inevitable risk of litigation. Naturally, the agreement reached normally embodies a compromise; in exchange for the saving of cost and elimination of risk, the parties each give up something they might have won had they proceeded with the litigation. Thus the decree itself cannot be said to have a purpose; rather the parties have purposes, generally opposed to each other, and the resultant decree embodies as much of those opposing purposes as the respective parties have the bargaining power and skill to achieve. For these reasons, the scope of a consent decree must be discerned within its four corners, and not by reference to what might satisfy the purposes of one of the parties to it. Because the defendant has, by the decree, waived his right to litigate the issues raised, a right guaranteed to him by the Due Process Clause, the conditions upon which he has given that waiver must be respected, and the instrument must be construed as it is written, and not as it might have been written had the plaintiff established his factual claims and legal theories in litigation.

- "Post-consent decree conduct and statements by the parties are probative" of the meaning of a contract where "they demonstrate a course of dealing between the parties that reveals their original understanding as to the consent decree's terms."State Parties Posthearing Memorandum, p. 8 citing *United States v. Atlantic Refining*, 360 U.S. 19 (1959) and *Hughes v. United States*, 342 U.S. 353 (1952).

Atlantic Refining involved a consent decree between the United States and several major oil companies and their common carrier pipeline subsidiaries. The decree resolved a complaint that the subsidiaries were violating two federal statutes that made it unlawful for a common carrier to give a rebate to a shipper. The complaint alleged that the subsidiaries' payment of dividends to their shipper-owners was an unlawful rebate. The action was settled by entry of a consent decree that contained a provision that allowed a shipper-owner to receive a dividend equal to "its share of 7 percentum (7%) of the valuation" of the common carrier's pipeline property. Dividends in excess of this percentage were prohibited. From 1941 to 1957, the pipeline companies took 7% of the valuation of their pipeline properties and gave each owner a dividend in proportion to the percentage of stock each owner held in the pipeline company.

***62** In 1957, the United States decided to challenge this computation. The United States accepted the valuations "but argued, despite the language of the decree, that only a part of 7% of the valuation could actually be made available as dividends to stockholders."360 U.S. at 20.Because there was debt in the capital structure of the pipeline companies, the United States argued that the valuation had to first be reduced by debt owed to third parties before the 7% could be applied to it.

The Supreme Court agreed with the district court in rejecting this "strained" construction of the decree:

> On consideration of the language and the history of this decree we agree with the trial court. If the decree had meant to limit dividends to 7% of the current value of a parent company's actual investment in a subsidiary, as the Government claims, one can hardly think of less appropriate language in which to couch the restriction. Admittedly, by reading the word 'share' to refer to a proportion of total capitalization rather than to the percentage of stock owned by a parent company, the language can be made to support the United States' contention. But that is surely a strained construction, and cannot be reconciled with the consistent reading given to the decree, by both the United States and appellees, from the date it was entered until 1957–about 16 years.

360 U.S. at 22 (footnote omitted). [112]

In response to the argument that the United States' new position would "more nearly effectuate" the underlying statutes that gave rise to the complaint, the Court stated: "This may be true. But it does not warrant our substantially changing the terms of a decree to which the parties consented without any adjudication of the issues. And we agree with the District Court that accepting the Government's present interpretation would do just that."*Id.* at 23 (footnote omitted) citing *Hughes.*

Hughes involved a consent decree provision that required in Section V that Howard Hughes "either" sell certain stock in one of two companies, "or" deposit the stock with a court-designated trustee under a voting trust agreement that would remain in force until Hughes sold the stock in one of the companies. 342 U.S. at 355–56.Hughes elected not to sell his stock. He and the United States agreed on a trustee and the stock was deposited with the trustee under a voting trust agreement approved by court order. The United States later moved to force the trustee to sell Hughes' stock. The district court, without taking evidence and over Hughes' objection, then amended its order appointing the trustee and required the trustee to sell the stock within a fixed time period. Hughes appealed.

Interpreting the decree by its plain terms, the Supreme Court reversed:

> The Government argues that section V should be read as compelling Hughes to sell his stock within a reasonable time. We hold that the language of the section imposes no such requirement. A reading of the either/or wording would make most persons believe that Hughes was to have a choice of two different alternatives. Hughes would have no choice if the first 'alternative' was to sell the stock and the second 'alternative' was also to sell the stock. Moreover, section V provided that, if Hughes did not sell his stock but chose to place it in a voting trust, this trust should remain in force 'until Howard R. Hughes shall have sold' his stock. This would ordinarily mean that Hughes, not the Court, could decide whether his stock should be sold. Nor can a different inference be drawn from the language authorizing the court to provide the trust's general 'terms or conditions, including compensation to the trustee.'This language cannot support an inference that the court was empowered to deprive Hughes of either of his expressly granted alternatives.

***63** 342 U.S. at 356.

The Court also rejected the argument that the decree should be interpreted to accomplish its "basic purpose" (to divorce companies that owned theaters that exhibited movies from companies which produced and distributed the movies) where allowing Hughes to own a large stake in both types of companies would frustrate that purpose:

> It may be true as the Government now contends that Hughes' large block of ownership in both types of companies endangers the independence of each. Evidence might show that a sale by Hughes is indispensable if competition is to be preserved. However, in section V the parties and the District Court provided their own detailed plan to neutralize the evils from such ownership. Whatever justification there may be now or hereafter for new terms that require a sale of Hughes' stock, we think there is no fair support for reading that requirement into the language of section V. The District Court's order cannot be supported by reliance on such an interpretation. Consequently the court's command to sell the stock effected a substantial modification of the original decree.

342 U.S. at 357.

Applying these cases, the State Parties argued that the United States is for the first time since 1992 asserting that the Settlement Agreement allows for enforcement of both Appendix B long-term limits and the Class III numeric criterion. State Parties' Posthearing Memorandum, p. 12–13. This interpretation is inconsistent with the Settlement Agreement's terms, say the State Parties:

> The Consent Decree does not mandate that Florida's phosphorus water quality standard apply in the Refuge. Rather, it provides that the Appendix B long-term concentration levels apply until and unless the Technical Oversight Committee ("TOC") determines that the State's phosphorus criterion, Rule 62–302.540, Florida Administrative Code, is lower. On December 20, 2006, the TOC—by a three to two vote in which the federal representatives prevailed—determined that the Appendix B levels were lower.

Id., p. 13.

But what of the specific language of Paragraph 5 which does not contain any reference to "whichever is lower"? The State Parties had this response to the United States' reliance on

this Paragraph adding emphasis to the second sentence of Paragraph 5 that introduces subparagraphs A and B:

> While it is true that paragraph 5 states that the State Parties will deliver water that achieves state water quality standards by December 31, 2006, there are several important caveats. First, this language appears in a broadly worded introductory paragraph entitled "Commitments to Restoring and Maintaining Water Quality."Second, immediately after the cited sentence, the same paragraph provides: "The State Parties commit ... to achieve long-term phosphorus concentrations and limits, *as reflected in Appendices A and B, by December 31, 2006.*"

The State Parties next reference Appendix page B–4 which contains this sentence: "If the TOC determines the Class III total phosphorus concentration levels are lower than the long term total phosphorus concentration levels, then the lower levels shall apply."This sentence leads the State Parties to conclude that when read "in its entirety" and "in context" with this Appendix B text, "it becomes evident that the State Parties agreed to deliver water to the Refuge that achieved compliance with the Appendix B phosphorus requirements (as measured at the 14 interior monitoring stations), unless and until such time as the TOC determined the State's phosphorus standard to be lower." [113]

***64** The State Parties then argue that because there are seven references in the Settlement Agreement to the "lower" of the Appendix B long-term concentration or the Class III numeric criterion, the Settlement Agreement drafters were expressing their "clear intent" that one or the other would apply but not both. They specifically interpret the "or" on Appendix page B–1 as referring to such an election:

> In fact, at page B–1, where the Consent Decree actually references the two different sampling regimes, it is abundantly clear that there would be an election between the two, i.e., the Class III standard that "applies to [the] entire marsh" *or* the long-term Appendix B levels "14 station geometric mean." The drafters didn't use the word "both" or "and." They used "or."

State Parties Posthearing Memorandum, p. 13.

The State Parties then argue that *Atlantic Refining* and *Hughes* support their reliance on positions taken by the United States that are inconsistent with the position asserted by the United States here. In support they cite to testimony of Dr. Walker given in 2005 and to a report of Dr. Walker prepared in 2006, Exhibits 1002 and 1005, in which he offers his views of the "whichever is lower" language. They also rely on text from the August 19, 1991 Joint Motion for Approval of the Settlement Agreement which provides (the emphasis comes from the State Parties):

> The Agreement establishes *provisional* interim and long-term total phosphorus concentration limits for Everglades National Park and Loxahatchee National Wildlife Refuge. The interim limits, to be achieved by July 1, 1997, are established to ensure progress toward meeting the long-term limits in the year 2002. *The long-term limits are intended to ensure the restoration and maintenance of the native flora and fauna in the Park and Refuge. The Agreement also calls ultimately for numerical interpretation of State Class III Water Quality criteria applicable to the Park and Refuge, and implementation of the numerical interpretations if they are more stringent than the long-term limits set forth in the Agreement.*

State Parties Posthearing Memorandum, p. 16–19. [114]

The State Parties also argue the doctrine of judicial estoppel, citing *New Hampshire v. Maine,* 532 U.S. 742, 749 (2001). [115] They say that the text of the Joint Motion for Approval of the Settlement Agreement creates the estoppel: "As previously discussed, in entering the Settlement Agreement, the United States agreed that whichever of the two was determined to be lower, by the TOC, would apply."*Id.*, p. 20.

Finally, the State Parties say that if the United States "now want the Class III standards to apply in the Refuge, as opposed to Appendix B, it has an easy solution: bring the 'whichever is lower' issue back to the TOC for another vote."*Id.*, p. 21.

In the event that I disagreed with the State Parties on the merits of this issue, they urged me to levy "any appropriate remedy" against the United States, not them, because of the design defects and poor performance of STA–1E. *Id.*, p. 21.

***65** For its part, the District sought to demonstrate why EPA's WQBEL does not satisfy EPA's guidance documents on determination of WQBELs. If I disagreed with the District, however, it said that with respect to outflows from the STAs, the record supported a WQBEL of 19 to 21 ppb as an annual flow-weighted mean concentration, instead of 18 ppb, and a five-year geometric mean of 10 ppb, as opposed to 10 ppb in not more than two consecutive years. District's Posthearing Memorandum, p. 15.

The Tribe repeats its argument that the Settlement Agreement requires that all discharges into the WCA–2 and WCA–3 satisfy the Class III numeric phosphorus criterion. [116] I have already ruled above that it does not. See "Breadth of Compliance Obligations Under The Settlement Agreement Vis-à-vis WCAs 2 and 3."

With respect to the Refuge, the Tribe's Posthearing Memorandum captures the alternative proposals made to establish a "maximum annual discharge limit." Its expert, Dr. Rice, proposed a two part test: (1) an annual flow-weighted mean, 3–year rolling average of 10 ppb and (2) a maximum annual flow-weighted mean based on the natural variability found in the Everglades marsh. Exhibit 1449 (Rice), p. 18. It summarized the United States' proposal to make its WQBEL the maximum annual discharge limit. It cites the FDEP's various WQBELs. It also references the District's expert who testified that the District's analysis of EPA's statistical model, using a different data set, would produce an annual flow-weighted mean concentration of 19 or 20 ppb at the 90th percentile confidence interval, instead of 18 ppb as derived by USEPA in part 2 of its WQBEL. Tribe's Posthearing Memorandum, p. 40–42.

But the Tribe reasons that there is no need to choose among these alternatives to conclude that the Settlement Agreement requires compliance with the Class III numeric criterion in the Refuge and that the criterion has not been met.*Id.*, p. 42–43.

The Tribe also argues that the Court should not adopt the WQBEL as a maximum annual discharge limit for the Refuge because there is insufficient information in the record to support the derivation of the WQBEL, the WQBEL is flawed, and the WQBEL allows for false positives. *Id.*, p. 44–46.

