Review Assessment

of

South Florida Water Management District's Central Everglades Planning Project, Section 203 Post Authorization Change Report, Integrated Feasibility Study and DRAFT Environmental Impact Statement (March 2018, Amended May 2018)

May 2018

Executive Summary

South Florida Water Management District (SFWMD), conducted a study to address water storage and conveyance needs for the Central Everglades Planning Project (CEPP). The study was conducted under Section 203 of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662), as amended. The SFWMD submitted the study to the Assistant Secretary of the Army for Civil Works (OASACW) for action on March 26, 2018. OASACW conducted a concurrent review of this submittal with the Headquarters, U.S. Army Corps of Engineers (HQUSACE) with the purpose of determining federal interest and that the study demonstrates engineering, economic and environmental feasibility that all reports seeking construction authorization must demonstrate.

At this phase of project development, the SFWMD's tentatively recommended plan is feasible from an engineering and construction viewpoint. However, the policy compliance review has identified several technical, policy, and legal concerns as detailed within this review assessment. The concerns are related to risks associated with the cost of required dam safety design criteria, compliance with water quality standards, a risk that project benefits might not be achieved as identified in the justification for the project, and environmental requirements for National Environmental Policy Act (NEPA) compliance.

The concerns noted above can be addressed through an evaluation/validation effort in the next project phase, subject to authorization by Congress. From the geotechnical engineering perspective, a more robust design may be required to address all potential failure modes. The timing and ultimate delivery of project benefits will be dependent on the State of Florida demonstrating compliance with water quality standards set forth in court rulings and agreed to by project stakeholders. The Jacksonville District is currently undertaking the Federal responsibilities associated with preparation of the Environmental Impact Statement (EIS) for the SFWMD's tentatively recommended plan. Until these issues are addressed, project benefits might not be achieved as described in the 203 study.

Table of Contents

I. Background

South Florida Water Management District (SFWMD), conducted a study to address water storage and conveyance needs for the Central Everglades Planning Project (CEPP). The study was conducted under Section 203 of the Water Resources Development Act (WRDA) of 1986 (P.L. 99-662), as amended. The SFWMD submitted the study to the Assistant Secretary of the Army for Civil Works (OASACW) for action on March 26, 2018. OASACW conducted a concurrent review of this submittal with the Headquarters, U.S. Army Corps of Engineers (HQUSACE) with the purpose of determining federal interest and that the study demonstrates engineering, economic and environmental feasibility that all reports seeking construction authorization must demonstrate.

This Review Assessment provides the results of the Washington-level review of the study. This review has been conducted to determine whether the SFWMD study and the process under which the study was developed, each comply with Federal laws and regulations; a determination of whether the project is feasible; and identification of any conditions that the Secretary may require for construction of the project. Significant issues identified during the review pertain to substantive issues related to justification of the proposed modifications for the increased cost and benefits, dam safety design criteria, environmental requirements for NEPA and climate preparedness, as well as the recommendations to the implementation plan for the entire CEPP. It was determined during the issue resolution process that compliance with some of these items will be a condition for authorization and subsequent construction of the project.

II. SFWMD's CEPP Section 203 Recommended Plan

This section provides a summary of the recommended project, as contained within the Central Everglades Planning Project, Section 203 Post Authorization Change Report (PACR), Integrated Feasibility Study and DRAFT Environmental Impact Statement (March 2018) and Addendum (May 2018).

A. Location: Martin, Lee, Palm Beach, Broward, Miami Dade and Monroe Counties, Florida.

B. Congressional Interest: Bill Posey (FL-08), Darren Soto (FL-09), Val. B Demings (FL-10), Thomas J. Rooney (FL-17), Brian Mast (FL-18), Francis Rooney (FL-19), Alcee L. Hastings (FL-20), Lois Frankel (FL-21), Ted Deutch (Fl-22), Debbie Wasserman Schultz (FL-23), Frederica S. Wilson (FL-24), Mario Diaz-Balart (FL-25), Carlos Curbelo (FL-26), and Ileana Ros-Lehtinen (FL-27).

C. Senators: Bill Nelson and Marco Rubio (Florida)

D. Problems: Current operations of the Central & Southern Florida (C&SF) Project involve water supply and flood releases to manage stage levels in Lake Okeechobee, the Water Conservation Areas, and the Everglades. Prolonged high-volume discharges of water from Lake Okeechobee to the Northern Estuaries have resulted in damaging effects

on the flora and fauna inhabiting these areas. System changes have resulted in point source peak flows that are higher just prior to and/or following major rain events, and flow rates that decline more abruptly during the end of the wet season. Due to limited storage capacity in Lake Okeechobee, flows to the Everglades have shifted from primarily wet season flows in response to rainfall to controlled dry season deliveries in response to urban, Tribal, and agricultural water demands. The impoundment of the natural system, construction of drainage canals and conveyance features, and current C&SF operations have disrupted the annual pattern of rising and falling water depths in the remaining wetlands in the Everglades. These hydrologic changes have contributed to degradation and loss of valuable tree islands. The current system is now too wet in some areas and too dry in others.

Additionally, the conversion of natural areas for urban and agricultural uses and the network of C&SF Project canals have altered the natural system, causing complete shifts in vegetative communities and loss of fish and wildlife resources. The result is reduced water storage capacity in the remaining natural system and an unnatural mosaic of impounded, fragmented, over-inundated, and over-drained marshes.

E. Project Objectives:

- Further reduce high-volume discharges from Lake Okeechobee to improve the quality of oyster and submerged aquatic vegetation (SAV) habitat in the Northern Estuaries
- Further improve upon restoration of seasonal hydroperiods and freshwater distribution to support a natural mosaic of wetland and upland habitat in the Everglades System
- Further improve sheetflow patterns and surface water depths and durations in the Everglades system to reduce soil subsidence, the frequency of damaging peat fires, the decline of tree islands, and salt water intrusion
- Further restore more natural water level responses to rainfall to promote plant and animal diversity and habitat function
- Increase availability of water supply
- Provide recreational opportunities
- Protect cultural and archeological resources and values

F. Project Description:

The project includes a 240,000 acre-feet above-ground reservoir and a 6,500-acre Storm Water Treatment Area (STA), located on the A-2 parcel and A-2 Expansion area. These features will work in conjunction with the existing 60,000 acre-feet A-1 Flow Equalization Basin (FEB), STA-2, and STA-3/4 to meet State water quality standards. The proposed A-2 Reservoir is 10,500 acres and designed to have a normal full storage water depth of approximately 22.6 feet. The project also includes 1,000 cfs of additional conveyance capacity in the Miami Canal within the Everglades Agricultural Area (EAA) and 200 cfs of additional conveyance capacity in the North New River Canal within the EAA. The A-2 Reservoir outflows can be sent to the new A-2 STA (located adjacent to and directly west

of the A-2 Reservoir), to the existing A-1 FEB, STA-2, and/or STA-3/4. Outflows from the A-2 STA would be conveyed to the Miami Canal south of the existing G-373 divide structure. A-2 Reservoir outflows can also be conveyed to either the Miami or North New River Canals via the intake canal.

G. Study Purpose:
The goal of the project is to develop a plan to provide sufficient conveyance, water storage, and treatment capacity south of Lake Okeechobee in the EAA to further reduce damaging discharges to the Northern Estuaries and deliver additional flow to the Greater Everglades consistent with the Central Everglades Restoration Plan (CERP) goals. During and since congressional authorization of CEPP in 2016, the State of Florida has experienced excessive rainfall well above average resulting in significant releases from Lake Okeechobee to the Northern Estuaries that caused ecological damage and impacts to the economy. As a result of these damaging discharges to our Nation's unique and diverse estuaries and the economy, Florida Governor Rick Scott declared a state of emergency under Executive Orders (E.O.) 16-59, 16-155, and 16-156.

Immediately following the Governor's Executive Orders and recognizing that CEPP provided the first increment of storage and treatment to redirect a portion of the damaging discharges from the Northern Estuaries to the central portion of the Everglades, the Florida State Legislature passed the Water Resources Law of 2017 (Laws of Florida, Chapter 2017-10, Senate Bill 10). The law, signed by the Governor in May 2017, directed the SFWMD to pursue an expedited process to reduce the damaging discharges by providing for increased storage, treatment capacity and conveyance in the EAA jointly with the USACE and consistent with the CERP.

H. Price Level: October 2017

I. Interest Rate: 2.75%

J. Total Project Cost: $3,335,000,000

K. Average Annual Cost: Total average annual costs for ecosystem restoration and recreation features: $149,912,000. Total average annual costs for ecosystem restoration features: $149,474,000.

L. Benefits: Total cumulative average annual habitat unit (AAHU) benefits provided by CEPP plan as modified by the CEPP PACR Tentatively Selected Plan (TSP) are 314,457 AAHU's. Benefits provided by CEPP PACR TSP (incremental AAHU lift) are 28,768 AAHU's. In terms of acres, the CEPP PACR TSP provides beneficial effects to 86,000 acres in the Caloosahatchee and St. Lucie estuaries; 480,000 acres in Florida Bay; and over one million acres of freshwater wetlands in the Greater Everglades.

III. Review History

The Washington Level Review was initiated on March 30, 2018 upon receiving the SFWMD study. On May 1, 2018, the review comments were provided to the SFWMD. During the month of April coordination occurred to provide several fatal flaw comments, obtain responses from SFWMD and provide OASACW/HQUSACE assessments. On May 11, 2018 an issue resolution meeting was held where several comments were discussed (as noted below in the discussion sections) to seek better understanding of concerns, review responses from the SFWMD and establish a path forward for resolution whenever possible. On May 16, 2018, the final OASACW/HQUSACE assessment and required actions were shared with SFWMD to bring resolution to comments. On May 21, 2018 an Addendum prepared by the SFWMD was submitted in response to the review performed by the OASACW/HQUSACE assessment. Information contained in the Addendum was used to complete the Review Assessment. On May 24, 2018, HQUSACE provided its final review comments and assessment to OASA-CW. OASA-CW completed its final review and assessment on May 29, 2018.

IV. Section 203 Review Assessment Summary

In accordance with section 203 of WRDA 1986, as amended, the Secretary is required to provide a report to Congress that describes the following:

A. Feasibility determination (Whether the project is feasible (i.e. technically sound, economically justified and environmentally compliant)?

At this phase of project development, the SFWMD's tentatively recommended plan is feasible from an engineering and construction viewpoint. However, the policy compliance review has identified significant technical, policy, and legal concerns as detailed within this review assessment. The significant concerns are related to a high cost risk associated with required dam safety design criteria, a high risk of non-compliance with water quality standards, a high risk that project benefits might not be achieved as identified in the justification for the project, and environmental requirements for National Environmental Policy Act (NEPA) compliance. Moreover, whether the proposed project will be environmentally compliant with applicable water quality requirements is uncertain.

Some of the concerns noted above (and detailed in section V, below) can be addressed through an evaluation/validation effort in the next project phase, subject to authorization by Congress. From the geotechnical engineering perspective, a more robust design may be required to address all potential failure modes. The timing and ultimate delivery of project benefits will be dependent on the State of Florida demonstrating compliance with water quality standards set forth in court rulings and agreed to by project stakeholders. The Jacksonville District is currently undertaking the Federal responsibilities associated with preparation of the Environmental Impact Statement (EIS) for the SFWMD's tentatively recommended plan. Until these issues are addressed, project benefits might not be achieved as described in the 203 study. However, satisfaction of Federal NEPA requirements by USACE will not in and of itself establish compliance with applicable water

quality requirements for the project, including Clean Water Act compliance with the Florida Total Phosphorous Rule, and compliance with Appendix A of the 1991 Settlement Agreement in U.S. v. SFWMD, Case No. 88-1886-CIV-Moreno (U.S.D.C., S.D. Fla)).

B. Recommendations concerning the plan or design of the proposed project.

The following additional analysis is required to confirm the feasibility of SFWMD's recommended plan:

1. Conduct a potential failure modes & life loss consequences analysis. Update project design and cost estimates to reflect the findings of this analysis.

2. Update the cost estimate once the proper potential failure modes and life loss consequence analysis is complete. All alternatives under consideration will be priced, reviewed by an independent third party, cost review comments and associated changes documented, and all certifications obtained in accordance with USACE regulations and policy.

3. Update the cost estimate for the entire CEPP project (including the changes recommended in the Section 203 study), to reflect present day costs, and execute a review and certification per USACE policies.

4. Resolve concerns relative to the water quality compliance aspects and the Operations and Maintenance (O&M) requirements, to validate the benefits being claimed and the water quality improvement effectiveness and efficiency.

5. Conduct a State and Agency review to determine environmental compliance with applicable water quality requirements of SFWMD's proposed project, including U.S. Department of Justice (DOJ), U.S. Department of Interior (DOI), and the U.S. Environmental Protection Agency (EPA). That review may result in and/or also involve consultation with the judicially-appointed special master representing a Federal District Court overseeing the State's plan for compliance with the requirements of a Federal Settlement Agreement addressing water quality. Such reviews and consultations may result in further recommendations to SFWMD's plan and/or its design to attain environmental compliance. The completion of the NEPA process, and environmental compliance with applicable water quality requirements, is also necessary before the project may proceed to construction.

C. Identify any conditions required for construction of the project

The SFWMD's tentatively recommended plan's reservoir design does not adhere to USACE dam safety policy/requirements for potential failure mode and life loss consequence analysis. The project must undergo these required analyses so that the project's overall cost can be validated and certified.

NEPA, and other applicable environmental compliance activities must be completed before construction, including resolution of any issues identified as part of that process. Jacksonville District is undertaking the Federal NEPA responsibilities outlined in comment AA, including preparation of the Environmental Impact Statement (EIS) for the SFWMD SFWMD's tentatively recommended plan. Whether the proposed project will be environmentally compliant with applicable water quality requirements is uncertain. The project study itself identifies that there are uncertainties surrounding environmental compliance with applicable water quality requirements, indicating that there is a high risk that the project as presently planned and designed would not comply with environmental compliance requirements. Environmental policy compliance has not been validated at this time due to the fact that many of the environmental statutes still require the lead Federal agency to consult and coordinate, and because compliance with applicable water quality requirements is beyond the unilateral legal authority of SFWMD and/or the Secretary to establish.