Audubon agrees with the Tribe and the United States that the Class III numeric criterion is applicable in the Refuge and that the four-part test has not been satisfied. It further urges the adoption of Dr. Rice's proposed test or EPA's proposed test to be protective of the water quality in the Refuge. Audubon's Posthearing Memorandum, p. 3–4. [117]

U.S. Sugar's posthearing memorandum supports the position of the State Parties. U.S. Sugar's Posthearing Memorandum, p. 3–12. It also argues that the state administrative process, not this judicial forum, is the proper venue for development of a WQBEL. *Id.*, p. 12–16.

Farm Interests also support the State Parties' position and citing to Judge Hoeveler's original order approving the Settlement Agreement as a Consent Decree as well as the Omnibus Order, articulate in a comprehensive manner why in their judgment state administrative process must be looked to for development of a WQBEL. Farm Interests' Posthearing Memorandum, p. 4–12, 15–28. [118]

Analysis of the Applicability of the Class III Numeric Phosphorus Criterion in the Refuge

***66** Applying the contract interpretation principles advanced by the parties, I conclude that the Consent Decree does embrace the Class III phosphorus numeric criterion but that the more stringent standard that the FDEP must enforce is not ripe for a determination by the Court.

Appendix B represents the Settling Parties' blueprint for restoration and protection of the Refuge. I quote in full the text of Appendix B that appears under the subheading, "Class III Criteria." For ease of reference I have numbed the paragraphs below as B.1, B.2 and B.3.

Class III Criteria

> B.1 The numerical interpretation of the Class III criteria for total phosphorus for the Refuge shall be determined by a research program designed by a panel of scientists designated by the Technical Oversight Committee. The research program must be recommended by the TOC. Such research shall begin no later than July 1, 1992 and a final report shall be completed no later than December 1, 2001. The purpose of the research will be to determine water column total phosphorus concentrations above which imbalances in populations of the natural flora

and fauna within the Refuge will occur and to determine the numerical interpretation of the Class III nutrient criterion for total phosphorus. Effective December 31, 2006, the long-term total phosphorus concentration levels for the Refuge will be the 10% rejection level of stations CA1–5, CA1–6 and CA1–16 at a given mean daily stage. These three stations had the lowest geometric mean total phosphorus concentrations during the 1978–1983 baseline period. The long term concentration levels will apply to all 14 stations. Compliance with these concentration levels is expected to provide a long term average 14 station interior marsh concentration of approximately 7 ppb. Precise values for the levels can be calculated for a given mean daily stage using the equations given in Attachment II. Approximate values are as follows:

	Low Stage (15.42 ft msl)	High Stage (17.14 ft msl)
Interior Marsh—Long Term Concentration Levels (14 station geometric mean)	17	7

If the TOC determines Class III total phosphorus concentration levels are lower than the long term total phosphorus concentration levels then the lower levels shall apply.

B.2 If the lower of the Class III or long-term levels is not met by December 31, 2006 and the 50 ppb maximum annual discharge limit is being met at all inflow structures into the Refuge from the EAA, the TOC will recommend a lower maximum annual discharge limit for the structures to be enforced by DEP. Additional actions, such as regulatory measures and increased STA acreage, as appropriate from the empirical data on performance of each program, will be required by either DEP or the District to meet the lower discharge limit.

Compliance Review

B.3 A panel of scientists designated by the TOC will track and evaluate compliance with all aspects of state water quality standards including the phosphorus limits, concentration levels and criteria. The represented agencies may request technical assistance from others. An exceedance occurs if the 14 station mean concentration is greater than the computed concentration level two or more times in any 12 consecutive sample collections. Based upon review of monthly trends for the 14 station mean and other relevant information, the TOC members will forward their opinions and recommendations to their respective agencies for relevant action. An exceedance will constitute a violation of this Agreement and relevant water quality criteria unless the TOC determines there is substantial evidence that it is due to error or extraordinary natural phenomena. If fewer than three sampling date geometric means collected within the past 12 consecutive sampling periods are below the mean interior marsh total phosphorus concentration level during the baseline period, then the panel will be convened to review monitoring data and assess the potential causes and recommend changes in the total phosphorus levels as necessary to meet the objectives of this Agreement.

***67** Paragraph B.1 relates to the development of the numeric phosphorus criterion. In 1992, the drafters of the Settlement Agreement anticipated that the TOC would oversee the derivation of the concentration of phosphorus in the water in the Refuge that would *not* result in an imbalance of the natural flora and fauna of the Refuge.

The vision was for a phosphorus concentration in the ambient water. That's demonstrated by Paragraph B.1 which discusses the long-term level that would supersede the interim level as of December 31, 2006. If the long-term level was met, it was expected "to provide a long term average 14 station interior marsh concentration of approximately 7 ppb." The equation that appears as Attachment II to Appendix B would provide the precise value for the long term level but approximate values were depicted: when the stage was low, the long term concentration level (expressed as a 14 station geometric mean) would be 17 ppb. When the stage was high, the level would be 7 ppb.

It is after this depiction of expected long-term levels that the following sentence appears:

> If the TOC determines Class III total phosphorus concentration levels are lower than the long term total phosphorus concentration levels then the lower levels shall apply.

As I said above, the drafters envisioned a Class III concentration level. Under the State's Phosphorus Rule, it turned out to be 10 ppb expressed as a geometric mean. In a low-stage environment, 10 ppb is lower than 17 ppb. In a high-stage environment, 10 ppb is higher than 7 ppb. What this sentence is saying is that the TOC could choose to substitute 10 ppb for the variable long-term level that was otherwise controlled by stage. Whatever the TOC thought it was voting on in December 2006, this is the only determination envisioned by this sentence.

The State Parties read too much into this sentence. Even though this is the only "whichever is lower" reference that includes a determination by the TOC with respect to the difference between the Class III concentration and the long term level, the State Parties view it, and the TOC vote, as dispositive of every reference to "whichever is lower" in Appendix B and the remainder of the Settlement Agreement.

But such a construction would require ignoring too many other provisions in the Decree addressing the Class III criterion and the response to a violation.

Let me start with the latter. A "violation" of the long-term limit for the Refuge occurs only when there are two exceedances of the "computed concentration level" within "any 12 consecutive sample collections" and when the TOC determines that the "violation" was not due to error or extraordinary natural phenomena. Settlement Agreement, p. B–5. A "violation" under the Decree is not a pejorative word. The difference between a "violation" and "compliance" can be as small at 0.1 ppb. There is no "penalty" for a violation. A violation does not mean that the State Parties are doing anything wrong. A violation means that monitoring data on the phosphorus concentrations in the impacted area of the Refuge have triggered an environmental alarm clock that says that more control programs will be necessary. [119]

***68** Of course, paying a penalty or a fine for a violation might be a lot less costly than acquiring land for a new STA and then constructing it. [120] But as I have said already, the Consent Decree is designed to succeed, not to punish. With all of the phosphorus already in the ambient system and with continuing use of phosphorus in the EAA, success means figuring out a way to get the phosphorus levels consistently down to the point where water quality in the Refuge will remain below 10 ppb computed as a long term geometric mean.

Appendix B contemplated the presence of a panel of scientists to help the TOC track and evaluate compliance with all aspects of water quality standards. That panel still does not exist [121] and, insofar as I am aware, has never existed. If it did exist, Appendix page B–5 would give it another task that relates to the applicable phosphorus level "to meet the objectives of this Agreement."If "fewer than three sampling periods are below the mean interior marsh total phosphorus concentration level during the baseline period," [122] then the panel is supposed to be convened to review the monitoring data, assess causes, and recommend changes in the total phosphorus levels.

Both of these provisions relate to the long-term level. As the load reduction analysis above demonstrates, one of the premises of the Settlement Agreement is that achievement of long-term level will significantly reduce phosphorus loads in inflows to the Refuge.

Hence, Paragraph B.2 addresses a situation different from the situation where there are two exceedances or where there are fewer than three geometric means below the baseline period phosphorus concentration levels. It addresses what should be done if "the lower of the Class III or long-term levels" is not met by December 31, 2006 and a "maximum annual discharge limit" of 50 ppb "is being met" at all inflow structures into the Refuge. [123] When that occurs, the Settlement Agreement provides for a different remedy: "the TOC will recommend a lower maximum annual discharge limit for the structures to be enforced" by the FDEP.

In this context, the TOC is not choosing whether the Class III or the long-term level is lower. It is required to react if either level is not met. The interpretive problem comes not from some artificial compartmentalization of the Refuge to the 14 interior stations versus the remainder of the Refuge. It comes from the way achievement of the Class III criterion is evaluated: a new monitoring network and a four-part test. The drafters may not have contemplated either more sampling stations or a different compliance test. But they did contemplate (1) rigorous protection of the Refuge and (2) application of the Class III criterion to the Refuge.

In Paragraph 3 of the Settlement Agreement there was a Settling Party consensus that the Refuge [124] is a unique and irreplaceable natural resource that contains "unmatched, world-renowned examples of biologically rich and sensitive ecosystems."One "hallmark characteristic" of the Refuge is

its oligotrophic, or "nutrient-lean," natural condition. The Refuge ecosystem is "changed by even slight increases in nutrient concentrations, particularly increases in the concentration of phosphorus."Settlement Agreement, p. 6–7. The Settling Parties also agreed that excess nutrients from the EAA drainage water threatened the ecological integrity and "ultimately the survival" of the Refuge. They recognized that the high levels of phosphorus in EAA discharges "constitute the most immediate water quality facing the Everglades System."The Settling Parties also recognized the accumulation of phosphorus in the peat in the Everglades ecosystem and acknowledged the imbalance in the natural flora and fauna of the Refuge that had resulted from water entering the Refuge with nutrient levels that were too high. Settlement Agreement, p. 7–8. The Settling Parties thus agreed that the nutrient-polluted water "threatens to devastate the ecosystem" of the Refuge and that "the actions set forth in this Agreement are necessary to halt or prevent imbalances in natural populations of aquatic flora and fauna" in the Refuge. *Id.*, p. 8–9.

***69** With these agreements on the "Background Problem," the Settling Parties then wrote their "Commitment to Restoring and Maintaining Water Quality."*Id.*, p. 9. They —the United States and the State Parties—first committed themselves in Paragraph 4 "to guarantee water quality" needed "to preserve and restore the unique flora and fauna" of the Refuge. *Id.* Then in Paragraph 5, the State Parties promised "to take such action as is necessary so that waters delivered to the ... Refuge achieve state water quality standards, including Class III standards, by December 31, 2006."

All of this language falls within the four corners of the Consent Decree. It is not limited in any respect. [125] The Settling Parties recognized there was too much phosphorus in the system and too much phosphorus in water entering the Refuge. They committed to work together to preserve and restore the unique flora and fauna of the Refuge. And to reach this objective, the State Parties committed to take "such action as is necessary" so that water delivered to the Refuge would achieve the Class III standard.

There is no limitation in any of this text on the form of the Class III standard. Indeed, the State of Florida adopted the Phosphorus Rule fully cognizant of the Settlement Agreement, even integrating it into the Rule.

Contrary to the argument of the State Parties, subparagraphs A and B of Paragraph 5 do not limit the text of Paragraph 5. The commitment expressed in Paragraph 5 is unequivocal. But, in this case, Appendix B is also consistent with the text of Paragraph 5.

Appendix B supports the goals contained in Paragraph 3, and the commitment of the State Parties in Paragraph 5. Appendix B at page B–1 provides:

> Effective dates for the phosphorus concentration levels are as follows:

Interim Marsh Concentration Level (14 station geometric mean)	Effective Date February 1, 1999
Marsh—Class III Standard (Applies to entire Marsh)	December 31, 2006
or	
Long–Term Concentration Level (14 station geometric mean)	

The State Parties focus on the word "or," arguing that either the Class III standard applies to the entire Refuge or the long-term concentration level applies at the 14–station network, but both can't apply. That interpretation misreads Appendix B, is the least protective of the Refuge, and is inconsistent with Paragraphs 3, 4 and 5 of the Settlement Agreement.