Approval of the plan and design of the project by the necessary state and Federal agencies (and possibly the Federal District Court) for flows of water entering into and discharged from proposed A-2 reservoir to attain environmental compliance with applicable water quality requirements (including, but not limited, to Total Phosphorous Rule and Appendix A of 1991 Settlement Agreement in U.S. v. SFWMD, Case No. 88-1886-CIV-Moreno (U.S.D.C., S.D. Fla)) is required, and environmental compliance with the applicable water quality requirements mentioned above must be a state cost.

The State of Florida is involved in ongoing litigation relative to water quality. It is imperative to separate the Secretary (and USACE) from the State's legal proceedings and State requirements for water quality compliance (administrative and under court order). Policy compliance and construction cost sharing of water quality features (to include long-term O&M cost share) needs to be clearly defined and removed from project's total cost, to ensure this and other projects of this nature do not tie the Federal investment to the requirement incumbent upon the State. Any Federal investment for construction and O&M of water quality features associated with this and other similar projects could be precedent setting across all of USACE.

V. Policy and Legal Review Concerns

A. Engineering & Construction – On Site Materials. The report indicated that the project intended to use onsite limestone that would be excavated from the interior portions of the reservoir for use in construction the riprap and filter media portions of the project. Through pervious Herbert Hoover Dike and C-44 projects, use of on-site limestone/sand in the vicinity of these project did not meet USACE specifications for use on USACE projects for riprap or filter media. Further, review of the limited geotechnical borings done of the feasibility study also re-affirms this case as the borings indicate "soft drilling through that limestone" was encountered. C-33 sand is available in Florida, but at some distance from the project. Acceptable riprap that meets USACE specifications are also being brought in from considerable distance for use on these types of reservoir projects.

Basis of concern. Cost, Construction, Sustainability, Resiliency

Significance of concern. High

Recommendation for Resolution. Provide the necessary geotechnical testing that indicates the onsite material as proposed will meet all USACE specifications for rip rap and or filter media; or, revised cost estimate to reflect the increased cost of obtaining this material from offsite sources (provide quotes and cost on sources of this material).

SFWMD Response. The development of the Feasibility Study recommendations was based on previous studies, testing, engineering and field experience with the geologic formations in and around the Everglades Agricultural Area (EAA) Reservoir site derived from two decades of constructing water resource projects in the EAA. Geologic formations in the EAA contain lenses of hard and soft/weathered lime rock and marine deposited gravel materials (Ft. Thompson). Selective processing will be required to obtain the best quality material for application in the dam.

The information from the previous construction activities indicates that the cap rock formation contains some of the highest quality lime rock material available in South Florida. Field experience obtained during the previous construction activities associated with the EAA A-1 Reservoir, the EAA A-1 FEB, the EAA Stormwater Treatment Area 2, the EAA Stormwater Treatment Area 3/4 and Bolles Canal excavation in the EAA have shown that select, processed rock materials were relatively dense and hard compared to lime rock materials typically produced in other mines in South Florida. Construction on the original EAA A-1 Reservoir; executed, reviewed and approved by the US Army Corps of Engineers (USACE) under the joint Federal – State Acceler8 Program for CERP, produced limestone materials for rip rap, RCC aggregate, filters and drains acceptable for use in USACE projects. However, significant blasting, crushing and processing was required to meet the design specifications for the project which have been accounted for in the cost estimate.

Attached, please find excerpts from the jointly approved design and testing activities from the previous project used as a basis for the recommendations at this stage of planning. The studies showed that, with selective processing, caprock at the site had sufficient density and durability to provide an economical design for the project. There are lenses of softer rock materials in the formation, but it is anticipated there are sufficient quantities of hard rock to support the construction of the project contained within the feasibility study.

Site produced rip rap is expected to be a cost-effective alternative to imported granite. The closest granite sources are in Georgia and Alabama and cost on the order of $100/ton delivered to the site. Limestone rip rap in small to medium sizes (up to Type C – D50 18”) can be produced from caprock suitable for the project. Previous testing indicates that the material is anticipated to cost effectively resist most flow conditions and experience modest solutioning of the rock pieces over time. There may be higher flow conditions warranting the use of granite, but those locations should be limited, and we expect these applications will not result in significant changes to project costs estimated at this time.

Please also note that rip rap materials are proposed only for channel and structure protection outside of the reservoir embankment. No rip rap is proposed inside the reservoir to resist wave action, as is the case for the Herbert Hoover Dike remediation. Maintenance or replacement of rip rap will be relatively easy and can be repaired with locally available materials. The Star Pit mine is located adjacent to EAA Reservoir site and produces similar quality material for future use if needed. It is also important to note that the USACE is currently using locally sourced native rip rap associated with its construction of the C-44 Reservoir project in a similar fashion to what is being proposed under the Post Authorization Change Report, Integrated Feasibility Study for the EAA Reservoir.

In contrast, wave action internal to the reservoir will be resisted by a cement stabilized, roller compacted concrete surface on the interior portions of the embankment. Site produced aggregate has demonstrated strengths more than 1500 psi with relatively low cement content (less than 7- 8%), during the construction and testing program for the EAA A-1 Reservoir project. This provides a robust and cost-effective slope protection approach to resist wave attack.

With regard to the reviewer's comment and concern pertaining to the filter and drain materials, if the filter material degrades significantly over time or if drains are fouled, then repair and replacement of the filter in the dam is not easy nor inexpensive. However, tests of material durability in the EAA A-1 Reservoir project concluded that select, site produced filter material has adequate durability characteristics and therefore was recommended and approved by the USACE through the design review process for the EAA A-1 Reservoir project (see attachment material test report).

Should it be determined, during the Preconstruction Engineering and Design (PED) phase for EAA A-2 Reservoir project that the filter material is of inadequate quality or of insufficient quantity, the design will evaluate other alternatives. Alternatives include; the use of silica sand – there is a mine in Moorehaven that is a proposed source for the C-43 reservoir project; or the import of granitic sands. The processing cost of site produced filter material is not as high as granite, but still reasonably high. The cost to import silica sand maybe close enough to the cost of processed filter material that the impacts on the total project cost are minimal and within the contingencies proposed in the plan estimate.

While detailed geotechnical investigations will be required during the design phase of the project to confirm the planning phase assumptions, these alternatives can be reviewed in preliminary design once additional geotechnical information gathering and testing is conducted on the EAA A-2 site.

<u>OASACW/HQUSACE Assessment.</u> USACE has reviewed the information provided by SFWMD in response to the comment. While the material may be okay for use on state projects, this material does not meet USACE Engineering Regulations or USACE specifications for use on earth embankments associated with dams or reservoirs. This material has a proven track record of being cementations within filter media zones once

processed and the riprap does not meet 50 year service life requirements. For recent federal projects in the vicinity (Herbert Hoover Dam, C-44 Reservoir, and planned C-43 reservoir) this material is not allowed for use in filter media or riprap. The risk of failure of the embankment with the use of this material is "high", and therefore unacceptable to the government. For this feasibility study, in order to capture all potential project costs, the most appropriate action is for the cost estimate to be revised to account for all filter media and riprap coming from offsite sources for this project. In PED phase, if the material is found suitable for uses on some parts of the project, then potentially a cost savings of its use will be accounted for at that time.

SFWMD Response. Costs were evaluated for the use of imported filter materials from two (2) potential sources:

1. Ortona Mine (Near Moorehaven, FL_ – Located approximately 60 miles from the EAA A2 project site, the mine has the ability to produce the quantities and quality of silica sands required for the project. Current material cost is approximately $15/ton.
2. Imported granitic sands from Georgia or Alabama sources. Current material costs range from $25-$35/ ton. Transportation costs are expected to exceed the cost to transport silica sands from Moorehaven, FL

There are approximately 1.4 million tons of filter sand required for the project. The difference in the cost of site produced limerock filter materials and imported silica sand is approximately $25/ton. The additional cost associated with the import of silica sand materials associated with filter construction is estimated to be approximately $35M.

Limestone riprap for conveyance canals and structure protection are currently considered acceptable for the C43 project. No change in cost to substitute granitic rip rap is proposed.

Discussion. The intent of the comment is to address concerns with the quality of the material being proposed and the quantity/cost. The currently proposed materials do not meet requirements, however the newly sited source of the Ortona Mine is a good source of material. This new proposal still requires follow up with the geotechnical reviewer to verify and assess cost estimate of the additional $35M. The rip rap proposal is suggested to be similar to C-43 and C-44 reservoirs currently under construction and remains to be verify by the engineering reviewer for acceptability.

Final OASACW/HQUSACE Assessment. Filter media source is acceptable to USACE at this level of study. Use of on-site rock for rip-rap at this time for use on the slopes outside of the reservoir is acceptable. Use of that rock on the inside portions of the reservoir raises some service life concerns at this time. For this evaluation, USACE will assume that the identified 34% contingency for the project will account for any potential need to obtain offsite source for riprap in PED phase.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

B. Consequences of Failure/Life Loss. The CEPP PACR did not determine the consequences of failure for the proposed A-2 reservoir. Without this information the decision maker does not have a complete understanding of the risk of the proposed water impoundment upon the local population. A decision could have been made prematurely to recommend constructing a new reservoir.

WRDA 1986 language
"SEC. 1202. Any report that is submitted to the Committee on Environment and Public Works of the Senate or the Committee on Public Works and Transportation of the House of Representatives by the Secretary, or the Secretary of Agriculture acting under Public Law 83-566, as amended, which proposes construction of a water impoundment facility, shall include information on the consequences of failure and geologic or design factors which could contribute to the possible failure of such facility."

ER 1110-2-1156, Chapter 21.4.2.3
"Consequence and Potential Failure Mode Analysis and Preventative Measures. All reports to be submitted to Congress for authorization of water impoundment facilities must include information on the consequences of failure and geologic or design factors which could contribute to the possible failure of such facilities."

Basis for concern. Life Safety, Risk and Cost

Significant of the Concern. High

Recommendation for Resolution. A consequence assessment needs to be performed for the proposed water impoundment measures included in the TSP (A-2 Reservoir). The results of the consequence assessment need to be included in the evaluation of the alternative to allow decision makers to determine if the risks of the alternative are tolerable to achieve the proposed project benefits. This includes the communication of the risks to any potentially affected community.

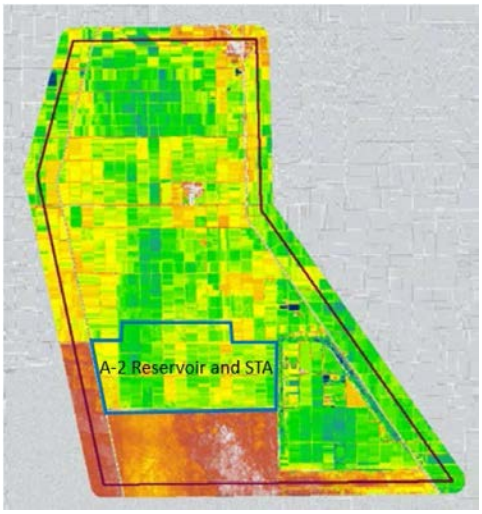
At least a summary of the consequence analysis should appear in the main report and discussion of the TSP. The full results of the consequence analysis should be included in an appendix (likely Appendix E). From ER 1110-2-1156: "Consequences are defined as potential life loss, economic damages, and environmental damages. At the minimum estimate the consequences related to failure of the dam from a breach of the dam with the reservoir at the maximum pool – no spillway discharge, maximum pool with full spillway discharge, and overtopping of the dam."

SFWMD Response: A concise "consequences assessment" for failure of the proposed A-2 Reservoir is included in Section A.5.1 (Hazard Classification and Emergency Evacuation Requirements) of Appendix A of the CEPP PACR. SFWMD provides the following additional details for your information.

From a dam safety perspective, a breach (or failure) of the A-2 dam (reservoir) is expected to result in loss of life as well as economic and environmental damage, therefore the

reservoir is classified as a high hazard impoundment in accordance with the jointly (SFWMD and USACE) developed requirements of Design Criteria Memorandum -1. The consequences assessment is intended to be qualitative in nature based on previous design experience with other impoundments in the EAA and to be consistent with the requirements identified in the guidance documents and Engineering Regulations that govern the development of this project at this stage of the feasibility study. See further discussion on basis of level of detail for planning phase activities in the text below.

To provide context, the reservoir is in a relatively remote location in the Everglades Agricultural Area (EAA) (approximately 120,000 acres). The reservoir is approximately 13 miles south/southwest (downstream) from the nearest population centers (South Bay and Belle Glade). The proposed reservoir would be bounded by US 27/ North New River to the east, agricultural fields to the north, Miami Canal to the west and Stormwater Treatment Areas 2, 3/4 and Holeyland Wildlife Management Areas to the south. Due to agricultural practices, the topography slopes very little from north to south but this area is generally lower than the surrounding areas. See Lidar image (yellow is higher, and greens are lower).



Depending on the location of the breach in the dam, the reservoir water will attenuate away from the reservoir. If the breach is to the north, a maximum discharge of 240,000 acre-feet would flow to the north of the A-2 Reservoir preferentially in the lower green areas of the LIDAR map above with approximately two feet of water. The existing EAA flood control system, enhanced by this project, will be utilized to manage flooding events caused by a breach and minimize impacts to the area. Population centers approximately 13 miles north of the reservoir are far enough away to allow local emergency management agencies more time to prepare and/or evacuate if needed. The other major facilities to the north include the Starr Pit Mining operation (2 miles away) and Florida Crystals Sugar Processing facility (6.5 miles away).

More directly there is a significant hazard to US 27 (a major hurricane evacuation route) which is approximately 2 miles to the east from the reservoir location. Adjacent farming operations to the east will also be at risk. A breach to the south and west will temporarily

inundate existing environmental management areas with little to no affect to farming operations or population centers.

The “consequences assessment” in Section A.5.1 of Appendix A of the CEPP PACR has been prepared to a level of detail commensurate with a feasibility level study. This assessment addresses potential loss of life, economic damages, and environmental damages that might occur in the event of structure failure under different reservoir operating conditions, as suggested. The assessment is based upon extensive knowledge of site conditions at the reservoir site. Similar analyses have been conducted for a previously proposed EAA A-1 reservoir (present site of the A-1 flow equalization basin (FEB) and immediately east of the proposed A-2 reservoir), and experience with planning, design, and construction of similar reservoir facilities in south Florida (specifically, the C-43 and C-44 reservoirs). More detailed analysis of the A-2 reservoir will be conducted, as appropriate, during the PED phase of the project. See further discussion on basis of level of detail for planning phase activities in the text below.

Please also note that ER 1110-2-1156, Chapter 21.4.2 states:

“During the feasibility phase, the Project Delivery Team (PDT) develops a Recommended Plan. The feasibility study must address the following items (Items 21.4.2.1 – 21.4.2.6 of ER1110-2-1156) related to Dam Safety when evaluating an alternative that includes construction or modification of a dam. Additionally, if construction of a dam is the recommended alterative, all supporting and necessary required documentation will be identified, budgeted for and scheduled to be completed either during the feasibility phase or PED phase in close coordination with the Dam Safety Officer.”

At the time of the kickoff to the CEPP PACR development, SFWMD confirmed with USACE Jacksonville District that a Dam Breach Analysis was not required at this stage of the Project development.

Discussion. The Jacksonville District and the Headquarter’s Dam Safety Officers would not grant a waiver for this requirement. This Dam Safety analysis is required per policy and regulations. A project that proposes a dam is not contingent upon feasibility guidance when certain analysis can be deferred to PED, dam safety analysis is required during feasibility. The existing information in the PACR appendix was not deemed sufficient to address this concern. Although there are not residential communities in the immediate area, there is life safety risk associated with agricultural field workers and commuters on the roads, therefore a failure/life loss analysis is still appropriate. It still remains to be determined if this is a requirement now to establish feasibility or if it can be a condition for implementation. A possible option could be to consider adjusting the cost contingency to address this concern. More internal discussion is required to coordinate to establish a recommend path forward for resolution of this concern.

Final OASACW/HQUSACE Assessment. At the time of this evaluation, USACE DSO (HQ) has not given SFWMD a waiver to exclude the required consequence (life loss evaluation) and potential failure mode analysis for this project. Additionally, the mandated

analysis as outlined in ER 1110-2-1156 will be required for this project to ensure that the proposed embankment for the reservoir will meet USACE life safety and acceptable risk standards for embankments associated with reservoirs/dams. While USACE appreciates the analysis in this area that was performed by SFWMD, the submitted project does not meet the requirements set forth in the engineer regulations and policy for embankments for reservoirs. Further, USACE analysis of the SFWMD "tentatively selected plan" indicates that the proposed embankment design will not address all the potential failure modes and associated life loss consequences, and therefore is unacceptable for approval at this time.

Additionally, at this time, USACE is unable to verify the project's total cost for the submitted project because of uncertainties with the final alternative. The Review Team recommends that the project undergo the required potential failure mode and life loss consequence analysis as required by ER 1110-2-1156 so that project's correct embankment alternative can be verified (feasibility engineering design), then be sent forward for cost certification.

Finally, USACE has identified that there is significant risk that the 34% cost contingency currently in the cost estimate will not cover the additional cost associated with the likely design changes required to meet all standards after the proper analysis is completed. USACE recognizes the ability to design and construct an embankment for this reservoir that meets all USACE risk and life safety standards, however identifies the submitted SFWMD recommended "tentatively selected plan" as presenting a "high" implementation and cost growth risk.

C. Potential Failure Modes. The CEPP PACR did not determine the potential failure modes for the proposed A-2 reservoir. There was discussion of wave-action overtopping and seepage management in Appendix A that may relate to potential failure modes of the proposed reservoir. It appears potential measures such as a parapet wall for overtopping and a cut-off wall for seepage are considered. It is possible some of this work has been performed, but a comprehensive look at what could go wrong and cause the dam to fail does not appear in the report of appendices.

Without clear information of potential failure modes the decision maker does not have a complete understanding of the risk of the proposed water impoundment upon the local population and the options to manage the risk the project would impose. The engineering design team is also unaware of potential risk factors that could be managed by design.

WRDA 1986 language
"SEC. 1202. Any report that is submitted to the Committee on Environment and Public Works of the Senate or the Committee on Public Works and Transportation of the House of Representatives by the Secretary, or the Secretary of Agriculture acting under Public Law 83-566, as amended, which proposes construction of a water impoundment facility, shall include information on the consequences of failure and geologic or design factors which could contribute to the possible failure of such facility."

ER 1110-2-1156, Chapter 21.4.2.3
"Consequence and Potential Failure Mode Analysis and Preventative Measures. All reports to be submitted to Congress for authorization of water impoundment facilities must include information on the consequences of failure and geologic or design factors which could contribute to the possible failure of such facilities."

Basis for the Concern. Life Safety, Risk, Design and Cost

Significant of the Concern. High

Recommendation for Resolution. A potential failure mode analysis needs to be performed for the proposed water impoundment measures included in the TSP (A-2 Reservoir). This information should be included in at least Appendix A in an easily identified section that describes each potential failure mode and potential actions to manage the risk of failure.

The results of the analysis should inform the engineering design team in actions that they may be able to take to manage risk through design and implementation. From ER 1110-2-1156: "The geologic site conditions that could lead to failure are identified, the associated failure mode described, and design steps taken to prevent the failure from occurring are presented. Address the general potential failure modes related to dams and present the how the design for this dam prevents these failure modes from occurring."

SFWMD Response: The CEPP PACR includes a discussion of seepage management and wave overtopping that represent the higher potential risks for failure of the A-2 reservoir dam embankments, at an appropriate feasibility level of detail (see sections A.5 and A.8 of Appendix A of the CEPP PACR). A detailed potential failure mode analysis will be conducted during the PED phase following authorization. USACE and SFWMD have extensive "hands on" experience with the design, construction, and major rehabilitation of similar structures, including assessment of the risk of failure, in the immediate area around Lake Okeechobee, including Herbert Hoover Dike, and the C-43 and C-44 reservoirs.

Potential failure modes considered include:

Seepage Management –Seepage piping formations and boils under dam embankment resulting in excessive seepage gradients leading to progressive failure in foundation. Mitigation Measure includes a Cut Off Wall.

Wave Attack and Overtopping - Erosion from wave energy and overtopping resulting in loss of structural integrity of the dam. Mitigation Measures include RCC surface on upstream face and wave wall on landside of crest to prevent overtopping.

Internal Erosion – Seepage through dam resulting in piping and internal erosion. Mitigation Measures include drain and filter system to collect internal seepage and control

discharge. In addition, bentonite amended soil water stop/plugs surrounding water control structures through the dam to eliminate flow paths within the dam.

Rapid Draw Down – Excess pore pressure development due to set up and set down during storm events. Mitigation Measures include an upstream drain system to relieve buildup of excess pore water pressure due to rapid draw down.

Uncontrolled Release Through Structures – Uncontrolled releases in the event of gate failure. Mitigation Measure includes redundant gate features to minimize the potential for uncontrolled releases in the event of gate failure.

Overfilling – Accidental overfilling resulting in overtopping. Mitigation Measure includes uncontrolled emergency discharge weirs at the dam crest.

ER 1110-2-1156, Chapter 21.4.2.3 further states*:* "Address the general potential failure modes related to dams and present how the design for this dam prevents these failure modes from occurring."

Therefore, the SFWMD staff is satisfied that the potential failure modes, and associated risks, have been sufficiently considered for the A-2 reservoir at this stage of planning.

Discussion. Refer to comment B discussion due to similarities.

Final OASACW/HQUSACE Assessment. See Comment B

D. Additional Flow on Infrastructure. The SFWMD intent of the project is to store significant amounts of water from Lake Okeechobee into the proposed EAA reservoir. This will be an increase of 160,000 acre-feet of water (75% more volume) than the approved 2016 CEPP. This additional storage volume will have impacts on the adjacent Miami and North New River Canal systems, as well as infrastructure to the south in Water Conservation Area (WCA) 3A/B. The 2016 CEPP plan did have improvements to the infrastructure in WCA 3A/B, but were scheduled to be sequenced at the end of the CEPP improvements, and at a much smaller flow volumes. If constructed, the proposed reservoir will put much higher volumes of water into the Miami/North New River Canal (through seepage) as well as high volumes/stages of water through the WCA's to the south that were not designed to account for this much water moving south as well as the potential to provide the water sooner than originally planned.

Basis of concern. Flood Risk, Structure Failure, Cost

Significance of concern. High

Recommendation for Resolution. Seepage from the EAA reservoir at fully loaded stages into the Miami and North New River Canals needs to be evaluated. These seepage flows will certainly take away flood conveyance capacity from the Miami/North New River Canal and impacts to adjacent and downstream canal land owners needs to be fully vetted (i.e.

If more flood conveyance capacity is needed, are there enough public lands to expand the canals, and if not… are they willing land owners to obtain real estate from?). Additionally, there is a potentially high risk of failure associated with flowing additional water on downstream infrastructure that was never designed to handle the additional flows. Improvements to the downstream infrastructure as well as analysis to ensure flood conveyance capacity of the Miami and North New River Canal systems must be quantified, offsets identified, and costs and construction for improvements to the infrastructure/canals to the south included in this project costs to account for deviations from the approved 2016 CEPP.

SFWMD Response: The seepage management alternatives that were evaluated assumed that seepage would be mitigated by a combination of the seepage cut-off wall, increasing the A-2 Reservoir Inflow-Outflow Canal depths and seepage control operations that operate the A-2 Reservoir Inflow-Outflow Canal at lower stages. The seepage control operations that were simulated assume that the spillways connecting the A-2 Reservoir Inflow-Outflow Canal and the Miami Canal and the North New River Canal (NNRC) are closed and the seepage collected in the canal is pumped back to the reservoir. Thus, the flows to the Miami Canal and the NNRC are not expected to increase significantly by using this mitigation strategy.

The below paragraph is an excerpt from the Engineering Appendix A, Section A.9. that explains the active management alternatives that were evaluated for the CEPP PACR:

"The alternatives consist of modifying the proposed seepage cutoff wall depth in the north side of the A-2 Reservoir and the A-2 Reservoir Inflow-Outflow Canal depth along the portion of the canal adjacent to the north boundary of the A-2 Reservoir. In addition, the alternatives conceptualize an active seepage management system which consists of simulating seepage pumps controlling the stage in the A-2 Reservoir Inflow-Outflow Canal within a specified range when the A-2 Reservoir Inflow-Outflow Canal is not conveying flows to or from the A-2 Reservoir and Spillways SW-2 and SW-3 are closed. The seepage pumps will be the electric motor driven pumps at Pump Station P-1 and they will pump seepage water from the A-2 Reservoir Inflow-Outflow Canal into the A-2 Reservoir. **Section C.16** of the Draft Project Operating Manual included in **Annex C** further describes the proposed seepage management."

The CEPP PACR, based on the project assumptions did not anticipate, and in the evaluation did not observe conveyance capacity limitations associated with the additional flows sent to the Everglades. Executive summary, Pages ES-1, 4 & 14, address this finding. The PACR affirms in Section 6, Tentatively Selected Plan…, "*These additional flows are delivered with a timing shift that favor dry season flows in addition to CEPP when downstream infrastructure has adequate capacity to convey the flow (Figure 6-6). As a result, the CEPP PACR reaffirms that the CEPP PPA North and South project features can accommodate the additional flows south to the central Everglades. These additional flows would result from additional canal conveyance, storage, and treatment wetlands proposed on lands within the Everglades Agricultural Area (EAA)."*

The CEPP PACR is an integral part of the authorized CEPP plan and will deliver its full benefit when the other components of the CEPP Plan are implemented and in place. This assertion is represented in the modeling and analyses provided with the PACR.

The PACR achieves an increase in flows south by storing a larger volume and delivering more flows, further into the dry season, extending hydroperiod within the Everglades system. As noted in the PACR the increased flow south is realized not by increasing the peak discharge in the wet season but by opportunistically delivering dry season flows utilizing available system capacity that becomes available as the wet season flows subside.

The CEPP PACR anticipated and evaluated increased flow between Lake Okeechobee and the Reservoir/Everglades STA Complex. Annex A-1, "Preliminary Conveyance Assessment for Lake Okeechobee Releases through the Miami & NNR Canals", describes the analyses and findings. The PACR identifies improvements to both NNR and Miami Canals to pass the additional flows to the reservoir under flood control and water supply conditions within the EAA canals.

Supplemental SFWMD Response level of detail required at Planning Level:

The CEPP PACR was prepared in accordance with SMART (Specific, Measurable, Attainable, Risk-Informed, and Timely) planning principles, established under the USACE Planning Modernization Program in 2012, and is consistent with the approach used by the USACE to prepare the CEPP PIR under the National Pilot Program for Feasibility Studies. SMART Planning maximizes use of existing (and/or readily available) and relevant information first, requires project teams to apply decision-focused critical thinking, and use the appropriate level of detail to support decisions. In preparing the CEPP PACR, the SFWMD team developed a plan to modify the authorized CEPP project to the same level of detail, and in some cases a greater level of engineering detail than that necessary to support the authorization of the CEPP plan in December 2016. Therefore, much of the detailed engineering and design analyses for the authorized CEPP plan will be conducted during the PED phase of the project, just as is being proposed for the new EAA A-2 reservoir and associated STA and conveyance improvements addressed in the PACR.