The disjunctive "or" used on page B–1 is not related to the last sentence of Paragraph B.1. The Class III standard applies to the entire marsh. The long-term level applies to the 14 station geometric mean. If the TOC decided under the last sentence of Paragraph B.1 to use 10 ppb instead of the long-term level,

then 10 ppb would be the monthly target for evaluation of an "exceedance" as defined in Appendix B (p. B–5). That decision, however, does not change the application of the Class III "Standard" to the "entire marsh."

***70** Paragraph B.2 addresses a different subject. If the Class III criterion in the entire Refuge or the long-term level (whether it is that calculated by the equation or 10 ppb as the TOC determines) is not being met when the outflow concentration of the STAs discharging to the Refuge are 50 ppb or lower, then, under Paragraph B.2, the TOC has to make a recommendation to the FDEP to enforce a discharge limit lower than 50 ppb. Then, "Additional actions, such as regulatory measures and increased STA acreage, as appropriate from the empirical data on performance of each program, will be required by either DEP or the District to meet the lower discharge limit."Settlement Agreement, p. B–4.

The State Parties' interpretation is inconsistent with this text in Paragraph B.2. There is no election to be made here. Page B–1 says that Class III standards apply to the "entire marsh." The long-term levels apply to the 14–station interior marsh network. In 1992, the STAs were designed on the assumption that a 50 ppb phosphorus discharge limit from the STAs would be protective of the Refuge's ambient water quality and would prevent imbalances and restore natural populations of flora and fauna. Fourteen years later, the drafters of the Settlement Agreement knew that a Class III standard would be established, and wanted to be sure that they were right about the adequacy of the STA design assumptions. What the drafters could not contemplate was the form the Class III standard would take, but Paragraph 5 of the Settlement Agreement is not limited to how the standard would be implemented, and Paragraphs 3 and 4 emphasize the critical importance of nutrient reduction in inflows to the Refuge. In this context, the "lower of" language in Paragraph B.2 is the language of protection, not election.

The only election the drafters contemplated appears at the end of Paragraph B.1. When comparing the 14–station geometric mean concentration each month to a compliance level, the long-term level would be used as computed by Attachment II to Appendix B, unless the TOC decided that comparing the geometric mean to 10 ppb, the Class III criterion, would be "lower"—i.e., more protective. This is supposed to be a scientific decision, not a political one. Nonetheless, because the December 20, 2006 vote was 3–2, the TOC did not agree to make a change and so the 14–station interior network geometric mean phosphorus concentration continues to be compared to the long-term level. But that decision does not affect the goals of Paragraphs 3 and 4, the commitment in Paragraph 5 to achieve Class III standards, application of Class III standards to the entire marsh on page B–1, or the ultimate connection of all of this language in Paragraph B.2 that requires the TOC to recommend a maximum annual discharge limit lower than 50 ppb if the lower of the Class III or long-term levels is not being met. [126]

There is no dispute that water quality samples in the Class III monitoring network in the Refuge have failed parts of the four-part test. [127] There is also no dispute that the long-term level was violated in June 2009. [128] Hence, Paragraph B.2's trigger has been met. The TOC is obliged to make a recommendation to the FDEP to enforce a lower maximum annual discharge limit.

***71** What of Paragraph 8D? The United States places great reliance on it. The pertinent language appears in the last sentence (emphasis added):

> By December 31, 2006, if the 50 ppb maximum annual inflow discharge limit is being met but the lower of the long-term marsh concentration levels or Class III nutrient criteria is being violated, *DEP will enforce more stringent inflow discharge limits.*

It is virtually identical to the text used on page B–4 (emphasis added):

> If the lower of the Class III or long-term levels is not met by December 31, 2006 and the 50 ppb maximum annual discharge limit is being met at all inflow structures into the Refuge from the EAA, *the TOC will recommend a lower maximum annual discharge limit for the structures to be enforced by DEP.*

In Paragraph 8D, the FDEP is obliged to enforce more stringent inflow discharge limits. In the comparable text from page B–4, the TOC must first recommend a rower discharge limit for enforcement by the FDEP.

Paragraph 6 provides that, in the event of a conflict between the "following summaries" (which include Paragraph 8)

and the Appendices, the Appendices prevail. Hence, read together, these two provisions mean that the TOC first makes a recommendation, which the FDEP then can accept or modify. Read together, they also mean that if the TOC fails to make a recommendation, the FDEP must act to "enforce more stringent inflow discharge limits." [129] Then "regulatory measures and increased STA acreage measures" or other "additional actions" "as appropriate from the empirical data on the performance of each program," will be required by the FDEP or the District, as the case may be "to meet the lower discharge limit" set by the FDEP. [130]

The TOC has not made a recommendation on a lower maximum annual discharge limit. That is a prerequisite under the Consent Decree that must be respected. If there are not four TOC votes to support a recommendation, the FDEP then must decide on the "more stringent inflow limit." Either of these subjects then can be addressed through the dispute process of Paragraph 19 leading to judicial resolution if there is impasse. But the process must start with a TOC recommendation. [131]

The USEPA's WQBEL Proposed as a Maximum Annual Discharge Limit

There was so much evidence presented on EPA's WQBEL that, in fairness to the parties and intervenors and to assist the Court, it requires discussion.

As explained in the Background section of this Report, the FDEP had been developing a WQBEL for the STA permits. The November 16, 2007 permit for STA–1W and 1E, Exhibit 1290, committed the FDEP to adopt a WQBEL by December 31, 2010. Special Condition 18 required a study to be conducted that would result in the derivation of a WQBEL by December 31, 2010:

> The District shall conduct a study to determine the relationship between discharges from STA–1W and STA–1E and the resulting water quality in the Refuge. The final scope of work for this study shall be submitted to the Department by no later than December 31, 2007 for the Department's review and written approval. The District shall prepare and submit a report of its findings, based on the data collected over the course of this study for Department review by no later than December 31, 2009. Based on the findings of this study and Department concurrence with its methods and results, the Department shall establish a WQBEL in accordance with Rule 62–650 F.A.C. and 373.4592 F.S. by December 31, 2010. Establishment of a WQBEL for these facilities shall result in a major modification to this permit.

***72** The District submitted a scope of work dated December 20, 2007, for development of a WQBEL. Exhibit 1222. [132]

FDEP made progress on a WQBEL and, as discussed above, in April and May 2010 presented 18 ppb expressed as an annual flow-weighted mean phosphorus concentration in the outflows from an STA as a draft one-part WQBEL for discussion within the TOC. [133]

As also explained above, FDEP said that it abandoned work on a WQBEL in anticipation of USEPA's Amended Determination and in light of Judge Gold's April 14, 2010 Order. Exhibit 1027 (Marks), n. 4.

Whether FDEP should have stopped work on its WQBEL despite the requirement set forth in the 2007 STA–1W/1E permit is a subject for a different forum. Here, within the context of FDEP's obligations under the Settlement Agreement, not only the FDEP's representative on the TOC but the entire TOC has the obligation to consider a recommendation for a "lower maximum annual discharge limit" for "all inflow structures into the Refuge."Settlement Agreement, p. B–4. The FDEP then must act to enforce that lower maximum annual discharge limit as discussed above.

One such option for a lower "maximum annual discharge limit" is EPA's WQBEL which USEPA vigorously urged the Court to adopt here even as it is the subject of debate in the 11th Circuit and before Judge Gold.

For several reasons, I resist the temptation to decide now a "maximum annual discharge limit" for inflows to the Refuge from permitted structures operated by the District.

First, I am interpreting a Consent Decree representing a Settlement Agreement entered into in 1992 to settle a lawsuit

involving enforcement of State laws with respect to State water quality standards. The Settling Parties put together a remarkable technical document to try to map out the future without any ability to control Mother Nature and, in the absence of statutory or regulatory changes, limited ability to control the use of phosphorus in the EAA. Their vision called for a panel of independent scientists to assist and guide the TOC to achieve the stated commitment of all three Settling Parties "to guarantee water quality and water quantity needed to preserve and restore the unique flora and fauna of the Park and the Refuge."Settlement Agreement, p. 9.

Their vision also called for the TOC to make a recommendation to the FDEP when the page B–4 (paragraph B.2) conditions have been satisfied. The TOC has not yet done so. Their vision called for the FDEP to enforce more stringent discharge limits following that recommendation or in the absence of one if the TOC does not reach a consensus. Both procedural steps are prerequisites before judicial action may be taken to establish the "maximum annual discharge limit."

Second, within the permitting context, the FDEP was moving in the direction of tighter limits for discharges to the Refuge from STA–1W and 1E. Indeed, once the litigation relating to the Clean Water Act permitting processes is resolved, permitting might overtake the Consent Decree in establishing those limits. Until that date arrives, however, the Consent Decree's independent obligations must be satisfied by the parties.

***73** Third, for permitting purposes, USEPA and the Settling Parties are not that far apart on a maximum annual discharge limit. USEPA has added a second part to FDEP's most recent one-part test. USEPA presented a strong rationale for a two-part test. That rationale apparently was persuasive to the District. In the District's posthearing memorandum, the District wrote:

> The record establishes that [the WQBEL] should be a two-part WQBEL comprised of an annual maximum limit [134] between 19 ppb ... to 21 ppb, [135] and a five-year geometric mean of 10 ppb.

District's Posthearing Memorandum, p. 15. I think it is premature for me, or the Court, to choose between FDEP and EPA's 18 ppb flow-weighted mean proposed limit versus the District's 19 or 21 ppb proposal, or between EPA's "no more than two consecutive years" of discharges from an STA with a phosphorus concentration higher than 10 ppb expressed as a geometric mean versus the District's proposal of a five-year average of the annual geometric means of these same phosphorus outflow concentrations. [136] While the process since the Tribe's filing of its "Motion Seeking Declaration of Violations" in October 2009 has been lengthy, it, along with the proceeding before Judge Gold, has generated reasonably close-together outer and inner contours of a maximum annual discharge limit that the TOC and then the FDEP must first address under the Consent Decree (apart from whatever happens in the Clean Water Act proceedings to establish a WQBEL). I do not believe that the Court should assume there will be an impasse and jump to resolve this highly technical issue before the TOC and FDEP act. [137]

Fourth, performance of the STAs to date has shown that they do work; there is just not enough STA acreage to handle the phosphorus coming out of the EAA. [138] So the ultimate debate here will likely not be so much about the appropriate "maximum annual discharge limit" from the STAs since, as shown above, the parties are not that far apart on what it should be. Rather it is over the scope of the "additional actions" that will be required by the FDEP or the District to "meet the lower discharge limit" (Settlement Agreement, p. B–4 (my numbered Paragraph B.2)) or how the FDEP will "enforce" more stringent inflow discharge limits (Paragraph 8D).

Good intentions are not the problem. The good intentions of the parties and the intervenors to restore and protect the Everglades are unquestionable.

Rather, where it takes years to build STAs and implement regulatory measures, and it takes hundreds of millions of dollars to fund them, the problem is time and money. Given enough land, enough funding, and enough time, the District will achieve this goal. The political, regulatory, contractual, and scientific challenge is finding the land and the funding and establishing fair time frames to enforce an appropriately-determined maximum annual discharge limit that will, in fact, over many scores of years result in a 10 ppb or lower geometric mean phosphorus concentration throughout the entire Refuge.

***74** Fifth, those who represent sources of phosphorus in the EAA have to work together with the parties to make Everglades restoration work. At some point, the cost to

Floridians to address phosphorus being generated by others will prompt questions about the efforts being made to reduce or eliminate phosphorus concentrations in stormwater runoff. Pointing fingers, however, leads to debate, delay, and inaction. Joining hands leads to consensus, cooperation, and concrete action. To achieve Everglades restoration—here in reference to the Refuge—in a more timely manner and at a lower cost than through the adversarial process, I would hope that the parties and the intervenors will choose to work together.

Sixth, it remains unfortunate that the original vision of the Settlement Agreement's drafters on empanelling a group of scientists "designated by the TOC" to "track and evaluate compliance with all aspects of state water quality standards including the phosphorus limits, concentration levels and criteria," has never been realized. Having an independent panel like this in place would relieve the Court from having to make technical decisions best left to experts or, at least, give the Court a neutral technical basis to consider, should such decisions be left to the Court to resolve.