Consistent with USACE Engineering and Construction Bulletin No. 2012-18, **Engineering Within the Planning Modernization Paradigm**, the engineering and design considerations for the CEPP PACR (using SMART planning principles) required the application of engineering judgment in the analysis and cost estimates in support of plan formulation and identification of the tentatively selected plan in the Section 203 report submitted by the SFWMD to ASA(CW) for review and concurrence. The SFWMD project team analyzed minimum design requirements to assure functionality and life safety for the project and determined minimum design requirements needed to develop accurate cost and schedule information. Data collection and analysis were minimized during the feasibility study, commensurate with the level of risk, to help make risk-informed decisions to defer certain engineering analyses to PED. The engineering judgement necessary to

make these determinations was augmented by significant staff experience with similar site conditions, design, and construction of similar large CERP reservoir projects in the area, such as the C-43 and C-44 reservoirs.

For some comparison to the level of engineering detail we devoted toward the feasibility level work for the CEPP PACR regarding dam breach/failure analysis, we researched the extent of dam breach analyses that were conducted for the IRL South PIR (completed in 2004) and the C-43 PIR (completed in 2010). While both PIRs pre-date the increased USACE focus on dam and life safety concerns, they also pre-date the more recent changes (circa 2012) to the USACE SMART planning guidance to streamline and expedite the feasibility phase of water resource project planning. SMART planning is a risk-informed process that relies more on available data and defers more detailed engineering analyses to PED.

• C-43 Reservoir PIR – No specific reference to a "dam breach analysis" in the main report or engineering appendix (Appendix A). "Dam breach" is described as a risk in one sentence on page 5-48 of the PIR but no specific analysis in the PIR is referenced. Appendix A addresses several topics that relate to potential for dam failure (seepage, slope failure, overtopping/freeboard, etc.), and there is a fairly robust overtopping/freeboard analysis in the appendix. The Appendix A Table of Contents is attached to get a rough idea of the content and level of effort devoted to each topic.

• IRL South (C-44 Reservoir) – The engineering appendix for the IRL South PIR (copy attached), which includes the C-44 Reservoir, contains a three-paragraph section 1.3.8 (pages B-12 and B-13) titled "Dam Breach Analysis and Flood Inundation Mapping." It consists of a brief narrative that identifies potential causes of a breach and the nature of the dam breach analysis. The section concludes with the following statements:

Additional survey and geotechnical data will be collected during the detailed design phase of this project. This data will be critical for accurate dam breach analyses and flood inundation mapping. Dam breach analysis and flood inundation mapping, will be performed during the detailed design of the A-2 Reservoir components.

This comparison to PIRs for the C-43 Reservoir and IRL South (C-44) supports the approach and basic assumptions that our team used in preparing the engineering appendix for the CEPP PACR, particularly given the SMART planning principles that are now in play in the USACE planning guidance.

Discussion. The intent of this comment is to document the concerns with the uncertainty associated with meeting standards of water quality in the area, therefore potentially shifting loads. The concern with meeting water quality standards is unlikely to be resolved prior to completion of the ASA(CW) Section 203 Report, therefore it will require identifying the acceptable level of risk in the report. It could be reasonable to move forward with the additional information provided, however it needs to be reviewed and the risk identified.

Final OASACW/HQUSACE Assessment. It is still unclear from SFWMD response if the downstream infrastructure impacts have been fully looked at or if those improvements are sequenced properly to ensure proper deliver of water into the Everglades once this project is constructed. At this time, USACE will identify this as a medium risk for the project, and if any improvements are necessary in PED phase, that the identified 34% contingency for the project will cover those costs.

E. Water Quality. In the main report, SFWMD states that Dynamic Model for Stormwater Treatment Areas (DMSTA) modeling was performed and "based upon DMSTA modeling, the additional FEB storage provided in the central flow path by CEPP, in combination with the A-1 FEB, STA-2, and STA-3/4, is sufficient to handle the additional CEPP flows and still achieve the Water Quality-Based Effluent Limits (WQBEL)." Removal of nutrient loads in excess of water quality standards is not a responsibility of the federal government. Further, it also is not in the interest of federal entities to shift pollutants loads from one area (northern estuaries) to another area (Everglades) within the State of Florida. The use of a DMSTA model, using very aggressive pollutant load assumptions stemming from phosphorus removal rates in static pool reservoirs and STAs that are already nutrient rich from years of agriculture uses does not provided enough proof/justification for federal entities to cost share in a project that will flow large volumes of potential high nutrient waters that exceed water quality standards from this project through WCAs to the south into the environmental sensitive Everglades. The report submitted does not supply additional testing/monitoring or other accepted science that assures federal entities that this project in conjunction with other CEPP projects will, without a doubt, meet water quality standards for the Everglades.

SFWMD recognizes this on 5-37 of the main report, stating that under WCA 3A that "the effect of the TP (Tentative Plan) rule compliance is uncertain" when it comes to water quality.

Basis of concern. Cost/Benefit Ratio, Project Justification

Significance of concern. High

Recommendation for Resolution. Additional assurances/information/science needs to be provided by SFWMD, other than DMSTA water quality model using fairly aggressive assumptions for phosphorus removal rates, that this action of flowing more water than CEPP plan identified will not be shifting pollutant loads from area to another area.

SFWMD Response. The DMSTA model was developed by the DOI, peer reviewed and certified for CEPP use. The DMSTA model has been used for decades, is approved by EPA and DOI and is a USACE accepted model. When developing the CEPP PACR the CERP goals were the primary objective. CERP recognized the necessity of shifting flows from the Northern Estuaries to the Everglades as part of the hydrologic improvements needed for ecosystem restoration. As described in Section 6.0 of the PACR, reducing damaging freshwater discharges from the USACE's operation of Lake Okeechobee to the St. Lucie and Caloosahatchee Estuaries is a CERP goal and this CEPP PACR will help

restore the resiliency of these Northern Estuaries by reducing the number, duration and frequency of harmful discharges from Lake Okeechobee. It is not the intent of the authorized CEPP and this CEPP PACR to shift pollutant loads from one water body to another, rather, the intent is to reduce the high-volume freshwater discharges from Lake Okeechobee and to re-direct these flow volumes south (with appropriate treatment) to significantly increase the quantity of water flowing to the central Everglades, which is essential to Everglades restoration and achieves the CERP goal for increased deliveries to the Everglades.

The plan described in the CEPP PACR is taking freshwater discharges from Lake Okeechobee not able to be captured by the plan described in the previously authorized projects or those under construction that will continue to damage the Northern Estuaries by significantly altering their salinity regimes with excessive quantities or volumes of freshwater and redirecting them to the Everglades at times when it needs the water to meet restoration goals identified in the Yellow Book. Section 1 of the Yellow Book describes the need of hydrologic improvements, Section 2, references “The fundamental tenet of South Florida Ecosystem restoration is that hydrologic restoration is necessary for ecological restoration.” Section 3 describes existing hydrologic conditions and Section 6 identifies the hydrologic goals and necessary improvements needed for ecosystem restoration. As stated in Section 1.1 of the CEPP PACR main report, the CERP is designed to restore more natural flows by re-directing water currently discharged by the USACEs operation of Lake Okeechobee to the Atlantic Ocean and Gulf of Mexico, to a southern flow across the Everglades similar to the pre-drainage conditions that were altered by the Federally Authorized C&SF Project to address flood protection and water supply needs in south Florida.

As stated in Section 1.0 of the main report, the overall purpose of the CEPP PACR is to further improve the quantity, quality, timing, and distribution of water flows from Lake Okeechobee to the St. Lucie and Caloosahatchee Estuaries (Northern Estuaries), the Greater Everglades (Water Conservation Area 3 [WCA 3] and Everglades National Park [ENP]), and Florida Bay while maintaining flood control and water supply for existing legal users. Please refer to Figure 1-7 for a clarification on the extents of the Greater Everglades which generally also describes the Everglades Protection Area.

Per Section 1.1, water that once flowed from Lake Okeechobee south through the Everglades, down Shark River Slough (SRS), and to the Southern Estuaries has been impounded in the Lake and discharged to the Northern Estuaries (i.e., Caloosahatchee and St. Lucie Estuaries) via regulatory releases through the C-43 and C-44 canals. The diking of Lake Okeechobee and the straightening of the Kissimmee River significantly modified the quality, quantity and timing of water entering Lake Okeechobee. These changes caused unintended consequences. These consequences led to development of the Comprehensive Review Study (YB 1999).

Prolonged high-volume discharges of water from Lake Okeechobee to the Northern Estuaries have resulted in damaging effects on the plants and animals inhabiting these areas. The damage to the ecosystem negatively affects the economy of the area and will

take years to correct. The operations of Lake Okeechobee that result in prolonged high-volume discharges to the Northern Estuaries also result in significant hydrologic changes south of the Lake. The reduction in sheet flows across the Everglades changed the landscape through the loss of peat ("muck"), freshwater marshes, tree islands, and native flora and fauna, and the proliferation of invasive species. Loss of freshwater inflow to Florida Bay, south of the Everglades, increased the Bay's salinity with adverse effects on estuarine species. Independently, south Florida agricultural practices resulted in excessive nutrient concentrations in Lake Okeechobee and downstream basin water resulting in additional damage to the flora and fauna inhabiting these areas.

Refer to Section 2 of report. Currently, Lake Okeechobee differs from the historical lake in size, range of water depth, and connection with other parts of the regional ecosystem. Connecting Lake Okeechobee to the Caloosahatchee River and construction of the St. Lucie Canal in the early 1900s greatly reduced system-wide water storage and sheetflow to the south during drier periods (NRC 2007). Major modifications to the hydrology of the St. Lucie and Caloosahatchee watersheds through water management, including water releases from Lake Okeechobee along with land-use transformations, increased development, and dredging for navigation, have resulted in changes to the estuaries. Alterations in the quantity, quality, timing, and distribution of fresh water entering the estuary have resulted in adverse ecological impacts in the estuaries. As a result of channelization (C-43 and C-44) and operation of water control structures (S-79 and S-80), freshwater flows into the estuaries tend to be excessive in the wet season and occasionally (St. Lucie Estuary) or chronically (Caloosahatchee Estuary) insufficient in the dry season. The estuaries have lost large acreages of both submerged aquatic vegetation (SAV) and oysters due to large fluctuations in salinity caused by excessive freshwater during wet times and a lack of base flow during extremely dry years. Recolonization is poor, even in areas where salinity conditions are favorable, due to the lack of suitable substrate needed to support benthic fauna and flora. Thick organic mucky sediments especially in the St. Lucie Estuary increase turbidity and deplete oxygen concentrations and eliminate the hard bottom substrate needed for oyster colonization. Septic tanks associated with residential development have also been identified as a source of excess nutrients to the estuary. The natural ability of the estuaries to filter nutrients has also been impacted, contributing to degraded water quality.

Total phosphorus (TP) concentrations in discharges from Everglades STAs have been the subject of ongoing litigation between State, Federal, and tribal parties. Consent Orders issued to SFWMD by FDEP in 2012 associated with National Pollutant Discharge Elimination System (NPDES) and Everglades Forever Act (EFA) permits require the SFWMD to construct additional water quality improvement projects to assist the existing Everglades STAs in achieving a water quality based effluent limit (WQBEL) for TP. Everglades water quality continues to show improvement. Unimpacted portions of the Everglades WCAs passed all four parts of the State's TP rule as indicated in the most recent five-year TP criterion assessment. The investments made over the last two decades are making a difference improving Everglades water quality with now more than 90% of the Everglades Protection Area at or below 10 parts per billion phosphorus.

Additional discussion of TMDLs and water quality is included in Appendix C.1 and Annex F.

With completion of CERP projects that are already underway and authorized as well as CEPP features completed and operational, the number of low and high salinity events in the Northern Estuaries would be reduced as well as improved nutrient and dissolved oxygen conditions as a result of reduced high flow events from Lake Okeechobee. The SFWMD's Restoration Strategies regional water quality plan will be completed by 2025 and is envisioned to result in compliance with the WQBEL. The authorized CEPP plan includes an A-2 FEB component to maintain WQBEL compliance for existing flows and ensured WQBEL compliance for additional flows from Lake Okeechobee. Maintaining marsh and canal stages through increased flows during the dry season to WCAs and ENP will result in the reduction in dry out events which will reduce peat oxidation/remobilization of nutrients which may improve marsh phosphorus concentrations in the WCAs and inflows to ENP's Shark River Slough. Water quality in urban areas should improve somewhat as stormwater controls are retrofit in areas that undergo redevelopment.

Per Section 8 in the CEPP PACR and CEPP PIR, Restoration of the Everglades requires projects that address hydrologic restoration as well as water quality improvement. This has been recognized by the National Academy of Sciences in its most recent biennial report where it noted that near-term progress to address both water quality and water quantity improvements in the central Everglades is needed to prevent further declines of the ecosystem.

Proposed operations of the new A-2 STA and A-2 Reservoir will efficiently integrate the new facilities with the existing State Facilitates (A-1 FEB, STA-2 and STA-3/4) and meet the WQBEL. Similar to the approach used in CEPP, the CEPP PACR TSP primarily utilizes available STA treatment capacity that exists in the dry season at both STA-2 and STA-3/4. While more water is being conveyed to the State Facilities, integration with the A-2 Reservoir and A-2 STA provides additional flow attenuation and temporary storage capability which results in improved water depth and flow conditions in STA-2, STA-3/4 and the A-1 FEB. The DMSTA project files for CEPP were based on the original Restoration Strategies scenario. The DMSTA model run for the CEPP PACR is consistent with the DMSTA modeling performed in Restoration Strategies and CEPP. The modeling assumptions implemented for the CEPP PACR that are equivalent to the assumptions in the Restoration Strategies Regional Water Quality Monitoring Plan and CEPP are outlined in the technical memorandum referenced in the model documentation report found in Appendix A, Annex A-2 Hydrologic Modeling Documentation Report. Key assumptions such as depth and timing of flows were checked to ensure the necessary treatment capacity in the new and existing STA's would meet the WQBEL.

The new A-2 STA will incorporate the rigorous water quality monitoring already being conducted for the existing Everglades STA's as outlined in the issued regulatory permits. In addition, the Florida Department of Environmental Protection issued Final Order No. 18-0138 on March 5, 2018 approving the CEPP PACR.

In regards to the responsibility of the State and Federal government for the removal of pollutants in new water flowing to the Everglades at levels that could contribute to violations of state water quality standards in the Everglades, it is consistency that is sought by the State with Section 528(e)(2) of WRDA 1996 (P.L. 104-303) and the guidance memorandum adopted by USACE for implementing Section 528(e)(2). Relative to this consistency, the State is requesting to cost share water quality treatment that meets the reclamation definition ("water reclamation is defined as diverting water formerly discharged to tide or otherwise disposed to increase the volume of water available to Everglades ecosystem restoration", Section 8.2 on page 8-9).

The requirements for use and cost sharing principles of State facilities in the CEPP PACR are the same requirements and cost sharing principles that were used in the CEPP. The PACR recommends Congressional authorization of the project allowing cost share of the OMRR&R of State facilities that are previously cost shared by Federal authority in the CEPP. All features required for the State's Restoration Strategies and the Everglades Construction Project are independent State facilities and are not CEPP or CEPP PACR components or features. The State facilities will not be incorporated as Federal CEPP PACR project features; however, the operation of State facilities is required to ensure that new water made available by CEPP PACR meets water quality standards and achieves CEPP PACR project benefits. After CEPP has operated for an appropriate period of time, an analysis based on monitoring data will be undertaken to evaluate project performance and verify that CEPP successfully delivers and annual average of approximately 370,000 acre-feet of new water for the natural system, as described in the PACR. The cost share for average annual OMRR&R for State Facilities used by CEPP and updated for the PACR are described in detail in Section 6.4.2.2 of the Main Report.

Discussion. This comment captures concerns with the validity of the model, as it requires refinements for application for each project. There isn't disagreement in essence of the distribution of water. There is still uncertainty associated with water quality standards which is considered high risk at this time. Do not believe much can be done in the short timeframe to finalize the ASA(CW) Section 203 report to mitigate the concern, therefore must identify the acceptable level of risk as a federal agency.

Final OASACW/HQUSACE Assessment. From the information provided by SFWMD, it is understood that the DMSTA water quality model is being utilized to show compliance with water quality standards for the flow discharges into the Everglades from this project. Most water quality models (including DMSTA) have significant uncertainties (i.e., positive and negative biases) in their estimation of pollutant concentrations in effluent. These uncertainties are normally reduced by calibration and validation with the observed data sets obtained from a site specific project location. During calibration, the model requires significant adjustments and changes in the model input data and parameters such as inflow and outflow rates, depths, vegetation type and density characteristics, retention time and others. Some of these adjustments may require changes in parameters outside the design limits of the effluent treatment facility. The corresponding results could yield a project that is either significantly under- or over- designed to achieve a specific target

effluent concentrations to meet required water quality standards. Further, this model needs to be specifically approved by other agencies (EPA, FDEP, etc.) for use on each project. Previous uses of this DMSTA model on other projects within the SFWMD area of responsibility (AOR) does not necessarily mean that it is the correct/proper water quality model to use on this project.

This DMSTA model, from the information provided, has yet to be approved for use by outside agencies for this project and the model has not been calibrated or validated by SFWMD in regards for this project. Further, the proposed use of agriculture lands for water quality treatment areas (STAs and flow equalization basins) also pose a significant risk, as these areas have been used for decades for agricultural purposes and are loaded residually with fertilizers (high in phosphorus). There is a lot of uncertainty whether these areas will function as designed when flooded with outflows from the proposed reservoir, or whether water quality effluents be further degraded due to existing residual phosphorus levels within the soils for several years. Finally, due to previous direction from the ASA office and USACE policy guidance, USACE was directed not to cost share on any water quality projects or features associated with restoration/water resource projects for Lake Okeechobee. Since the water for this project's reservoir is coming from Lake Okeechobee, cost sharing for water quality functions/features under current guidance is prohibited.

This proposed Section 203 project poses a significantly high risk in feasibility, design, and construction in terms of cost and performance of a water quality treatment facility. This poses a significant risk that once constructed, the flows into the Everglades from this project will not meet water quality standards, and the project flows will be reduced significantly to meet those standards, or the facility completely taken off-line. At this time, the HQ CW team has identified the implementation risk as "high" and expresses significant concerns with the technical feasibility of the project as proposed in the Section 203 submittal.

F. Real Estate/Cost for Electrical Sub-Station. A review of the plans indicated that the pump station required for the project was to be powered by electricity for the station itself as well as for some of the pumps. The report indicate that power will be pull from 13.2 kV lines along US 27. This action will require an electrical sub-station to be constructed to service the project (similar to what was needed/constructed on the C-44 reservoir project's pump station). Real estate and associated costs for this sub-station are not accounted for in the project.

Basis of concern. Real Estate Acquisition, Cost

Significance of concern. High

Recommendation for Resolution. Please provide documentation that the sub-station required to power the project's pump station has been provided for in the cost as well as the real estate required for the sub-station is within SFWMD/state owned lands.

SFWMD Response. The preliminary design did not include an electrical substation as it was not deemed to be necessary. During preliminary planning discussions with FPL it was indicated that there were two sets of 13.2kV distribution lines along US Highway 27 and depending on the load FPL would determine which distribution line to utilize. FPL did not indicate the need for a substation. FPL has a parcel of land for a future substation south of the proposed site that was part of the agreement between SFWMD and FPL for Compartment B. If FPL determines a substation is required at the pump station connection point on US Highway 27 during the PED phase, there are several options for its location including the SFWMD owned parcel of land just to the north of the EAA A-1 Flow Equalization Basin. Substation cost and real estate are not required and have not been included in the document.

Discussion. Response is adequate, no further action required.

Final OASACW/HQUSACE Assessment. Response is adequate, comment resolved.

G. Culvert/Structure/Pump Station Design. An overall review of the structures associated with the project showed a slight "over design". These include C-9, SW-1 and Pump Station 1. From review, the C-9 structure seems to be "over design" to handle 4,500 cfs based upon a very infrequent condition. For SW-1, there is an existing structure in the canal, which may already be enough to handle the flows for that by-pass canal. Finally, Pump Station 1 has 9 pumps identified, with various sizes and fuel types. Could the design reduce the pumps from 9 to 6, decrease the footprint, and also run on the same fuel type in order to minimize construction and O&M costs.

Basis of concern. Cost

Significance of concern. Low

Recommendation for Resolution. Please review the feasibility design for the before mention structures to see if they could be some cost savings by designing those structures to take advantage of existing infrastructure, economy of scale and fuel type as well as a normal/typical flow frequencies.

SFWMD Response. Spillway SW-1 was designed as a standard, ungated, broad-crested, overflow weir that allows for the stage in the A-2 Reservoir to return to the NFSL of 31.10 feet-NAVD when the stage in the reservoir rises above that elevation due to a storm event or an overfilling of the reservoir by the pump station. Please refer to Section A.6.3.1 of Appendix A for a summary how SW-1 was designed. The size and number of gates/pumps for Gated Culvert C-9 and Pump Station P-1 will be further evaluated and optimized during the PED phase. Please refer to Section A.6.3.4 and Section A.12 of Appendix A for a summary of how C-9 and P-1 were designed, respectively.

Final OASACW/HQUSACE Assessment. Response is adequate, comment resolved.

H. Seepage Cutoff Wall – Depth. The TSP identified the seepage cutoff wall going to a depth of -34.10 feet. This cutoff wall will terminate in a sand layer as identified on the geotech logs. Seepage from the reservoir will go underneath this wall will terminate usually out into an adjacent canal with depths ranging from -8 to -4 feet in elevation. Possible short circuiting for seepage flows into the canal vs the existing ground on the other side of the canals are unknown, due to a Potential Failure Mode Risk analysis not being performed. After construction, it will very unlikely that this seepage can be observed due to turbidity in the canal waters to determine if material is being taken with the seepage. Additionally, due to the fractured limestone as noted in the report, seepage through this strata will be a higher rate, causing more loss of material as well as more probability of unseen void formations within the strata.

Basis of concern. Cost, Potential Failure, Life Loss

Significance of concern. Medium to High

Recommendation for Resolution. Seepage cutoff walls need to be deeper in order to prevent the short circuit of water into the canals (which will lead to flood conveyance issues along with O&M concerns over material being lost out of the embankment). Without a Potential Failure Mode Risk Analysis, the feasibility study and costs should reflect a deeper cutoff wall to ensure the seepage is not short circuiting the intent of the design.

SFWMD Response. A deeper seepage cutoff wall in the north side of the A-2 Reservoir (74.5-foot deep or with a bottom elevation of -65 feet-NAVD), which extends to the Tamiami formation, was evaluated with the 3D groundwater model. The results of this scenario were provided in Section 9 of the Engineering Appendix. The results of the modeling for the deeper cut off wall indicated that only a marginal improvement in off site seepage and that he 34” deep cut off wall represents the most cost effective seepage control, meeting the requirements of the planning level design. For the PED phase of the project this option will be further evaluated by the geotechnical team with 2D embankment seepage calculations, as well as additional 3D groundwater modeling.

Discussion. Refer to comment B and D discussion due to similarities.

Final OASACW/HQUSACE Assessment. See response to comment B.

I. Climate Change Analysis. Per USACE policy, feasibility studies must go through a climate change analysis per ER 1100-2-8162 and ECB 2016-25. Engineering design for climate change associated with sea level rise is within ETL-1100-2-1 and for hydrology is ETL 1100-2-3. A review of the project does not indicated this analysis was done for the project. As a result, it is unclear as to how project benefits may be affected by future sea level rise.

Basis of concern. Cost, Ecosystem Restoration Benefits, Potential Failure, Life Loss

Significance of concern. Medium

Recommendation for Resolution. A climate change analysis associated with adjacent sea level rise and hydrology (precipitation & wind loads) must be performed in the feasibility stage of the project, and those factors accounted for in the engineering design per USACE engineering regulations. In addition, provide further discussion as to how project benefits may be affected by future Sea Level Change under the scenarios required under ER 1100-2-8162.

SFWMD Response. An MOA between the USACE and SFWMD was executed on November 29, 2017, for the USACE to provide technical assistance to SFWMD during development of the feasibility study. However, the support agreement detailing the scope of that support, including the climate change analysis, was not executed until February 21, 2018. In accordance with that support agreement, the climate change analysis is to be conducted by USACE SAJ and will be completed by May 31, 2018.

Discussion. This will be an outstanding item for NEPA compliance. The climate change concern can be addressed in PED and the current information will be useful for this future analysis.

Final OASACW/HQUSACE Assessment. Comment is resolved pending completion of climate change analysis by SAJ. Preliminary results indicate that climate change will not be an impact for this project.

J. Wind/Wave Analysis. The wind/wave analysis done for the project used an ACES program along with techniques in the EurOtop Manual. This program/method uses old software/methods that require significant iterations and very experienced programmers/users to accomplish. This program/method is not a USACE HH&C preferred method for computing wind/wave heights in feasibility studies. The CEM 1110-2-1100 has much simpler methods for computing these factors using equations/algorithms.

Basis of concern. Potential Overtopping/Failure, Cost

Significance of concern. Low

Recommendation for Resolution. USACE is requesting a comparison be made of the SFWMD wind/wave analysis with the USACE HH&C preferred method as outlined in EM 1110-2-1100 to ensure that the embankments heights are sufficient to prevent overtopping of the embankment.

SFWMD Response. The project follows the assessment methodology outlined in Design Criteria Memorandum DCM-2 (USACE et al., 2006) to estimate design wind and wave criteria for the embankment. As per the recommendations in DCM-2, the computer program ACES has been utilized to estimate wave parameters using wind inputs based on CEM 1100-2-1100 guidance. The ACES results have been compared to the

predictions from empirical methods outlined in the Shore Protection Manual (USACE, 1984) and generally show good correlation for both wave height and wave period (refer to Section 3.5 of Annex A-2). The use of ACES is a method recommended in CEM 1100-2-1100 for prediction of fetch-limited wave conditions.

Final OASACW/HQUSACE Assessment. Response is adequate, comment resolved.

K. Groundwater Modeling/Parameters. A review of the existing conditions of the groundwater model indicated that the starting elevations used came from the existing fields, which are controlled by the farmer controlled canals. Additionally, the model indicated that the adjacent canal elevations were averaged from previous years of data. Calibration of that model was not discussed. These conditions, while accurate for the current present use, do not reflect historic groundwater levels prior to the area being cultivated. With the future use area being a reservoir, a starting groundwater elevations in the field that represent a historical level prior to cultivation should be used in lieu of farmer drawn down elevations as they existing today (i.e. higher starting groundwater elevations). Likewise, in the adjacent canal, a normal canal water elevation during the dry season should be used to reflective the condition in which seepage and groundwater flows will most likely effect embankment stability.

Basis of concern. Embankment Stability**,** Cost, Offsite Impacts

Significance of concern. Medium to Low

Recommendation for Resolution. Seepage rates are likely to be underestimated with the future land use changes, as well as boundary conditions could be set too high. Further model sensitivity needs to be performed, especially with starting groundwater and boundary conditions to ensure that the proper seepage of the proposed reservoir will reflect a more realistic seepage flows into the adjacent canals, dam embankment, filters, and onto adjacent property after the project is constructed.

SFWMD Response. The 3D groundwater models were run using constant parameters for a long enough period of time (3-years) to approximate steady state conditions. Thus, the effect of the specified initial conditions should not affect the model results and it should only impact the time it takes the model to reach steady state.

Model calibration was not performed, since it was assumed that the hydrogeology of the area is similar to the A-1 FEB project site and the aquifer parameters were based on calibration of the A-1 Test Cells. Moreover, the aquifer parameters used in the 3D model were consistent with the 2D seepage model parameters and were confirmed by a geotechnical assessment of the available boring log data. Nevertheless, further hydrogeological assessment and model calibration will be conducted during the Pre-Construction and Engineering Design phase of the project.