Finally, my recommendation to refer the matter of a lower "maximum annual discharge limit" to the TOC for a recommendation and an FDEP decision, all within the context of the Consent Decree (even if the decisions are manifested in permitting decisions), is not an open-ended one. The positions of the parties have been the subject of extensive expert review during this process. The TOC should act on this subject at its next meeting. If it fails to make a recommendation, the FDEP has a contractual obligation to act expeditiously consistent with the terms of the Settlement Agreement. I expect that the parties will seek to reach an accord either because of issuance of this Report or, if dispute resolution is invoked, because they are required to do so under Paragraph 19. I am prepared to assume negotiations following the December 20, 2006 TOC meeting went on for four years because of the need to obtain interpretations of the Settlement Agreement. Now that those interpretations have been rendered, I would expect that if another impasse occurs, we will know it quickly and it will result in a prompt filing for judicial resolution. [139]

Summary With Respect to the Class III Phosphorus Criterion Issue

In summary, I recommend that the Court adopt the following conclusions:

1. The Class III phosphorus numeric criterion is applicable under the Consent Decree to the Refuge.

2. The Class III criterion as implemented by the four-part test has not been satisfied in the Refuge based on the published data from the monitoring network used to evaluate satisfaction of the criterion.

3. As a result, the TOC must honor its Consent Decree obligation to recommend to FDEP a lower "maximum annual discharge limit" in the inflows to the Refuge from the STAs discharging into the Refuge.

***75** 4. If the TOC fails to make a recommendation, the FDEP then must independently act under Appendix B and Paragraph 8D to enforce a more stringent inflow discharge limit.

5. Both decisions are subject to dispute resolution under the Consent Decree but first the TOC has to convene to see if it can agree on a recommendation, and if it is unable to do so, the FDEP then has to decide what the more stringent limits will be. These are obligations independent of the permitting process or the matters pending before Judge Gold or in the 11th Circuit.

6. The TOC should address this issue at its next meeting. [140] The FDEP then should act to establish the new maximum annual discharge limit within sixty days [141] after the TOC meets and either makes a recommendation or fails to reach a consensus to do so.

7. If the parties cannot reach an accord on these subjects, within ten days after the FDEP decides or fails (within sixty days, unless the Special Master allows more time) to decide what the new maximum annual discharge limit should be, they should invoke the dispute resolution process, engage in good faith negotiations within the spirit of their joint commitment under Paragraph 4 of the Settlement Agreement, and either reach an accord or declare an impasse within ninety days after dispute resolution has been invoked . [142] Thereafter, the parties should immediately file their Paragraph 19E motion for resolution by the Court.

Construction Defects in STA–1E

In the parties' prehearing stipulation, the State Parties raised the untimely completion of STA–1E and construction defects in STA–1E that hampered its performance as the cause of any failures to meet any applicable phosphorus concentration limit in the Refuge. They wrote:

> Assuming the Special Master concludes that any applicable phosphorus concentration limit, level, discharge limit, effluent limit and/or load reductions of the Consent Decree are not met, whether the State Parties are excused due to the acts of third parties (including the acts or omissions of the Corps, weather events, legal barriers, or other defenses)

With respect to the Class III issue, there was no probative evidence to support weather or legal barriers as a defense. Rather the focus of the State Parties was on STA–1E.

STA–1E was required to be built by the ACOE and was supposed to be operational by July 1, 2002. Settlement Agreement, p. C–5. As late as 2001, the United States was projecting its completion by the beginning of 2003. "Similarly, at the most recent status conference, counsel for the United States indicated that the Army Corps of Engineers construction of STA–1E may be seven months late."Omnibus Order, p. 24. Construction on a number of the cells in STA–1E were completed in 2004, and after use of parts of STA–1E to hold water after Hurricane Frances in 2004 and other steps that needed to be taken, the ACOE ultimately transferred STA–1E operation (except for the cells used for the PSTA demonstration project) to the District in 2005. Exhibits 1241–43. [143]

***76** The District's witnesses made a compelling case that STA–1E needs to be retrofitted. Exhibit 1025 (Piccone); Exhibit 1043 (Piccone Rebuttal); Exhibit 1050. [144] The ACOE itself has acknowledged the deficiencies in STA–1E. Exhibit 1034. [145] The testimony of Mr. Bush and the exhibits he was shown did nothing to dispel these conclusions.

However, the ACOE is conducting an independent investigation of the relationship of the deficiencies to the performance of STA–1E which is to be completed this month (January 2011). And it is not clear to me from the evidence presented thus far how to address the impacts of the prior operation of STA–1E on the failure to satisfy several parts of the four-part test, especially where STA–1E had phosphorus concentrations of 20 and 21 ppb respectively in its outflows in Water Years 2007–08 and 2008–09, respectively, Exhibit 1265, 1267, which is considerably below the STA design criterion of 50 ppb.

I would be reluctant also to decide an issue of "unclean hands" or "estoppel" as the State Parties have urged without briefing that included authorities to support these theories. (There were no authorities cited by the State Parties. State Parties' Posthearing Memorandum, p. 35.) Since the United States urged the application of Restatement (Second) of Contracts, perhaps a more apt argument by the State Parties would involve Sections 237, 241, and 242 of the Restatement (Second) which address a material breach, excused performance, and the factors to consider in determining whether a breach by one party is material and excuses performance by the other party.

But these are legal questions that turn on technical facts. The ACOE is supposed to have a report out this month that will shed more light on what needs to be done in STA–1E. The TOC is in the best position to first address this topic not as a matter of legal culpability, but as a matter of technical impact on water quality results, under the TOC's Appendix B obligations. There is enough water quality evidence discussed in this Report to support the need for a lower maximum annual discharge limit or, in the FDEP's permitting language, a WQBEL. The status of STA–1E, however, *might* affect the timing of additional actions needed to meet more stringent maximum annual discharge limits.

Hence, I recommend that the Court defer consideration of the legal argument at this time and await decisions that flow from the application of this Report and Recommendation and the upcoming PSTA demonstration project and remedies hearings.

Conclusion

Based on the findings and conclusions set forth in this Report, with reference to the specific requests in the Tribe's Motion to Declare Violation that are covered by this Report, I recommend that to the extent that the motion seeks to have the Court (1) declare a violation of the "load reduction requirements"; (2) establish 10 ppb as the outflow limit from an STA; (3) declare that under the terms of the Consent Decree the Class III numeric phosphorus criterion applies to STA discharges to WCA–2 and WCA–3; (4) declare a violation of "Western Basin requirements"; (5) or declare a violation of Appendix A to the Consent Decree, that the motion be denied.

***77** With respect to the United States' Motion for Resolution of Liability Issues, I recommend that to the extent that the

United States seeks to have this Court determine that the maximum annual discharge limit be the WQBEL it derived as part of its Amended Determination, that the motion be denied without prejudice.

With respect also to either motion, to the extent that (1) either seeks to have the TOC together, not the District alone, decide the compliance question with respect to the Appendix A long-term limit for Shark River Slough for the period October 1, 2007—September 30, 2008, and (2) that the Class III numeric criterion four-part test is an enforceable requirement under the Consent Decree with respect to the Refuge, that they be granted within the framework of the Recommendations set forth above.

Based again on the findings and conclusions set forth in this Report, and to the extent not specifically addressed in the motions but raised by the parties or the intervenors in the record made by the parties in the October hearings, I make the other Recommendations set forth above in response to the issues referred to the Special Master in the Court's March 31, 2010 Order.

All Citations

Not Reported in F.Supp.2d, 2011 WL 4595016

Footnotes

1 I refer to the participants as follows. The State of Florida Department of Environmental Protection is “FDEP.” The South Florida Water Management District is the “District” or “SFWMD.” Together they are the “State Parties.” The United States of America is the “United States.” The Miccosukee Tribe of Indians of Florida is the “Tribe.” Florida Audubon Society is referred to as “Audubon.” Sierra Club, National Wildlife Federal, Florida Wildlife Federation, Defenders of Wildlife, National Parks Conservation Association, Florida Chapter Sierra Club, and Audubon Society of the Everglades are the “Conservation Intervenors.” West Palm Beach County Farm Bureau, K.W.B. Farms and Roth Farms, Inc. are “Farm Interests.” United States Sugar Corporation is “U.S. Sugar.”

2 The parties' pre-hearing stipulation provides: “The issue of whether there has been a violation of Research Requirements of the Consent Decree, with regard to PSTA, is not ripe unless the Army Corps of Engineers decides to abandon the current PSTA field study in STA–1E. The United States has assured the Tribe that ‘the Corps will provide the Tribe an additional 45 days notice prior to taking any action to remove PSTA field study structures, or conduct any water management operations that would impair PSTA facilities within STA–1E.’[DE 2123] at 1. Therefore, the Tribe has decided not to pursue this alleged violation of the Consent Decree's Research Requirements at this time.”Pre–Hearing Stipulation, p. 5, n. 4.

3 There was an exceedance of the long term level in November 2008 and June 2009. Unless excused by error or extraordinary natural phenomena, two exceedances within 12 sampling periods is a violation of Appendix B to the Settlement Agreement.

4 This hearing was originally scheduled for October 2010. However, because the Tribe changed counsel, it requested a deferral of the hearing scheduled in July on these issues. The October hearing time was then used for the issues originally planned to be heard in July and the remedies hearing was moved to February.

5 In Farm Interests' Posthearing Memorandum (p. 5) submitted to the Special Master, Farm Interests appeared to be suggesting that the issues raised by the United States did not have to be considered as part of the Court's referral: “Although the United States has tried to steer this into a trial on its July 15, 2010 Liability Motion [DE 2179] (“U.S. Liability Motion”) and its later September 3, 2010, Amended Determination, there is no referral to the Special Master to review either issue.”However, Farm Interests raised similar issues in its “Motion for Clarification of Issue Referred to Special Master or, Alternatively, to Hold Portion of Special Master Hearings in Abeyance,” [DE 2215] (See, e.g., p. 3: “For instance, EPA intends, at the Special Master's hearing, to put on a *full evidentiary case* regarding the technical and statistical details about how it derived the discharge limit, known as a Water Quality Based Effluent Limitation (WQBEL), in its recent “Amended Determination”—even before the expiration of the challenge period to the *Eleventh Circuit* for that determination”). The Court denied that motion by its Order dated October 1, 2010 [DE 2217].

6 On behalf of all of the parties, I want to publicly thank Dean Acosta and the entire FIU administrative team for their warm hospitality and excellent accommodations.