The existing conditions model was developed a baseline in order to compare the impact of the A-2 Reservoir in relation to the current land use and water use and to provide an

estimate of the additional pumping that would have to be performed to mitigate the reservoir seepage. The North New River and Miami Canals are not adjacent to the A-2 Reservoir; thus, the are not directly affected by the seepage from the proposed reservoir. The North New River (NNR) is affected by the seepage from the existing A-1 FEB and the Miami Canal would be impacted by the seepage from the proposed A-2 STA. The groundwater model results indicate that the A-2 STA seepage is relatively small due to the much lower head differentials between the STA and the Miami Canal. The proposed A-2 Inflow - Outflow Canal is adjacent to the north side of the reservoir. Numerous scenarios were evaluated varying the stages in this canal. The results, shown in Section 9 of the Engineering Appendix, indicated that even though a larger amount of seepage occurs when the stages in the canal are lower, more of the seepage is intercepted by the canal and thus, there is less impact north of the reservoir. Similar scenarios could be conducted in the subsequent phases of the project for the southern portion of the reservoir, adjacent to the STA 3/4 Inflow Canal, if additional seepage to the Holey Land should be mitigated. Further evaluation of the seepage effects under various conditions will be conducted during the Pre-Construction and Engineering Design phase of the project.

Final OASACW/HQUSACE Assessment. Response is adequate, comment resolved.

L. Embankment Filter Design. There are several deficiencies with the current filter zones in the current TSP that will not address all the potential failure modes associated with the embankment. Primarily due to a required potential failure mode analysis not being performed, the proposed filters have constructability issues, not enough filter zones, seepage overwhelming the filter zones, increased O&M costs once constructed, and the likelihood of cementation of filter media if onsite material is used creating numerous voids/flow paths will cause significant loss of material through the embankment if constructed. Additionally, seepage analysis indicates that uncontrolled seepage will exit the embankment at or near the downstream toe, causing stability concerns on the downstream slope.

Basis of concern. Embankment Failure, Life Loss**,** Cost

Significance of concern. High

Recommendation for Resolution. The project needs to undergo a potential failure mode analysis as required under ER 1110-2-1156. This analysis will identify potential failure modes for the project's embankment, then subsequently undergo alternative analysis for potential structural and non-structural measures and alternatives to address those potential failure modes. Filters, cutoff walls and other structural measures will need to be re-designed based upon the outcome of that analysis, which will likely resolve the noted concern.

SFWMD Response. As previously mentioned above, the CEPP PACR includes a discussion of seepage management and wave overtopping that represent the higher potential risks for failure of the A-2 reservoir dam embankments, at an appropriate

feasibility level of detail (see sections A.5 and A.8 of Appendix A of the CEPP PACR). A detailed potential failure mode analysis will be conducted during the PED phase following authorization. USACE and SFWMD have extensive experience with the design, construction, and major rehabilitation of similar structures, including assessment of the risk of failure, in the immediate area around Lake Okeechobee, including Herbert Hoover Dike, and the C-43 and C-44 reservoirs.

Potential failure modes considered include:

Seepage Management –Seepage piping formation and boils under dam embankment resulting in excessive seepage gradients leading to progressive failure in foundation. Mitigation Measure includes a Cut Off Wall. As stated above, the depth of the cutoff wall will be further evaluated as part of the PED phase of the project.

Wave Attack and Overtopping - Erosion from wave energy and overtopping resulting in loss of structural integrity of the dam. Mitigation Measures include RCC surface on upstream face and wave wall on landside of crest to prevent overtopping.

Internal Erosion – Seepage through dam resulting in piping and internal erosion. Mitigation Measures include drain and filter system to collect internal seepage and control discharge. In addition, bentonite amended soil water stop/plugs and seep shields surrounding water control structures through the dam will be employed to eliminate potential concentrated flow paths through the embankment.

Rapid Draw Down – Excess pore pressure development due to set up and set down during storm events. Mitigation Measures include an upstream drain system to relieve buildup of excess pore water pressure due to rapid draw down.

Uncontrolled Release Through Structures – Uncontrolled releases in the event of gate failure. Mitigation Measure includes redundant gate features to minimize the potential for uncontrolled releases in the event of gate failure.

Overfilling – Accidental overfilling resulting in overtopping. Mitigation Measure includes uncontrolled emergency discharge weirs at the dam crest.

ER 1110-2-1156, Chapter 21.4.2.3 further states*:* "Address the general potential failure modes related to dams and present how the design for this dam prevents these failure modes from occurring."

The SFWMD staff is satisfied that the potential failure modes, and associated risks, have been sufficiently considered for the A-2 reservoir at this stage of project planning.

In terms of the filter design, a graded filter constructed of processed caprock was considered during the conceptual design, and as indicated in Section A.8.2.1 of the PACR, its gradation, zoning, and thicknesses, as well as the potential for

solutioning/precipitation of $CaCO_3$ in the filter will be carefully studied and analyzed during the PED phase of the project.

The seepage analyses performed on cross sections K(L), F(L), J-1(L), and L(L) showed the phreatic surface intercepted by the filter drain and exiting through the filter material at the toe of the embankment. Seepage across the inspection road will be further evaluated during the PED phase of the project. The seepage analyses conducted as part of the planning stage of the project demonstrated acceptable factors of safety against soil heave for each of the cross sections analyzed except for cross section L(L). As previously stated in Section A.8.5.3 of the PACR, additional seepage management measures will be evaluated for this cross section and others during the PED phase of the project to reduce the exit gradients and further minimize the potential for soil heave and piping. The SFWMD will further evaluate the filter material during PED and will include an additional $50M in the project cost estimate.

Discussion. Reference comment B and D due to similarities.

Final OASACW/HQUSACE Assessment. See response to comment B.

M. Mechanical Equipment – Emission Standard/Back-Up Generators**.** The proposed mechanical equipment was designed to address Tier 1 & 2 emission standards. What is now required for all USACE projects is Tier 4 standards (see Picayune Strand project). Additionally, backup power for the station is shown, but there needs to be some plan for back-up generators to be available for use when the generator/power equipment fails. Whether this is to be provided through on-site equipment, or brought in via mobile means, this needs to be addressed within the feasibility study/report.

Basis of concern. Cost, Resiliency, Risk

Significance of concern. Medium

Recommendation for Resolution. Please revise all mechanical equipment (engines) to ensure they meet the required Tier 4 emission standard. Additionally, for the required back-up generators/plan, provide the necessary O&M/costs needed to address that need.

SFWMD Response. The intent was for all proposed engines (pump engines and backup power generators) that are part of the TSP to meet EPA Tier 4 emissions standards. Appendix A, Section A.12.2.8.1.17 Emissions Requirements, should have stated that Tier 4 standards would be required for all proposed engines. Appendix A, Section A.12.2.17 Station Emergency Power, states that the pump station will be required to have “backup generators to power controls, HVAC, water system, communications, fire alarm and security” and that “two generators will be installed to provide redundancy during outages or storm events.” Additional requirements and associated costs for back-up power at the pump station beyond having redundant (two) backup power generators will be considered during the PED phase.

Please note that the capital cost for the back-up generators and fuel tanks associated with Pump Station P-1, Gated Culvert C-1, Gated Culverts C-3 through C-10 and Gated Spillways SW-2 through SW-4 was not included in the MCASES TSP construction cost estimate presented in Appendix B. However, the control buildings that will house these generators were included in the MCASES TSP construction cost estimate. The total capital cost to furnish and install these back-up generators, fuel tanks and ancillary equipment is estimated to be $400,000. This additional cost of $400,000 is within the contingency cost included in the MCASES TSP construction cost estimate. The annual O&M cost for the TSP presented in the PACR includes the annual O&M cost for these back-up generators.

Final OASACW/HQUSACE Assessment. Response is adequate, comment resolved.

N. Fire Suppression Design. From the information provided, the proposed fire suppression system could cause failure the station from an electrical standpoint due to the nature of the design. The proposed system would require very experienced, specialized maintenance staff to ensure that is it operating as design. This will lead to increased costs, as well as, some risk that the station could fail at high use time, when the experience personnel will not be available to bring the station back up in time for its use during high stages/flows into and out of the reservoir.

Basis of concern. O&M experience**,** Cost

Significance of concern. Low

Recommendation for Resolution. Consider using a more standard fire suppression design that can be serviced by local O&M personnel, therefore reducing costs and risk associated with its use. This should be factored into the risk involved with the project (register).

SFWMD Response. The SFWMD and Palm Beach County Fire Marshall do not require fire suppression systems in pump stations, however fire extinguishers and controls on fuel storage will be included in the PED phase. The resultant cost will be reduced from that presented in the Feasibility Study.

Final OASACW/HQUSACE Assessment. Response is adequate, comment resolved.

O. Cost Estimating for Authorization. Cost estimating for authorization of the project impacts selection of the right plan (alternatives estimates/plan formulation) and setting the funding cap (recommended plan estimate/Section 902 limit). The cost presented for the TSP in the main report looked to be different than that presented in the cost appendix. The costs presented for the alternatives do not appear to be the same in the cost appendix and in the main report. Due to these differences, this creates some doubt about whether the estimates are firm. Further, there was no documentation found that stated that the TSP/alternatives estimates were reviewed by a qualified cost engineering reviewer.

Finally, there was no documentation that the cost estimates were changed after the independent review was performed.

Basis of concern. Cost, Alternative Selection

Significance of concern. High

Recommendation for Resolution. The costs presented in the main report and the cost appendix should be examined and correlated. The cost product review should include review of the alternatives estimates. Comments suggested by the independent review should be documented and back-checked, with any changes made to the estimates being noted. This should be laid out very clearly in the engineering appendices and be easily followed and understood.

SFWMD Response. An error was identified in Appendix B, Table B-2 for alternative R360D. The table incorrectly states that the rough order of magnitude (ROM) cost for R360D $2.201 Billion. The correct ROM cost for this alternative is $2.107 Billion as correctly shown in Table 4-2 of the Main Report.

The ROM costs were prepared by SFWMD contractors experienced with design and construction of similar infrastructure in the south Florida environment. The contractor estimates were vetted through SFWMD's cost engineer for review. The Job Specific Quality Plan for the CEPP PACR provided in Annex E was developed in a manner as consistent as possible with the DQC standards defined in ER 1165-2-214 and other pertinent USACE guidance. Senior, experienced SFWMD and contractor team members participated in quality checks, representing all pertinent disciplines including cost engineering. The spreadsheet for quantity back checks can be provided in an addendum upon request.

Discussion. In general, the Corps needs to be able to follow the cost estimate in the report and appendix, ensuring there is consistency between both. The proposed plan cost should be easy to follow to certify and justify the estimates. Cost are currently under review by a 3rd party similar to review required by the Corp's cost center of expertise (Walla Walla). It is suggested to clearly outline the estimated cost for the proposed plan in an addendum to the Section 203 study.

Final OASACW/HQUSACE Assessment. The final array alternatives estimates and the recommended plan estimate need to be reviewed by an independent party. There is no documentation provided to show that the final array alternatives were reviewed by an independent party. There is no documentation provided to show that comments made on the recommended plan by the independent party were addressed and any resulting changes were made to the cost products.

The costs presented in the main report need to be the same as those presented in the cost appendix. Suggest addressing cost consistency in the addendum.

OASACW/HQUSACE Assessment of Addendum May 2018: The submitted documentation is not reflective of cost products that are compliant with USACE policy for independent certification for total project cost (CEPP PACR TSP ES-1 table cost does not match the total project costs in the addendum). USACE does not consider the non-Federal entity an independent party from their cost estimating contractor. Additionally, certifications of the cost by the stakeholder's senior cost estimator was not included.

Moving forward, since the cost products are not policy compliant, a recommendation for condition of approval will be that the costs be policy complaint once the proper potential failure mode and life loss consequence analysis is complete, and the revised final array of alternatives that are identified by that process for selection of the final alternative. All alternatives under consideration will be priced, reviewed by independent third party, cost review comments and associated changes documented, and all certifications included.

P. Certification of Costs. Per USACE ER 1165-2-209, Appendix B. Section 2.j.10 (page B-7) states that the "non-Federal interests must certify the quality and technical accuracy of the…construction cost estimate…" No documentation within the submitted documents was provided that indicated any cost certification by the non-Federal entity of the submitted construction cost estimate.

Basis of concern. Cost, Lack of Certification.

Significance of concern. High

Recommendation for Resolution. Please submit the required certification of costs by the non-Federal entity within the report of appendices.

SFWMD Response. The SFWMD requested that USACE conduct (with SFWMD funds) a cost engineering review and certification process for the CEPP PACR in conjunction with the USACE Cost Engineering DX, located in the Walla Walla District. The USACE South Atlantic Division declined that request. The SFWMD instead elected to contract directly for a third-party cost engineering review by Legis Consultancy, Inc., which currently holds a cost engineering contract with the USACE Cost Engineering DX. The cost engineering review, and associated review documentation, by Legis Consultancy, Inc., followed the process applied to traditional USACE feasibility studies to the extent possible. The ATR-Level Draft Summary Report has been included in the submittal of the CEPP PACR to the ASA(CW) as Attachment 6 of Annex E. The Legis team consisted of seven professionals including one principal-in-charge, one project manager, two principal cost engineers, one senior cost engineer, one research assistant, and one technical editor.

While at the time of report submission, a substantial portion of the review had been completed, however, the SFWMD and Legis continued to work through outstanding review issues. The SFWMD anticipates a final summary report including review of all final PACR documentation pertinent to the ATR and resolution (or explanation of unresolved issues) of final ATR comments by May 11, 2018.

Discussion. Refer to comment O due to similarities.

Final OASACW/HQUSACE Assessment. Per USACE ER 1165-2-209, Appendix B. Section 2.j.10 (page B-7) states that the "non-Federal interests must certify the quality and technical accuracy of the…construction cost estimate…" No documentation within the submitted documents was provided that indicated any cost certification by the non-Federal entity of the submitted construction cost estimate. Please submit the required certification of costs by the non-Federal entity within the report of appendices.

OASACW/HQUSACE Assessment of Addendum May 2018: See response O.

Q. Constant Dollar Costs. Per USACE ER 1165-2-209, Section 2.f.(4) states, "All NED/NER cost estimates…must be developed on a constant dollar basis, as well as a fully funded basis (both estimates need to be performed and presented in document)" The Total Project Cost Summary presented in the Cost Appendix does not appear to match the costs presented in the remainder of the report. It is unclear how SFWMD came up with the project cost used for justification.

Basis of concern. Cost, Project Justification

Significance of concern. Medium

Recommendation for Resolution. The costs presented throughout the documents need to be consistent in their presentation so the reader knows what is the cost of the project along with all the alternatives that were look at. Additionally, provide documentation that those costs were developed on the constant dollar basis. All costs presented in the main report and the appendices should be reviewed for consistency in presentation.

SFWMD Response. The Total Project Cost Summary (TPCS) provided in Appendix B was prepared on a constant dollar basis using the TRACES MCACES/MII and production estimates based on crew sizing observations of similar work items observed during the A-1 FEB construction project and input from the SFWMD's chief estimator and other SFWMD staff.

The TPCS in the appendix B does differ from the main report in a few areas, however, the construction estimate totals are consistent in both the main report and the TPCS.

Minor differences are:

- Real estate costs are not included in the TPCS ($22 Million)
- Recreation costs are not included in the ecosystem restoration cost estimate but are listed separately in the main report ($10 Million)

The major difference between the TPCS and the main report are the contingency dollars applied to the PED and Construction Management phase of the project. The TPCS summary includes 34% contingency on the construction costs and an additional 34%

contingency added to the PED and CM costs. The PED and CM costs were obtained using a standard percentage of the construction costs for these features. The main report does not include the duplicative 34% contingency for PED and CM costs which results in a difference of $69M.

Discussion. Being able to distinguish between fully funded and constant dollar total cost is important and requires review by the cost engineer. The contingency impacts from prior discussion may also impact the resolution of this comment. Additional cost date will be required to close out this comment. The 3rd party reviewed cost estimate should be provided to the Corps as soon as possible to support resolving this comment.

Final OASACW/HQUSACE Assessment. Table 6-9 presents a Total First Cost of $3,164,000,000. Appendix B presents an MCACES/Mii estimate of $1,243,356,865. The TPCS presents a Project First Cost of $3,111,348. What is the cost of the project? The project cost documentation and presentation needs to be consistent throughout the documents. Suggest addressing cost consistency in the addendum.

OASACW/HQUSACE Assessment of Addendum May 2018: The USACE assessment of all cost products for the stakeholder's Recommended Plan that was developed to support the total CEPP cost of $3,335,000,000 is still incomplete. Some cost products were developed to support only the EAA Reservoir Project and then these cost products appear to have been combined with escalated costs for the rest of the project. USACE policy is for costs to be no more than two years old, so the expectation was to see the all costs (for the entire CEPP include PARC) for the rest of the projects re-priced at today's price level.

Moving forward, since the cost products are not policy compliant, a recommendation for a condition of approval will be that the costs be policy complaint once the final alternative is selected. Then the entire CEPP project, include the change being requested with the Section 203 project, will be re-priced to reflective present day costs, reviewed and certified per USACE policies.

R. Constrained formulation footprint. In the Executive Summary (ES), in the "Alternative Plans and TSP" section (page ES-7), the report states that one of the primary factors considered for screening out management measures was "if the land was not in public ownership or was unavailable for public acquisition." Under what circumstances is land unavailable for public acquisition? In addition, USACE policies do not normally require land to be in public ownership to be considered as potential sites for management measures. Similarly, in Section 3.1.2, Plan Formulation Strategy, the report describes the unwillingness of private landowners in the study area to sell or exchange land for the project, and states that the "SFWMD's eminent domain authority for this PACR has been prohibited by state law." To better understand this dilemma, on the one hand the Florida legislature has tied the hands of the SFWMD to acquire lands for a project that the Florida Governor has declared to be critical to the well-being of the economy and environment of the state? And therefore the SFWMD and USACE are requested to accept this condition and limit plan formulation to public lands or lands where there is a willing private seller?

Basis for Concern. In general, USACE policies do not normally require land to be in public ownership to be considered as potential sites for management measures. See ER 1105-2-100, C-3 e. (5) "Land Requirements. The District Commander shall consider utilization of both public and private lands, and select the lands that represent the best balance of costs, effectiveness, and acceptability consistent with incremental cost analysis guidance described below." ER 1105-2-100, C-3 e. (8) (a) (5) States: "Identify potential project lands, other public lands, and separable private lands determined suitable for applying each candidate management feature. The identification of potential mitigation sites should not be constrained for analysis purposes. This analysis should focus on determining the management potential of each candidate site relative to its ability to meet mitigation objectives. For the purpose of analysis preference shall not be given to the management of project and other public lands over the use of suitable private lands."

Significance of Concern. High. Although the lands selected for the TSP in the CEPP PACR may in fact be the most effective and efficient sites for the project features, the arguments for what land was considered seem to be focused on the "acceptability" criterion of the P&G, and acceptability in this situation is based on state laws and the preferences of private landowners. However, Federal laws and policies should supersede state laws and policies.

Recommendation for Resolution. Please provide additional rationale for why lands were excluded or included in plan formulation. Are there other viable reasons (besides state law's eminent domain prohibition and private landowner preferences) for the recommendation to place the CEPP PACR project features in the A-2 and A-1 parcels?

SFWMD Response. The CEPP PACR used 16 criteria in its siting analysis on locating storage and treatment features. The criteria are grouped into the four general categories of (1) existing infrastructure, (2) socio-political and environmental, (3) hydrology, and (4) construction and operations efficiency. These are consistent with criteria used during the previously completed CERP planning activities and reaffirmed during the development of CEPP. Only one of the criteria addressed eminent domain authority. See Section 3.2.1.2 of the CEPP PACR and Table 3-2 on page 3-7 of the PACR for a more in-depth discussion of the criteria which resulted in a unique ability to optimize project construction and operations to reduce the need for additional conveyance, capital construction and land acquisition costs.

The requirements in ER 1105-2-100, Appendix C-3.e.(5) and e.(8) "Land Requirements" are not applicable to the CEPP PACR. Subsection (e) addresses land requirements to support mitigation of project impacts. Subsection "e" is titled "Mitigation Planning and Recommendations" and lays out the requirements for mitigation measures for unavoidable impacts that may include land acquisition for mitigation purposes. In such circumstances private lands may be necessary to provide the necessary mitigation.

The relevant guidance with respect to land acquisition for ecosystem restoration projects is set forth in ER 1105-2-100, section 3-5.b.(5). This provision states that "[l]and

acquisition in ecosystems restoration plans must be kept to a minimum. Project proposals that consist of primarily land acquisition are not appropriate…."

This section sets guidelines that land value should not exceed 25% of total project costs. Using primarily already-acquired public lands is consistent with the directive to keep land acquisition to a minimum.

Congress provided clear direction that the Talisman lands acquired by SFWMD with DOI funding should be used for Everglades Restoration and the EAA Storage Reservoir Project, in particular. Its directive excerpted below is on page 43 of Senate Report 106-362 on Title VI of WRDA 2000.

* * * *

> Lands for the construction of this component have been acquired by the South Florida Water Management District through the purchase and exchange of the Talisman Sugar Corporation properties through funds provided by the Department of the Interior.
>
> The Army Corps should maximize use of the lands acquired through the Talisman purchase and exchange, as well as other EAA lands held by the non-Federal sponsor, in the design and construction of this project feature. Further, the Corps should seek to take full advantage of the Talisman lands by maximizing the depth of water stored in the Talisman Water Storage Reservoir.

This directive applies to CEPP and now to the CEPP PACR, both of which incorporate increments of the EAA Storage Reservoir Project.

Additionally, Congress in Section 601(b)(2()C)(ii) of WRDA 2000 approved Phase-1 of the EAA Storage Reservoir for initial authorization. Section 10.6.2.2., p. 10-55, identifies the Project as "an above-ground reservoir(s) with a total storage capacity of approximately 240,000 acre-feet located on land associated with the Talisman Land purchase in the Everglades Agricultural Area". The Yellow Book Green Pages (transmittal from ASACW to Honorable Albert Gore, President of the Senate) identifies the urgency and immediate need to take action and begin construction of certain restoration features as soon as possible. In this regard, a package of projects was provided for initial authorization that would provide substantial ecosystem restoration benefits, improve the efficiency of ongoing projects to improve flows to Everglades National Park and take advantage of the benefits of the Federal investments already undertaken on the purchase of over 50,000 acres of land in the Everglades agricultural area.

The Restudy at page 10-54 gave 3 reasons for including Phase 1 as an initially authorized project. One was the acquired Talisman land, as follows:

> (1) lands needed for the project have been or will be acquired by the U.S. Department of the Interior and the South Florida Water Management District, (2) it is mutually beneficial for the Comprehensive Plan and the sponsor's Everglades

> Construction Project, (3) expedites construction of this facility which provides multiple environmental, water supply, and flood protection benefits. This feature will improve timing of environmental deliveries to the Water Conservation Areas including …Lake Okeechobee regulatory releases to estuaries… (Emphasis added.)

Furthermore, the CEPP PIR similarly justified a TSP that creates an FEB on the A-2 Parcel, which is the remaining approximately 14,500 acres of the Talisman lands owned by SFWMD. This option "maximizes the use of previously acquired real estate, while utilizing existing State-owned infrastructure" to minimize costs for the project. See CEPP PIR, p. 3-12, s. 3.2.1.6.

Use of the Talisman A-2 Parcel in the CEPP PACR TSP allows the cost-effective use of adjacent State-owned infrastructure that includes the A-1 FEB (15,000 acre facility), the STA 3/4 (16,300 acre facility), and STA-2 (15,500 acre facility). There is no assurance that acquisition of private land the size of A-2 parcel would be in any proximity to this State-owned infrastructure, making the Project costs increase substantially due to not only the additional land acquisition costs but also the need for major additional supporting infrastructure and the operational flexibility it provides.

Additional considerations for use of the A-2 parcel addressed in the CEPP PACR in Section 4.5.4 include:

(1) Prime and Unique Farmland: The Everglades Agricultural Area (EAA) area proposed for conversion to a FEB is prime and unique farmland and represents the greatest adverse impact on this resource; and

.

(2) Environmental Justice: Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires the Federal Government to achieve environmental justice by identifying and addressing high, adverse and disproportionate effects of its activities on minority and low-income populations. Taking additional privately owned farmlands out of production for project purposes would have a major disruptive effect on farm and farm-related jobs and an adverse ripple effect on local employment and the local economy.

Discussion. There was only one criterion identified in the study, the supplemental information in the response addresses the concern. Suggest adding the additional criteria from the response into the report to further justify the formulation approach.

Final OASACW/HQUSACE Assessment. Comment is resolved. The concern had been that other viable reasons (besides state law's eminent domain prohibition and private landowner preferences) should be highlighted as the criteria used to best site project features. In an addendum to the Final Section 203 Report, please include the rationale provided in the response, including Congress' direction to maximize use of the lands acquired through the Talisman purchase and exchange; the lack of private land the size of A-2 parcel in any proximity to this State-owned infrastructure, making the Project costs

increase substantially due to not only the additional land acquisition costs but also the need for major additional supporting infrastructure and the operational flexibility it provides; reduced impact on Prime and Unique Farmland; and fewer Environmental Justice concerns.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

S. Scope, Comprehensive Everglades Restoration Plan Components. In Section 1.4, Scope of Study, the designation of which CERP components are included in CEPP and the CEPP PACR is confusing (page 1-13). Specifically, while CERP Component G (Everglades Agricultural Area Storage Reservoirs) and Component II (Flow to Northwest and Central WCA 3A) are common to both CEPP and the CEPP PACR, why identify Component C (Environmental Water Supply Deliveries to St. Lucie Estuary) and Component E (Environmental Water Supply Deliveries to Caloosahatchee Estuary) as only included in the scope of this PACR? Did not the original CEPP recommended plan deliver benefits to both estuaries through the inclusion of Flow Equalization Basins (FEB's) in parcels A-1 and A-2? The reason why this is important is that it appears the scope of CEPP has been changed through this PACR, whereas CEPP was always envisioned as partly addressing the problems associated with damaging freshwater releases (either too much in wet season or too little in dry season) to the northern estuaries, was it not? In addition, the PACR states that it focuses on the FINAL increments [emphasis added] of four specific components of CERP (G, II, C, and E). However, at least one outstanding and in-progress CERP study, the Lake Okeechobee Watershed Study (LOWRP), will continue to address the problem of damaging wet-season releases and supplemental dry-season releases to the northern estuaries (reflected in Environmental Water Supply Deliveries to Components C and E). Therefore CEPP PACR should not be characterized as final increments for these components.

Basis for Concern. ER 1105-2-100, G-13 and G-14 certainly allow for changes in authorized project scope and cost, pursuant to appropriate levels of approval and subsequent authorization, which is the subject of this PACR. However, the language in Section 1.4 seems to imply that the PACR is dealing with different CERP components than CEPP did, when in reality the PACR is addressing the same study areas (and associated problems and opportunities) as the original CEPP project, but only a subset of CEPP features are being proposed to be modified.

Significance of Concern. Low. This comment is focused more on reducing confusion between the purposes and scope CEPP and CEPP PACR, as well as not precluding recommendations for future CERP increments, such as might be recommended under LOWRP.

Recommendation for Resolution. Suggest better explaining or aligning the CERP components that are listed on page 1-13 as being addressed by CEPP and CEPP PACR, as well as removing "final increments" from the description of the four CERP component this PACR addresses.

SFWMD Response. To better align the CERP Components that are listed on page 1-13 as being addressed by CEPP and CEPP PACR all references to Environmental Water Supply Deliveries to the St Lucie Estuary (Component C) and Environmental Water Supply Deliveries to the Caloosahatchee Estuary (Component E) will be removed from the document by an addendum. While the PACR may have a beneficial effect on low flow conditions in the Northern Estuaries, Components C and E will be addressed in detail in the Lake Okeechobee Watershed Restoration Project and subsequent CERP System Operations Updates.