Date	Witness	Position	For
25–Oct	James Erskine	Water Quality Manager for the Miccosukee Tribe of Indians	Tribe
25–Oct	Truman Eugene Duncan, Jr.	Water Resources Director for the Miccosukee Tribe of Indians	Tribe
25–Oct	Terry L. Rice, Colonel (Retired), Ph.D.	President, T.L. Rice, LLC	Tribe
25–26–Oct	Eric Bush	Assistant Chief of the Everglades Division of Jacksonville District for U.S. Army Corps of Engineers	United States
26–Oct	Dr. Nicholas G. Aumen	Aquatic Ecologist & Team Leader for Everglades Program Team with National Park Service	United States
26–Oct	Mathew C. Harwell, Ph.D.	Senior Ecologist, Arthur R. Marshall Loxahatchee National Wildlife Refuge (“Refuge”)	United States
26–Oct	Ronald Dean Jones, Ph.D.	Professor of Biology, Portland State University	Tribe
26–Oct	Daniel J. Scheidt	Sr. Scientist in Water Protection Division, U.S. Environmental Protection Agency (USEPA), Region 4, Athens, GA.	United States
27–Oct	William W. Walker, Ph.D.	Self-employed Consultant for the U.S.	United States
27–Oct	William Wise, Ph.D., P.E	Associate Professor, Department of Environmental Engineering Sciences, University of Florida	Conservation Intervenors
27–Oct	Ernest Marks III	Environmental Administrator, Restoration Planning & Permitting Section in the Division of Environmental Assessment & Restoration for FDEP	FDEP
28–Oct	Michael Wayne Blizzard	Environmental Administrator, Standards & Assessment Section for FDEP	FDEP
28–Oct	Matahel Ansar, Ph.D.	Deputy Department Director for Operation Control and Hydro–Data Management Department for SFWMD	SFWMD
28–Oct	Tracey Piccone, P.E.	Chief Consulting Engineer in the Everglades Restoration & Capital Projects Resource Area for SFWMD	SFWMD
28–Oct	Garth Redfield, Ph.D.	Chief Scientist, Restoration Sciences Department, SFWMD	SFWMD
28–Oct	Dr. Fred Sklar	Director of the Everglades Division in the Restoration Science Department for SFWMD	SFWMD
28–Oct	Stuart Van Horn, P.E.	Section Leader for the Comprehensive Science Integration Division in	SFWMD

		the Restoration Sciences Department for SFWMD	
28–Oct	Carlos Adorisio	Engineer Supervisor, Everglades Regulation Division, Water Resource Regulation Department for SFWMD	SFWMD
29–Oct	Nenad Iricanin, Ph.D.	Principal Environmental Scientist for SFWMD	SFWMD

7 The Settlement Agreement and Consent Decree are the same document and I refer to them interchangeably in this Report.

8 Specifically, under 33 U.S.C. § 1344(f)(1)(A), the "discharge of dredged or fill material" "from normal farming" is "not prohibited by or otherwise subject to regulation under this section or Section 1311 or 1342 of this title."Section 1311(a) otherwise would have prohibited the addition of a pollutant to navigable waters from a point source like a pipe or ditch carrying stormwater from a farm. Section 1342 otherwise would have required a National Pollutant Discharge Elimination System (NPDES) permit before allowing a person to discharge a pollutant into a navigable water.

9 Answer and Counterclaim of Defendants South Florida Water Management District and Wodraska in Response to United States' Second Amended Complaint, filed March 16, 1990.

10 Answer and Counterclaim of Florida Department of Environmental Regulation to Second Amended Complaint of the United States, filed March 19, 1990.

11 The Settlement Agreement defined the EAA. In pertinent part it provides that the EAA "shall mean that area including, but not limited to, the drainage basins of S–2, S–3, S–5A, S–6, S–7, S–8, and S–150, as further defined in the SWIM Plan or permits to be developed pursuant to paragraph 13."Settlement Agreement, p. 2. The SWIM Plan is the Surface Water Improvement and Management Plan "for the Everglades Protection Area as defined in the Marjory Stoneman Douglas Everglades Protection Act of 1991, Chapter 91–80, Florida Laws."Settlement Agreement, p. 6. Paragraph 13 refers to permits issued by the DEP to the District relating to activities to achieve interim concentration limits and levels, which are discussed below.

12 Section 303(c)(2(A), 33 U.S.C. § 1313(c)(2)(A), provides that revised or new water quality standards of a State "shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon 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. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation."

13 The State of Florida classifies surface waters into five classes according to designated uses: Class I (potable water supplies); Class II (shellfish propagation or harvesting), Class III (recreation, propagation and maintenance of a healthy well-balanced population of fish and wildlife), Class IV (agricultural water supplies) and Class V (navigation, utility and industrial use).Rule 62–302.400(1), F.A.C. Under Rule 62–302.400(10) all surface water in Florida is designated as "Class III" unless it falls within an exception, not applicable here.

14 Rules 62–4.242(2) and (3), F.A.C. do not appear to have any application here.

15 At the time, the narrative standard was codified at Chapter 17–302, F.A.C. Chapter 17 was renumbered as Chapter 62 and the narrative standard for phosphorus was converted to a numeric standard as is explained below. However, the Legislature decided to maintain the narrative standard language. Fla. Stat. § 373.4592(4)(e)(2) provides that whatever numeric criterion for phosphorus is derived, an "imbalance" is still prohibited: "In no case shall such phosphorus criterion allow waters in the Everglades Protection Area to be altered so as to cause an imbalance in the natural populations of aquatic flora or fauna."

16 "The EFA substantially rewrote portions of the Marjorie (sic) Stoneman Douglas Everglades Protection Act, 1991 Fla. Laws Ch. 91–80, upon which much of the original Agreement had been based. Therefore, shortly after the enactment of the EFA, the Court of Appeals remanded the original Consent Decree for further consideration in light of the EFA."Omnibus Order, p. 6.

17 Judge Hoeveler did caution the parties that the Court would address breaches of the modified deadlines: "[T]he Court will address any alleged breach of the modified deadlines if and when it happens. However, by endorsing this extended schedule, the Court fully expects that the parties will achieve compliance as mandated by the Modified Consent Decree and the EFA. Furthermore, the Settling Parties are reminded that "failure to aggressively pursue the implementation of the Everglades Construction Project" in accordance with the new timetable also violates EFA § 373.4592(4)(1) ("The

district shall take all reasonable measures to complete timely performance of the schedule in this section in order to finish the Everglades Construction Project."). Omnibus Order, p. 24–25.

18 Section 62–302.540(3)(d) defines "impacted area" as an area of the EPA "where total phosphorus concentrations in the upper 10 centimeters of the soils are greater than 500 mg/kg."

19 Rule 62–302–540(4)(d)(1), F.A.C., provides: "Achievement of the criterion in unimpacted areas in each WCA shall be determined based upon data from stations that are evenly distributed and located in freshwater open water sloughs similar to the areas from which data were obtained to derive the phosphorus criterion."

20 Achievement of the criterion in Everglades National Park is treated differently in the Rule. Rule 62–302.540(4)(c), F.A.C., provides that in the Park, compliance "shall be based on the methods as set forth in Appendix A of the Settlement Agreement unless the Settlement Agreement is rescinded or terminated."I discuss Appendix A further below.

21 To compute a geometric mean, sample results—here usually expressed in ug/L or parts per billion—are multiplied. The nth root (where n is the total of the numbers being multiplied) of the product is the geometric mean. For example, the geometric mean of 8, 9 and 10 is the cube root of 720 or 8.96.

22 Section 1313(c)(3) provides: "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 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. If such changes are not adopted by the State within ninety days after the date of notification, the Administrator shall promulgate such standard pursuant to paragraph (4) of this subsection."

23 Section 301(b), 33 U.S.C. § 1311(b) requires that there be effluent limitations for discharges of pollutants into navigable waters. The statute requires the application of best practicable control technology to achieve the effluent limitations.

24 A "flow weighted mean" (FWM) requires the collection of representative samples to determine the concentration of water on a periodic basis, usually through the use of what is called an "auto-sampler" and usually confirmed through the periodic collection of a "grab sample." Each resulting concentration is then associated with the volume of water that flowed through the pertinent structure for a fixed time period (say, daily). Multiplying the concentration (e.g., ug/L) times the volume of water (liters) produces the mass in grams, or "load," of phosphorus associated with that volume of water. Adding up this mass for each sampling period (e.g., daily) and then dividing the mass by the sum of the daily volumes over the course of a year would produce the annual flow-weighted mean concentration.

25 To illustrate, if the outflow concentration for three years was below 76 ppb but greater than 50 ppb, the test would not be satisfied.

26 The initial State permits reflecting this methodology, however, could not result in a permit violation because the STAs were regarded by the State as in "stabilization" mode until all of the STAs were operational. Report of the Special Master (May 4, 2005), p. 13, n. 13.

27 Part of the reason why this was the case, as I discuss further below, is that more sources of stormwater were being treated by the STAs than was anticipated under the Settlement Agreement.

28 *http://my.sfwmd.gov/ portal/page/portal/pg_grp_sfw md_ sfer/portlet_sfer/tab22360 37/2010% 20report/vl/appendices/ vl_app3A–6.pdf.*

29 Exhibit 1292 contains excerpts from Chapter 5 ("STA Performance, Compliance and Optimization") of the 2009 South Florida Environmental Report.

30 Exhibit 1289 is the August 30, 2005 Administrative "Order Establishing Compliance Schedule" for STA–1E that accompanied the NPDES permit issue. Exhibit 1290 is November 2007 Everglades Forever Act Permit for STA–1E and 1W. Exhibit 1291 is the April 13, 1999 "Administrative Order Establishing Compliance Schedule" for STA1–W. It accompanied the NPDES permit for STA 1–W also issued in 1999.

31 The authors of Chapter 5 of the 2009 South Florida Environmental Report explain this permit condition more broadly: "The TBEL does not apply until the STA is in the Routine Operations Phase. STAs 1E, 1W, 2, 5, and 6 are in the Stabilization Phase of Operations, and this phase ends when the STA achieves the annual TP limits as defined in the TBEL."Exhibit 1292, p. 5–16. Illustratively, in Water Year 2008 (May 1, 2007—April 2008), STA–1W's total phosphorus flow-weighed mean outflow concentration was 53 ppb, higher than the EFA permit TBEL of 36 ppb, but "because the STA is in the stabilization phase of the permit, excursions to the TBEL are allowed."*Id.,* p. 5–9, n. 2. Chapter 5 of the 2010 South Florida Environmental Report reflects no changes: "According to the STA permits issued in 2007 and 2009 for all of the STAs (except for STA 3/4, which is still operating under the 2004 permit), the STAs are considered to be in the Stabilization Phase and the permits recognize that the interim effluent limit may not be met during this phase as long as compliance

with the terms and conditions of the associated Administrative Order and all other permit conditions are met."Exhibit 1293, p. 5–22 (Table reference omitted).

32 These improvements in conveyance capacity were discussed in the August 30, 2010 Report of the Special Master. They have not been completed. Presumably that means that the waters that would have been diverted from STA–1W/1E under Special Condition 17 will not be diverted. I do not know if the EFA permit has been modified to relieve the District of compliance with this part of the Special Condition, or whether there is any impact on compliance with the TBEL if this part of Special Condition 17 is no longer being pursued by the District. Mr. Marks notes these required improvements, enhancements, and construction projects, Exhibit 1027 (Marks), Para. 15, but does not discuss the cessation of work on canal conveyance improvements.

33 Section 301(b), 33 U.S.C. § 1311(b), contains a timetable to achieve the objectives of the Clean Water Act and subparagraph (1)(C) provides that there "shall be achieved" "not later than July 1, 1977, any more stringent limitation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations (under authority preserved by section 1370 of this title) or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to this chapter."

34 This regulation describes requirements "more stringent" than effluent limitations guidelines or standards necessary to "(1) Achieve water quality standards established under Section 303 of the CWA" and "(5) Incorporate any more stringent limitations, treatment standards, or schedule of compliance requirements established under Federal or State law or regulations in accordance with Section 301(b)(1)(C) of CWA."

35 This regulation provides "(vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that: (A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards."

36 Rule 62–650.200(14) defines a WQBEL as "an effluent limitation, which may be more stringent than a technology based effluent limitation, that has been determined necessary by the Department to ensure that water quality standards in a receiving body of water will not be violated."Rule 62–650.500 describes the "WQBEL Level II Process" which would appear to be the derivation process contemplated by the EFA permit since the Level I process (Rule 62–650.400) only applies where the quality of the receiving body of water "currently meets standards and is expected to continue to meet standards with the discharge."As I discuss below, that is not the case in the Refuge. The Level II Process involves data collection and analysis and the production of a technical report containing information used by the Department to determine the WQBEL. Rule 62–650.500(7). Once the WQBEL is determined, the FDEP issues a notice of proposed agency action and provides notice to the discharger and other parties "substantially affected by the WQBEL technical report."The notice "shall include the date by which compliance with the requirements of the notice must be achieved."Section 373.4592, Fla. Stat., is the Everglades Forever Act. It discusses TBELs, but does not specifically address WQBELs.

37 The WQBEL forms the basis of the issue referred to the Special Master of whether the Consent Decree requires that phosphorus discharges be limited "to 10 ppb Everglades-wide," "as opposed to the 17 ppb goal."I discuss this issue in detail below.

38 This Technical Support Document draft was presented to the TOC at the TOC's April 20, 2010 meeting, but no action was taken on it by the TOC. For the presentation made to the TOC, see *http://www.sfwmd.gov/porta l/page/portal/xrepository/ sfw md_repository_pdf/derivation_wqbel_stas_toc_ 4–20–10.pdf.*

39 On the record before me, the FDEP has not proposed an alternative approach.

40 As explained in the Amended Determination, a flow equalization basin is "a water storage feature located upstream of an STA that captures peak flows during the wet season, reducing flow spikes that can damage vegetation in the STA, and provides some TP treatment."Exhibit 1287, p. 14.

41 Judge Gold had earlier explained this term: "Such an analysis is a 'structured scientific assessment of factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in § 131.10(g).'40 C.F.R. § 131.3(g). The process requires a notice and opportunity for a public hearing. 40 C.F.R. § 131.10(e)."2008 WL 2967654 at *31.

42 Judge Gold's December 17, 2010 Order [DE 544 in Case No. 1:04–cv–21448].

43 The Rule 60(b) motion appears at Docket Entry 446 in Case No. 1:04–cv–21448.

44 Fed.R.Civ.P. 62.1(a) provides: "If a timely motion is made for relief that the court lacks authority to grant because of an appeal that has been docketed and is pending, the court may: (1) defer considering the motion; (2) deny the motion; or (3) state either that it would grant the motion if the court of appeals remands for that purpose or that the motion raises a substantial issue."Assuming that Judge Gold issues an indicative ruling, the Court of Appeals might remand the appeal

to allow the ruling to be entered. Procedural motions might then be filed over the propriety or scope of the remand. F.R.App.P. 12.1; Eleventh Circuit Rule 12.1–1.

45 One appeal relates to the order granting plaintiffs' motions in part, granting equitable relief, and ordering the parties to take certain actions (what the parties call the "Compliance Order") and the other relates to an April 14 order adopting a Magistrate's report and granting a motion for attorneys' fees and costs filed by Friends of the Everglades. The appeal of the former order is stayed pursuant to the Court of Appeals' August 30, 2010 order. USEPA has sought an extension of time until February 18, 2011 to file its brief in the appeal of the latter order.

46 The Tribe's motion here seeks a "declaration of violation" and not an order to show cause.

47 The Western Basin figures come from Mr. Adorisio's expert report (Exhibit 1022).

48 The phosphorus load leaving the C–139 Basin is measured at the G–136, G–342A–D, and G–406 structures shown in Figure 1. Exhibit 1407 (2010 South Florida Environmental Report), p. 4–49 (*http://www.sfwmd.gov/port al/page/portal/ pg_grp_sfwmd_s fer/portlet_ sfer/tab2236037/2010% 20report/vl/chapters/vl_ch4.pdf*).

* BMPs went into effect.

49 When the Consent Decree discusses "control programs," it is in the context of STAs and BMPs. See, e.g., p. C–4 ("These STA acreages and the BMP Regulatory Program provide the control programs which are anticipated to meet both the interim and long term Refuge and Park phosphorus limits and concentration levels.")

50 Wherever the phosphorus concentrations are measured in the tables and discussion above, and even accounting for the difference between the criterion's geometric mean and the flow-weighted mean concentrations identified in the tables and discussion, the phosphorous concentrations leaving these three basins is considerably higher than 10 ppb.

51 Appendix 3A–6: Annual Total Phosphorus Criteria Compliance Assessment for Water Year 2005 through Water Year 2009 (FDEP) which is available at: *http://my .sfwmd.gov/portal/page/portal /pg_grp_sfwmd_ sfer/portlet_sf er/ tab2236037/2010% 20report/vl/appendices/vl_app3A–6.pdf.*This table contains the results of compliance with the four-part test for monitoring networks in impacted and unimpacted areas of the Refuge, WCA–2, and WCA–3.

52 See Exhibit 1037 (C–139 Rule and materials incorporated by reference, Chapter 40E–63, Part IV, Fla. Admin. Code), p. B1–1 (scoring different practices with points ranging from 2 ½ to 25).

53 Audubon did not explain why the District's C–139 rule makes compliance easier to achieve and did not cite to any portion of the rule or any testimony to explain its position in this regard. Audubon did not present a witness on this topic either. I have read Appendix B2 of the C–13 rule. If I am reading the appendix correctly, it looks like the baseline period mean load was increased to 38.2 metric tons from 28.7 metric tons that was used in the 1994 EFA. Exhibit 1037, p. B2–4. Perhaps this is the language to which Audubon is referring.

54 Count I relates to protection of the Park. Second Amended Complaint, Paragraphs 33 and 37(b)-(e), p. 10–11, 12. Count II does also.*Id.,* Paragraph 46, p. 13. Count III is a breach of contract claim with respect to the quality of water delivered to the Park. *Id.,* p. 14–16.Count IV is a breach of contract claim relating to the quality of water delivered to the Refuge. *Id.,* p. 16–17.

55 As noted earlier, the SWIM Plan is the 1992 Surface Water Improvement and Management Plan "for the Everglades Protection Area as defined in the Marjory Stoneman Douglas Everglades Protection Act of 1991, Chapter 91–80, Florida Laws."Settlement Agreement, p. 6.

56 Depending upon the outcome of the litigation before Judge Gold or spawned by his April 14 Order, the discharge permits for STAs 5 and 6 (which receive or will receive stormwater from the C–139 Basin and L–28 Basin as explained below) may be affected and thereby eventually prompt improvements in phosphorus concentrations in outflows from the Western Basins.

57 Measured by outflow phosphorus concentrations, STA–5 has been the worst performing STA. Exhibit 1407 (2010 South Florida Environmental Report), p. 5–12. From its initial operation (October 1999) through the end of Water Year 2009 (April 30, 2010), the total phosphorus outflow concentration has averaged 101 ppb compared to 58 ppb (STA–1E from September 2004), 54 ppb (STA–1W from October 1993), 21 ppb (STA–2 from June 1999), 18 ppb (STA–3/4 from October 2003) and 30 ppb (STA–6 from October 1997).

58 There are also four large parcels within the boundaries of the reservation that are not part of the reservation. Exhibit 1022 (Adorisio), p. 10.

59 Mr. Adorisio did note, however, that, "The Seminole Tribe and the U.S. Army Corps of Engineers (USACE) are implementing a project known as the Seminole Tribe Water Control Plan (WCP) Project. The project includes four water resource areas (WRA) designed to improve water quality, restore wetland hydrology, increase water storage capacity, and enhance flood protection within the reservation. As of mid 2010, only one of the four WRA has been completed."Exhibit 1022 (Adorisio), p. 11.

60 A 1996 Landowner Agreement between the McDaniel Ranch and the Seminole Tribe of Florida required the McDaniel Ranch owner to achieve a 50 ppb TP concentration in discharges to the North Feeder Canal. To achieve this requirement, the owner implemented BMPs and built the surface water management system. Exhibit 1022 (Adorisio), p. 12.

61 Since 2005, the former C–139 Annex property owner has also been participating in the statewide Florida Department of Agriculture and Consumer Services BMP program described above in reference to the C–139 Basin. Exhibit 1022 (Adorisio), p. 19. If the land is leased by the District for agricultural purposes for the time being, I am assuming that the landowner will have BMP obligations. If it is taken out of agricultural use, then there will not be additional nutrients added to this land.

62 I will be discussing Compartment C's operation in a separate Report to the Court, but as of December 2010, I have been advised that it is "flow capable." Once regional water levels improve, most of the cells within Compartment C will become flooded and vegetation will begin to grow. I have further been advised that it should begin to provide meaningful stormwater treatment within the next two or three years.

63 The State Parties compare the obligations imposed on the TOC to take action if the lower of the Class III or long-term levels is not met by December 31, 2006 and the 50 ppb maximum annual discharge limit is being met at all inflow structures into the Refuge from the EAA to the obligations on the State Parties to take action if "Park or Refuge limits or concentrations are violated."State Parties Posthearing Memorandum, p. 24.

64 A TMDL specifies the maximum amount of a pollutant that a water body can receive yet still maintain applicable water quality standards for the waterbody. 33 U.S.C. § 1313(d)(1)(C).

65 However, the district court left it to the parties to reach agreement on the sufficiency of Georgia's plans, and failing such agreement, to present evidence at a hearing on their sufficiency. 296 F.3d at 1028.

66 "As this Court has explained before, 'As a general matter, the rules we use to interpret a consent decree are the same ones we use to interpret a contract-since a consent decree is a form of contract.'*Reynolds v. Roberts,* 202 F.3d 1303, 1312 (11th Cir.2000). With a consent decree as with a contract, the first place we look and often the last as well is to the document itself."*Meiburg,* 296 F.3d at 1029.

67 Initially, the district court did not explain its rationale. After an appeal was taken, the 11th Circuit suspended briefing pending the issuance by the district court of an order explaining the basis of liability and in particular the decision to award back pay without entertaining proof of individual claims. 202 F.3d at 1313.

68 The Court of Appeals adopted this quote from *King v. Allied Vision, Ltd.,* 65 F.3d 1051, 1058 (2nd Cir.1995).

69 "As a general matter, the rules we use to interpret a consent decree are the same ones we use to interpret a contract-since a consent decree is a form of contract. *See Jacksonville Branch, NAACP v. Duval County Sch. Bd.,* 978 F.2d 1574, 1578 (11th Cir.1992). What a contract provision means, or whether it is ambiguous, are questions of law, which we review de novo. *See Equitable Life Assurance Soc'y v. Sublett,* 895 F.2d 1381, 1384 (11th Cir.1990). If the contract provision is ambiguous and the trial court must look to extrinsic evidence to determine the parties' intent, we review its findings of fact (or those of the jury) as to the parties' intent for clear error. *United Benefit Life Ins. Co. v. United States Life Ins. Co.,* 36 F.3d 1063, 1065 (11th Cir.1994)."*Reynolds I,* 202 F.3d at 1312–1313.

70 The Court of Appeals explained: "The Preamble phrase is repeated practically *verbatim* in Article 19, which states that the class-wide relief provided by the decree 'constitutes full and complete relief on all claims.' Both the Preamble and Article 19 are 'subject to the provisions of this Decree providing for further proceedings, including but not limited to Article[ ] 20.' Article 20 states that '[f]urther negotiations and proceedings are required to resolve the claims for monetary and non-monetary remedies for individual members of the class [es] ..., provided however, that *this Decree does not in and of itself entitled [sic] any such class member to such remedies." '*202 F.3d at 1315 (emphasis in original).

71 Exhibit 1272. I discussed this exhibit in the "Background" section of this Report.

72 See also Tr. 744 (Based on Figure 2 in Exhibit 1024, Dr. Walker agrees that the loads were within the load reduction targets based on the Walker Methodology).

73 The Tribe distinguished between a load reduction requirement while interim limits were in place and one after long term levels or the Class III water quality standard is being met. In the latter case, "loading becomes less relevant since discharges at these concentrations should not adversely impact flora or fauna."Tribe's Posthearing Memorandum, p. 8, n. 4.

74 It would also be odd for a compliance obligation for load reduction to the Refuge to be modified by "approximately" in Paragraph 8A, by "greater than" on page C–1, and by "at least" on page C–3 with reference to the 85% load reduction figure for the Refuge. The drafters were reflecting expectations from their mathematical calculations, not establishing a compliance obligation.

75 This was the exchange with Mr. Erskine: “THE SPECIAL MASTER: So, is it your view that, if there's compliance with [the Class III criterion], you could never have an excess loading relative to these two numbers, no matter how much rainfall there was? THE WITNESS: If you have 10 parts per billion flows, I don't believe that yield would violate either of these —— THE SPECIAL MASTER: The loading would become irrelevant. You wouldn't have to worry about loading is what you are saying. THE WITNESS: Much more irrelevant. Loading is still an issue logically, but for compliance tracking it would become much less of an issue.”Tr. 28–29.

76 As explained in the Background section of this Report, the application of the Class III numeric phosphorus criterion under the NPDES permits issued by the FDEP is the subject of the action pending before Judge Gold.

77 Note 2 to Table 4 of this quality assurance report states that when sample concentrations “are less than or equal to five times the resulting blank values, ‘J’ is added.”

78 The District points out that in Exhibit 1638 (p. 1) the MDL is 2 ppb meaning that if the former quality assurance protocol had still been in place, the September 3, 2008 data would not have been flagged because the field cleaned equipment blank concentration was 3 ppb, or less than 2 times the MDL (4 ppb).

79 *https://www.flrules.org/gateway/RuleNo.asp?id=62–302.540.*

80 I attended this TOC meeting, but the discussion was not transcribed. The meeting was video recorded, however. The District provided all parties with a DVD containing a copy of the video recording. All references to what was said at this meeting come from my review of the DVD.

81 That is because most of the flow for the period of compliance through the relevant structures occurred in August and September 2008. Exhibit 1023 (Redfield) (Exhibit 3), p. 10 (Figure 6). Hence, when a flow-weighted mean concentration is being calculated, eliminating a period of high flow will have a meaningful impact on the resulting mean concentration. And when, as is the case for compliance under the Consent Decree, every 0.1 ppb matters, eliminating any data point during a high flow period could make the difference between compliance and noncompliance—as is the case here.

82 This is a public record in the meetings archive for the TOC's 2009 meetings available at *http:// www.sfwmd.gov/portal/page/portal/xwebäboutüs/toc.*

83 Settlement Agreement Report, July—September 2010, which is available at (*http://www.s fwmd.gov/portal/page/portal/x repository/sfwmd_ repository_p df/sa_presentation_toc_draft_11222010_tms_final.pdf*) presented at the November 30, 2010 TOC meeting. In 2009–10, both the compliance concentration and the long-term limit were 8.9 ppb. In 2007–08, as noted in the text both were 10.2 ppb. In between, in 2008–09, both were 8.2 ppb. Settlement Agreement Report, Third Quarter, July–September 2009 (available through the TOC meeting archives at *http:// www.sfwmd.gov/portal/page/portal/xwebäboutüs/toc*).

84 The State Parties also cite the testimony of Dr. Wise. Dr. Wise danced around the issue of the use of professional judgment saying that a scientist should use it but that rules need to be followed and that, in his opinion, there are rules applicable in this situation that required rejection of the data, but later added that he agreed “in spirit” with the FDEP's Data Usability Analysis. Tr. 877–884.

85 The State Parties cite *United States v. Atlantic Refining Co .,* 360 U.S. 19, 23 (1959) and *United States v. Western Electric Co.,* 894 F.2d 1387, 1393 (D.C.Cir.1990). In *Atlantic Refining* (discussed further below), the Supreme Court rejected an attempt by the United States to interpret a consent decree differently than it had consistently interpreted it for the prior sixteen years adding that to do so would change the terms of the decree. 360 U.S. at 23.In *Western Electric,* the court of appeals held that “ex post constructions by the parties are not probative of the meaning of a consent decree” in concluding that the Bell Operating Companies were prohibited not only from manufacturing telephone equipment but also from designing and developing telephone equipment, based on the original language of the consent decree that resulted in the breakup of AT & T and on the review of evidence showing the contemporaneous intent of the parties. 894 F.3d at 1389–90, 1393–94.

86 Paragraph 19 provides that the Parties “shall endeavor at all times to maintain a spirit of cooperation and to settle disagreements through good faith negotiations between or among themselves.”If they are unable to do so, “any Party may require mediation.” If mediation also fails, “any Party shall be entitled to apply to the Court for judicial resolution of the disagreement.”

87 The Consent Decree uses the acronym “DER” but I have changed all references to the former DER to the DEP.

88 If a 4–vote majority cannot be reached, the dispute resolution provisions of Paragraph 19 of the Decree could then be employed.

89 I also must add that there was no proof of the protocol in place in 1992 with respect to field-cleaned equipment blanks.

90 Again, I am not passing any judgment on the merits of the District's scientific judgment. If it is scientifically sound, it should be accepted by at least four members of the TOC. If a decision cannot be reached, the dispute resolution procedures of the Decree will be invoked and if they are not successful the matter can be brought to the Court for resolution.

91 Mr. Blizzard testified that his colleagues at the DEP, Ken Weaver and Russ Frydenborg, shared his conclusion that the District properly applied the FDEP's Data Usability process factors. Mr. Frydenborg is also the witness whom the ALJ cited in describing data screening protocols under the Phosphorus Rule. Exhibit 1036a, p. 160–61.

92 It is tempting to say that the later document should control the outcome over the earlier document, but that would be dicta in the context of my disposition of this matter and is, in any event, a topic the FDEP should sort out.

93 There were 55 Field–Cleaned Equipment Blanks analyzed as part of the July–September 2008 quality assurance report, and it was just the one blank at Station 12A that had the detection of 3 ppb phosphorus. Exhibit 1023 (Redfield) (Exhibit 3, p. 3).

94 I do understand the State Parties' position that there was never any prohibition on the federal TOC members from adding to the agenda for TOC meetings Dr. Walker's June 23, 2009 comments, adoption of a data usability protocol with respect to flagged data, or more broadly, the correct process to follow if handling flagged data would impact an exceedance determination. I do not, however, regard the federal TOC members' reticence in this regard to represent acquiescence. While I do agree that the Park's representative, at least, did not at the January 29, 2009 TOC meeting, quarrel with the District's "scientific logic" on the evaluation of the flagged data, and while objectively one would have thought that under the Settlement Agreement text quoted above, Dr. Walker's June 23 comments should have been the subject of thoughtful vetting by the TOC, the fact is that, for whatever reasons, the TOC's members collectively have failed to act in a decisive manner on these topics.

95 Figure 5 comes from Chapter 3 of the 2010 South Florida Environmental Report (Exhibit 1204).

96 Paragraph 8C provides in pertinent part: "Inflows to the Refuge must result in compliance with Class III water quality criteria or long-term concentration levels, *whichever are lower,* by December 31, 2006, as set forth in Appendix B. Research and monitoring will be conducted under this Agreement to interpret what phosphorous concentration levels comply with Class III water quality criteria."(Emphasis added.)

97 Paragraph 8D provides in pertinent part: "The STA and best management practices ("BMPs II) programs are designed to limit Refuge inflow discharge concentrations to a long-term average of 50 ppb. DEP will require compliance with a maximum annual discharge limit of 50 ppb for Refuge inflows *if the interim or the lower of the long-term marsh concentration levels Class III nutrient criteria* are not being met by the effective dates. By December 31, 2006, if the 50 ppb maximum annual inflow discharge limit is being met but *the lower of the long-term marsh concentration levels or Class III nutrient criteria* is being violated, DEP will enforce more stringent inflow discharge limits."(Emphasis added.)

98 Paragraph 10B provides in pertinent part: "The design sizes and configurations of STAs are based on the need to achieve an interim outflow concentration of approximately 50 ppb at each STA outflow point. The Class III phosphorus criteria when interpreted by research will be implemented by December 31, 2006, *if lower than the long-term concentration levels."*(Emphasis added.)

99 If these paragraphs are consistent with the Appendices then the interpretation of the Appendices or these Paragraphs would be the same. If they are inconsistent with the Appendices, then, under Paragraph 6, the Appendices control the interpretation.

100 This is date specific.

101 This issue then became the subject of dispute resolution that resulted in an impasse that triggered the filing by the United States of the July 15, 2010 Motion to Resolve Liability Issues. United States' Posthearing Memorandum, p. 10.

102 Visually, one can contrast Figure 5 with Figure 6 to see the different locations of the monitoring stations for the two networks.

103 The United States discusses extrinsic evidence that, it says, supports its position, United States Posthearing Memorandum, p. 16–20, but the Special Master does not rely on extrinsic evidence in the analysis that appears below.

104 The performance of the STAs is reflected in Chapter 5 of the South Florida Environmental Report. The data for WY 2008–2009 appear on Table 5–3, on page 5–12 of the 2010 Report. (*http://my.sfwmd.gov/porta l/page/portal/pg_grp_sfwmd_sf er/portlet_ sfer/tab2236037/2010% 20report/vl/chapters/vl_ch5.pdf*). The 2010 Report is Exhibit 1407. In Water Year 2007–2008, the total phosphorus flow-weighted mean outflow concentration was 20 ppb from STA–1E and 53 ppb from STA–1W. 2009 South Florida Environmental Report, Table 5–2, p. 5–9. (*http:// my.sfwmd.gov/portal/ page/portal/ pg_grp_sfwmd_sfer /portlet_ sfer/tab2236041/2009report/report/vl/chapters/vl_ch5.pdf*).

105 A 10 percent probability of a false positive is tolerable under the Consent Decree. The 90th percent confidence limit is the probability that was utilized by the FDEP in its derivations of a WQBEL. Tr. 1322–23; Exhibit 1232, p. 8. It also has

been used to set the annual limit in existing STA permits and is used in the compliance equations under Appendix A and B of the Settlement Agreement. It is also used by the District to assess compliance in the EAA and C–139 Basin with respect to BMP performance. Exhibit 1258 (Walker), p. 8.

106 This proposal is the source of the argument made before the Court that “10 ppb” does not mean “17 ppb,” which was made part of the Court's March 31 referral to the Special Master. The proposed flow-weighted mean is 18 ppb, not 17 ppb.

107 Exhibit 1296 (Walker Rebuttal), p. 4. Even the Tribe's expert backed off the Tribe's original position that all discharges must be 10 ppb or lower. Compare Motion Seeking Declaration of Violations [DE 2087], p. 3–10 to Exhibit 1449 (Rice Rebuttal), p. 18.

108 The model was first developed by Dr. Walker in 1996 to support the Walker Methodology. Exhibit 1272. The FDEP used the same statistical framework when it reduced STA discharge limits from 76 ppb to 68 ppb. Exhibit 1234. FDEP also used this same statistical approach to compute draft WQBELs in 2005 (Exhibit 1231), 2008 (Exhibit 1286), and 2010 (Exhibit 1232).

109 *http://www.fws.gov/refuges/profiles/index.cfm?id=41560.*

110 Mr. Scheidt explains that the 15 ppb geometric mean at each individual monitoring station is the counterpart to the annual limit that must be met each year at every STA. Exhibit 1215 (Scheidt), p. 20.

111 The State Parties' challenges are summarized in the District's Posthearing Memorandum.

112 The Supreme Court later added the United States' interpretation represented a major change in position: “There are also other indications that the Government's interpretation of the decree did not, originally, differ from the one appellees urge today. For example, the 1941 decree required annual reports from each pipeline showing total earnings available to owners or stockholders and actual dividends paid. For 16 years the reports made by the pipelines indicated that the dividends were not computed on the basis of 7% of the current value of the owners' investment but on the total valuation of the carriers' properties. For that 16 years the Government accepted this interpretation without challenge. Yet today it renounces this long-standing acquiescence and claims that the decree imposed limits it had not previously sought to enforce.”360 U.S. at 22–23.

113 The State Parties then invoke Paragraph 6 of the Settlement Agreement which says that the Appendices control over the “following summaries” if there is a conflict between them. This argument is unavailing since Paragraph 5 precedes Paragraph 6 and is not part of the “following summaries.”

114 The State Parties also reference the presence of counsel for the United States and the Tribe at the December 20, 2006 TOC meeting at which the “whichever is lower” vote was taken referring to the “behavior” of these counsel without explaining the “behavior.” In the record here, there is no transcript of this meeting. At the oral argument held by the Special Master on the issues covered in this Report, counsel for the State Parties held up a DVD, presumably containing the videotape recording of the meeting, so a record of the meeting is available. I attended that TOC meeting and my notes reflect that Kelly Brooks, then-counsel for the Tribe, argued that both the Class III criterion and the long-term limits were applicable, espousing a position similar to that advanced by the United States here. The accuracy of my notes was confirmed by counsel for the FDEP. Tr. 1610.

115 They offer this quote: “[C]ourts have uniformly recognized that [the judicial estoppel doctrine's] purpose is to protect the integrity of the judicial process by prohibiting parties from deliberately changing positions according to the exigencies of the moment.”532 U.S. at 749–50.

116 The Tribe includes the Park in its argument, but as I discussed in an earlier footnote, the Class III numeric criterion provides that “achievement of the phosphorus criterion in the Park shall be based on the methods set forth in Appendix A of the Settlement Agreement.”Rule 62–302.540(4)(c), F.A.C. In other words, in its current form, the Class III criterion is being applied to the inflows to the Park, in effect, since Appendix A is applicable to inflows to the Park.

117 Conservation Intervenors do not address this topic in their posthearing memorandum.

118 They also argue that 10 ppb is not a discharge limit under the Phosphorus Rule. Farm Interests' Posthearing Memorandum, p. 12–15. However, this argument is no longer being advanced by the Tribe.

119 If the Refuge level is violated, “then additional remedies will be taken such as expansion of STAs, more intensive management of STAs, a more stringent EAA Regulatory Program, or a combination of the above.”Settlement Agreement, p. C–4.

120 I accept the State Parties' representation that the State has spent more than $1 billion constructing STAs and has additional STAs under construction at a cost of hundreds of millions of dollars. State Parties' Posthearing Memorandum, p. 2.

121 In my July 5, 2006 Special Master's Report, I explained the role envisioned by the Settlement Agreement for a panel of scientists and pointed out there (p.25, n. 35) that one had not been appointed.

122 I do not believe this condition has ever occurred.

123 The immediately prior section in Appendix B is entitled, “Interim Concentration Levels.” It contains a requirement that the DEP add to the control programs to reach a discharge limit of 50 ppb from the STAs if the lower of the long-term or Class III criteria are not met with the “current control program.” This text follows a sentence referring to “the current control program” as one “designed to achieve a long-term average annual flow-weighted mean concentration of 50 ppb for each discharge to the Refuge.”This text is not applicable where the 50 ppb level is being met but the lower of the long-term level or Class III criterion is not being met.

124 The Settlement Agreement mentions the Park and the Refuge together but because the focus of the parties here is on the monitoring data from the Refuge, I have omitted the references to the Park.

125 Cf. *United States v. ITT Continental Baking,* 420 U.S. at 238 (“In this case, the consent order was part of an agreement between the parties entitled ‘Agreement Containing Consent Order to Divest and to Cease and Desist.’The agreement incorporates by reference an ‘appendix,’ which sets forth at length the background leading to the complaint and the proposed order. In addition, the agreement provides that ‘(t)he complaint may be used in construing the terms of the order.’Since the parties themselves so provided, both the appendix and the complaint are proper aids to the construction of the order and of the agreement of which it is part.”)

126 I have considered the State Parties' reference to the 1991 Joint Motion for Approval of the Settlement Agreement, but the text quoted by the State Parties from the Joint Motion is not a surrogate for the text of the Settlement Agreement, and is consistent with the end of my-numbered Paragraph B.1 on page B–4 of the Settlement Agreement. It does not create judicial estoppel. In response to another of the State Parties' arguments, I also do not regard statements made after the Settlement Agreement by Dr. Walker as probative of the meaning of the Settlement Agreement.

127 The United States refers to this fact as a “violation” but the Settlement Agreement does not contain any such characterization. It is not a “violation” under the Settlement Agreement, but a trigger for action under my-numbered Paragraph B.2 of Appendix B.

128 The remedial hearing in February 2011 will address this violation.

129 This is a Consent Decree obligation that is currently enforced by the FDEP through permitting.

130 The United States urged me to reject U.S. Sugar's and Farm Interests' standing on the issues addressed in this Report. But, again, because of the possible impact on BMPs or the efforts of sources of phosphorus to reduce the amount of phosphorus that they are generating, I conclude that these intervenors have a sufficient interest to participate with respect to this limited issue.

131 While there were not enough TOC votes in December 2006 to make any change in the monthly comparative exercise under Appendix B, I do not know the precise issue that has been subject to dispute resolution for the past four years under Paragraph 19 of the Settlement Agreement. And the record made by the parties does not address the question as I have framed it. If the issue that was the subject of impasse and thus ripe for judicial determination under Paragraph 19, was, under the last sentence in Paragraph B.1, to what concentration should the monthly 14–station geometric mean be compared for purposes of determining an exceedance, I believe that I need additional evidence to decide whether to choose 10 ppb, use the lower of 10 ppb and the long-term level computed each month, or to maintain the status quo. If this was not the issue that was mediated, then I leave it to the parties to follow up in a manner consistent with this Report and Recommendation.

132 This is an FDEP letter dated March 25, 2008, acknowledging receipt of the District's scope of work to develop a WQBEL, answering certain questions, and explaining that the FDEP was looking forward to working with the District to establish the WQBEL.

133 In a permitting context, the April 20, 2010 presentation to the TOC was informational. The TOC did not frame the WQBEL discussion as relating to a recommendation on a more stringent “maximum annual discharge limit” for the STAs under the Settlement Agreement in light of the post-December 31, 2006 Class III monitoring results and the June 2009 Refuge violation.

134 This presumably was intended to be a flow-weighted mean concentration.

135 The District had argued that EPA's derivation of a WQBEL omitted usage of certain data that, if used when running the same statistical model, would have resulted in a limit of 19 ppb instead of 18 ppb. The District also argued that using a 95^{th} instead of a 90^{th} percentile confidence limit would produce under the same statistical model a limit of 21 ppb instead of 18 ppb.

136 I was persuaded by Dr. Walker's analysis of Dr. Rice's proposed WQBEL [Exhibit 1401A (an annual discharge limit of 10 ppb, presumably expressed as a geometric mean) even as it was modified in his Rebuttal Report, Exhibit 1449 (p. 18) (an annual flow-weighted (not geometric) mean, 3–year rolling average that is equal to 10 ppb and a maximum

annual flow-weighted mean based on the natural variability found in the EPA)]: that it would result in a figure much lower than necessary to achieve a long-term geometric mean of 10 ppb in the Refuge. Exhibit 1296 (Walker), p. 2–5, 10–15. I also acknowledge Dr. Rice's use of hypothetical examples to question the USEPA WQBEL. He hypothesized exceedances of 10 ppb geometric mean in years 1 and 2 but not one in year 3 to meet the first part of USEPA's WQBEL and then hypothesized flow-weighted mean concentrations of 18 ppb in years 1 and 2 and 4 and 5. This hypothetical produced an average flow-weighted mean concentration of 16.8 ppb over five years, Exhibit 1401A (Rice) p. 18, which is more than a 10 ppb geometric mean concentration. I was persuaded by Dr. Walker's rebuttal to this hypothetical. While conceding there is no “perfect test” to predict the future based on the data currently available, he explained that it would be “impossible to ‘train’ an STA or marsh to produce the types of patterns” hypothesized by Dr. Rice. Using the statistical model employed by USEPA to derive the WQBEL, he also showed that the probability of a scenario as posed by Dr. Rice was “infinitesimally small.” Exhibit 1296 (Walker), p. 6–10. I also found Mr. Scheidt's rebuttal in both respects to be persuasive. Exhibit 1283, p. 2–13.

137 Reasonable scientists should be able to agree objectively on how best to determine annual discharge limits that will give those of us who will not be alive decades from now the comfort of knowing that the long-term protection of the Refuge has been secured. One would hope, therefore, that among all of the scientific expertise at EPA, FDEP and the District, the parties will reach an accord on the appropriate maximum annual discharge limit. It would be a sad waste of resources for the parties to repeat their 1988–1991 litigation experience before they all came to their regulatory senses to determine the next phase of Everglades protection now that they have nearly 20 more years of knowledge and experience with STA performance in relation to phosphorus concentration variability in the Refuge and throughout the EPA. However, if they fail to act and dispute resolution fails, then the Consent Decree gives any party the right “to apply to the Court for judicial resolution of the disagreement.”Consent Decree, p. 28. “Such application shall be by motion setting forth the matter in disagreement and the relief being requested to address this disagreement. No Party shall be entitled to file such a motion, or otherwise to seek judicial resolution of the disagreement, unless and until the procedures set forth above have been tried and exhausted.”*Id.* I am confident that the Court will act, if the parties prefer to have the Court do so instead of deciding the issue themselves.

138 I would be remiss if I did not discuss the testimony of Dr. Harwell and Dr. Sklar. While acknowledging it was not a required element of proof on the issues presented here, the United States offered the testimony of Dr. Harwell to show that there is physical evidence of expanded cattail impacts in the Refuge. For example, he described a 2004 location used by the Refuge for sampling that was no longer usable for sampling in 2008 because of cattail expansion in the intervening four years. Exhibit 1206, p. 8. In a map, he depicted the increase in cattail expansion from 1999 to 2004 in the Refuge. *Id.* at 7. He explained: “in 1999, approximately one-fifth of the total acreage of the first 300 meters from the canal to the Refuge marsh was characterized by a near monoculture of cattail. In 2004, that percentage was greater than 70%.”*Id.* In rebuttal, Dr. Sklar questioned the interpretation of the physical evidence based on photometric vegetation classification work done by the District. But he opined that the cause-effect relationship (too much phosphorus in inflows to the Refuge) suggested by Dr. Harwell may not be correct, explaining that “legacy” phosphorus (i.e., already in the Refuge) and hurricane impacts could be the explanation, and that flow patterns and vegetation would have to be more closely studied in relation to the beginning of operation of STA–1E and STA–1W. Exhibit 1044, p. 10–13. I do not have to resolve this technical debate but I would expect the TOC to take an apolitical and serious scientific interest in any trends in physical evidence of cattail expansion.

139 I recognize that the parties have the right to object to this Report and Recommendation and await the Court's ruling before they take any actions, so I make these comments respecting those rights.

140 If the TOC requires more time than this recommendation permits, counsel for the Settling Parties should request more time from the Special Master with the grounds therefor.

141 Because the FDEP has been studying the subject of a WQBEL since at least 2007, required itself to issue one by December 31, 2010 under the 2007 STA–1W/1E permit, and has issued several versions of a WQBEL, and in light of EPA's Amended Determination, and the record developed in these proceedings, I would expect that the FDEP could decide on a lower or more stringent maximum annual discharge limit within sixty days after the TOC makes a recommendation or fails to make a recommendation. If more time is needed, the FDEP can seek more time upon request made to the Special Master stating the grounds for its request. I acknowledge the arguments of U.S. Sugar and Farm Interests with respect to the role that the State administrative process should play, but it is not yet clear to me that the FDEP's obligations under the Consent Decree and State administrative processes cannot be reconciled, cf. Exhibit 1311, p. 18–19, and, in any event, based on my disposition, that topic is not ripe for discussion.

142 I regard 90 days as a reasonable period of time, but if the parties do get this far in the process, they should be required to keep the Special Master apprised of their progress and if the Special Master believes more time is appropriate, they should be given additional time to reach an agreement.

143 These are letters between the Corps and the District documenting the discussion in the text.

144 Exhibit 1050 contains a 2009 email from Ms. Piccone to the Corps documenting the problems in STA–1E.

145 This is a draft letter report provided to the District by the ACOE. It is dated September 10 and entitled, “Modifications to STA–1E to Correct Design Deficiencies.”It documents the three major problems with 1E: “excessive water depths in treatment cells 5 and 7; leaks and failures at several culverts; and operational issues in the trash rake systems at pump stations S–319 and S–362.”Exhibit 1034, p. 6. The Corps later issued another draft of this report dated October 18, 2010, removing the deficiency language. Mr. Bush testified that he and others in Corps management directed staff to modify the letter report to remove ACOE staff's technical determination that deficiencies, indeed, existed. The explanations for the modification were provided in testimony presented by the United States. Tr. 212; 223–24; 355–66. Frankly, I found the testimony presented by the United States on the change of position dictated by management and the criticism of ACOE staff to be troubling. But the ACOE restored my confidence when its witness testified that the ACOE is undertaking an independent review of the deficiencies in order to be able to justify the dollars that will be required to correct them and that it will issue a final report which may look identical to the original September 2010 draft letter report. “THE SPECIAL MASTER: But Mr. Geldermann was basically suggesting that the conclusions might end up becoming the same. THE WITNESS: That's right. THE SPECIAL MASTER: You are not ruling that out. You've got an open mind. You want to see the evaluations first so that your folks up in Washington won't criticize you for asking for a lot of money without the proper investigation. THE WITNESS: That's absolutely correct.”Tr. 367–68.

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