For both the Everglades Agricultural Storage Reservoirs (Component G) and Flow to Northwest and Central WCA 3A (Component II) the CEPP PACR provides the final increment of these CERP Components. In combination with the previously authorized projects, the CEPP PACR Tentatively Selected Plan (TSP) approaches the CERP goal of reducing damaging freshwater discharges to the Northern Estuaries by approximately 80%, by providing a 55% flow reduction in damaging discharges and a 63% reduction in the number of mean monthly high flow discharge events to the Northern Estuaries. The remaining reduction in damaging freshwater discharges to the Northern Estuaries to achieve the full CERP goal will be achieved in other CERP Components including those in the Lake Okeechobee Watershed Restoration Project (Component A and Component GG).

In addition to approaching the CERP goal in reducing damaging discharges to the Northern Estuaries, the TSP would increase CEPP water deliveries to the central portion of the Everglades from an average annual flow of approximately 210,000 ac-ft to an average annual flow of approximately 370,000 ac-ft. This will provide a significant increase in the quantity of water flowing to the central Everglades, which is essential to Everglades Restoration and achieves the CERP goal for increased freshwater deliveries to the Everglades. These additional flows are delivered with a timing shift that favor dry season flows in addition to CEPP when downstream infrastructure has adequate capacity to convey the flow. The TSP builds upon the CEPP and achieves the final increments of the required storage in the Everglades Agricultural Area (Component G) and freshwater flows to Northwest and Central WCA3A (Component II), providing the remaining one-third of the restoration flow goal identified in CERP and in CEPP. Please refer to Section 4.6 and Section 6.0 in the main document of the CEPP PACR for further detailed information on how the TSP achieves the CERP goal and provides the required final increment for the CERP Everglades Agricultural Storage Reservoirs (Component G) and Flow to Northwest and Central WCA 3A (Component II).

Final OASACW/HQUSACE Assessment. Comment is resolved by removing references to Environmental Water Supply Deliveries to the St Lucie Estuary (Component C) and Environmental Water Supply Deliveries to the Caloosahatchee Estuary (Component E) from the scope of the Final CEPP Section 203 Report by an addendum. The reviewer's concern with the statement that the Section 203 Report focuses on the final increments of four specific components of CERP is satisfied by the removal of Components C and E from the scope, as the Lake Okeechobee Watershed Study (LOWRP) will continue to address the problem of damaging wet-season releases and supplemental dry-season

releases to the northern estuaries (reflected in Environmental Water Supply Deliveries to Components C and E).

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

T. Storage, Treatment, and Conveyance Improvement Measure Formulation. Section 3.2.1.1 on Screening of Storage, Treatment, and Conveyance Improvement Measures basically tells the reader to see Appendix E for "details" of potential storage, treatment, and conveyance management measures considered as components of alternatives for the CEPP PACR. However, there is no mention of what any of these management measures actually were, let alone "details," other than the four management measures that were not screened out. The plan formulation story-telling can certainly be summarized in the main report, but it cannot be eliminated from the main report. The reader is left with little understanding of the range of alternatives initially considered, nor why most of them were eliminated.

Additionally, the submittal fails to fully demonstrate the consideration of non-structural measures in the plan formulation process. Section 3.1.2 of the report mentions that non-structural measures were considered, however no supporting analysis demonstrates this. Appendix E mentions consideration of operational changes, chemical treatment, and hybrid wetland treatments which may serve the purpose of non-structural measures.

Basis for Concern. ER 1105-2-100, 1-1 states: "The planning process shall address the Nation's water resources needs in a systems context and explore a full range of alternatives in developing solutions." ER 1105-2-100, section 2-3(c)2, requires the equal consideration to structural and non-structural measures in the plan formulation process.

Significance of Concern. Medium. The reader should be able to follow the rationale and progression of plan formulation in the main feasibility report without having to refer to an appendix.

Recommendation for Resolution. In the main report, please summarize the full range of management measures considered for the CEPP PACR to meet planning objectives and why they were ultimately screened out.

SFWMD Response. This comment appears to be related to the preference of how and where information is presented in the report (main report versus appendix). All relevant information related to this comment including but not limited to storage, treatment and conveyance improvement management measures is provided in Section 3.2 of the main report and Appendix E Section E.1.1.

Appendix E identifies and provides detailed information for 14 distinct management measures (9 storage measures, 4 treatment measures and 1 conveyance measure) that were evaluated.

The storage management measures evaluated include Higher Lake Levels, Operational Changes in Lake Okeechobee, Partition Lake Okeechobee, Dredging of Lake Okeechobee for Storage, Above-ground Storage Reservoir, Ecoreservoir, Flow Equalization Basin (FEB), Dry/wet Flow Way, and Localized Aquifer Storage and Recovery (ASR). Water quality treatment measures evaluated include Stormwater Treatment Area (STA), Chemical Precipitation, Dredging of Lake Okeechobee near Primary Canal Intakes, and Hybrid Wetland Treatment Technology (HWTT). The conveyance management measure evaluated is Everglades Agricultural Area (EAA) Canal conveyance improvements (North New River and Miami Canals). Additional information on management measures is found in the Model Documentation Reports in Appendix A.

Table 3-1 in Section 3 provides the 4 retained management measures. Justifications for both retaining and eliminating management measures are summarized in Section 3 and Appendix E. Table E.1-1 provides a summary of the three (3) storage and treatment management measures that were retained and the ten (10) storage and treatment measures that were eliminated from further evaluation.

A full range of alternatives to address water resources system needs and develop potential solutions was considered during the plan formulation process. This included two (2) non-structural storage management measures: Higher Lake Levels and Operational Changes in Lake Okeechobee. As documented in Appendix E, Higher Lake Levels was eliminated due to the potential for significant impacts to the littoral zone within Lake Okeechobee. The frequency and duration of inundation of the littoral zone would increase with higher lake levels which would result in the loss of beneficial littoral zone plant communities in favor of introduced exotics as well as impacts to wading birds and other water-dependent wildlife. Also, higher lake levels would require substantial modifications to the Herbert Hoover Dike.

Operational Changes in Lake Okeechobee was retained for further evaluation due to the potential to redirect undesirable excess flows normally directed to the Northern Estuaries (which can result in negative impacts) and optimize the timing and distribution of deliveries south into and through the Everglades.

In the CEPP, the Reservoir Sizing and Operations Screening (RESOPS) model was used to quickly predict water deliveries, timing of flow, and reduction in discharge to the Northern Estuaries for thousands of scales and configurations of management measures (See CEPP Main Report Section 3.2.1.3 and CEPP Appendix E.1.3 and E.1.4). The combinations of storage and treatment management measures for the options modeled for the A1/A-2 footprint included shallow and deep reservoirs with and without additional STAs. In addition to determining the optimum configurations of storage and treatment management measures on the site footprint, consideration was given to incorporating assumed operational flexibility in Lake Okeechobee (within the existing 2008 LORS) when additional storage capacity is available by using the Lake Okeechobee Operations Screening (LOOPS) model. This analysis resulted in 27 storage and treatment options (see CEPP Table 3-3) that were evaluated using Multi-Criteria Decision Analysis (See

CEPP 3.2.1.4 Evaluation Criteria and Results of Options Analysis). Nine highly functioning combinations of storage and treatment measures were identified with three different Lake Okeechobee operational measures. The screening effort resulted in two cost-effective measures with large differences in costs. Other measures were screened out due to their scoring on the screening criteria, where measures did not deliver as much water or did not deliver the water in the dry season when it is most needed by the ecosystem. This evaluation led to two remaining options. A shallow storage feature on the A1/A2 parcel that would provide ~120,000 ac-ft of storage and deliver 200,000 ac-ft of additional water annually to the Everglades system, and deep storage feature on the A1/A2 parcel that would provide ~250,000 ac-ft of storage that provided the greatest benefits to the Northern Estuaries and delivers ~240,000 ac-ft of additional water annually to the Everglades system. Due to the additional cost of the deep reservoir at the time, the CEPP recommended the less expensive shallow storage option to keep the total CEPP cost at or below $2B for state, federal and congressional cost considerations. As such, the scope of the CEPP planning effort was described and referenced development of the first increment of a subset of CERP project features that provide for storage, treatment and conveyance south of Lake Okeechobee. The CEPP PACR provides the final and last increment for storage, treatment and conveyance south of Lake Okeechobee and is consistent with the CERP. The CEPP PIR (Section 6.9.9, page 6-84) was also very clear to establish that future increments of CERP planning to include additional storage in the EAA could be expected to fully achieve CERP goals and indicates the A-2 FEB does not preclude future increments of CERP planning for conversion of the A-2 FEB to an STA or deeper reservoir.

It should be recognized that it is unlikely that any other component of the Comprehensive Everglades Restoration Plan (CERP) has been modeled and evaluated more by the USACE and SFWMD than the EAA Storage Reservoir. Based on extensive study and experience related to this component, any non-structural management measures need to be integrated with structural management measures to meet CERP and individual project objectives.

In an effort to be efficient and concise, reduce the bulk of the main document and provide detailed information in the Appendices and Annexes, the requested change to the document is not warranted.

Final OASACW/HQUSACE Assessment. While the information provided in the response satisfies the comment (related to the 14 distinct management measures -- 9 storage measures, 4 treatment measures and 1 conveyance measure, plus non-structural operational measures -- that were formulated and evaluated as part of the initial plan formulation for CEPP and the CEPP PACR), the conclusion to the response does not satisfy the response (i.e., that the requested change is “not warranted”). Yes, the comment is focused on how and where information is presented in the report (main report versus appendix). However, the reason for the comment is not “preference,” but rather helping all readers (including members of the general public who will be provided the opportunity to review the feasibility report and NEPA documents), follow the rationale and progression of plan formulation in the main feasibility report – including why non-structural

measures were eliminated -- without having to refer to an appendix. Providing the brief summary (highlighted in the response) of all measures considered, and why most were eliminated, in an addendum, would suffice to resolve the comment.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

U. Alternative Description. In Section 3.5.5, Formulation of the Array of Alternatives – Alternative C360C, there is very little description of what he differences are between Alternative R360C and Alternative C360C, other than the latter includes additional operational flexibility and can serve multiple purposes including environmental benefits and other water related needs. Why is this alternative more "operationally flexible" and what specifically are the environmental benefits and "other water related needs" this alternative would deliver/meet? Similarly, in Section 4.6.2, Identifying the TSP, "multi-purpose project operations" is never defined.

Basis for Concern. Clarity and understanding of the alternatives.

Significance of Concern. Medium. If Alternative C360C had been shown to be non-effective or inefficient, how it differs from other alternatives might not have been too important to understand. However, it was identified as the second best buy plan (after Alternative R240A), and its operational improvements were applied to an optimized Alternative R240A to become Alternative C240A and the TSP. Its operational flexibility characteristics and the additional "multi-purpose" benefits it provides and needs it meets should be specifically described.

Recommendation for Resolution. For both Alternatives C360C and C240A, better describe the additional operational flexibility that can serve multiple purposes including environmental benefits and other water related needs.

SFWMD Response. Reservoir "C" operations are derived from and consistent with the original CERP Component G. The operational flexibility used in the "C" scenarios for the reservoir storage volume (whether 360 kac-ft or 240 kac-ft) is implemented by dividing the reservoir into two operational zones. These zones are the bottom one-third of the storage volume and the upper two-thirds of the storage volume. The bottom one-third of the reservoir storage volume only releases water to the environment (downstream Everglades). When the reservoir is in the upper two-thirds of the storage volume, releases are made from the reservoir to both the environment (downstream Everglades) and to maintain canal elevations in the Miami and NNR/Hills basins of the Everglades Agricultural Areas.

In the corresponding "R" scenarios (R240 and R360), reservoir operations do not include releases back to the Miami and NNR to maintain canal elevations. In these scenarios, the canal elevations are maintained solely by deliveries from Lake Okeechobee. Environmental restoration flows (downstream Everglades) are provided by the reservoir regardless of the volume of storage in the facility.

From a benefits perspective, the C360 outperforms the R360 in the final array and the C240 TSP outperforms the R240 from the final array, showing increased habitat units in both direct comparisons and validating the benefit of a multi-purpose facility as assumed in the Yellow Book.

The advantage of the multi-use facility centers around a seasonal timing shift that allows water levels in Lake Okeechobee to be maintained slightly higher in the "C" scenarios by maintaining canal levels with water from the reservoir when excess capacity is available. This water "saved" in Lake Okeechobee provides greater opportunity for dry season flow to the Everglades.

It is important to note that releases from the reservoir to maintain canal levels are discontinued when the reservoir falls below the one-third volume and where the remaining volume is dedicated to environmental delivery consistent with CERP Yellow Book assumptions. From a Northern Estuary perspective, the "C" operation is also advantageous since it creates available storage for wet conditions and allows some potential estuary releases to be diverted to the reservoir, thereby reducing the counts of damaging events.

Final OASACW/HQUSACE Assessment. Comment is resolved. Please include the brief description (provided in the response) of the operational flexibilities afforded by the "C" alternatives, and why those operational flexibilities deliver increased ecological benefits to both the downstream Everglades and the northern estuaries, in an addendum to the Final Section 203 Report.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

V. Alternative effectiveness. In Table 4-1, Summary Comparison of Alternatives in Effectiveness, the meaning of the performance measure changes for slough vegetation are unclear. For example, what does an improvement from -2 to 3 (for the hydroperiod performance measure 5.1 for Alts R240A and R240B) mean? Is that the change between FWOP to FWP for that performance measure? Or does that indicate an improvement for that performance measure, which varies across all restoration zones from -2 to 3? In the same table, third objective (reducing Lake Okeechobee damaging discharges to the northern estuaries), it does not seem like the improvement described in the narrative (55% reduction in water released from Lake Okeechobee to northern estuaries and 63% reduction in high discharge events) aligns with performance measure statistics provided (e.g., high flows for St Lucie drop from 32 months under FWOP to 26 to 28 months under all alternatives; for Caloosahatchee, high flows drop from 70 months under FWOP to 61-64 months under all alternatives). These reductions are more in the 10-20% range.

Basis for Concern. Clarity and understanding of the effects and improvements of the alternatives.

Significance of Concern. Medium. A clear understanding of how the various alternatives perform in terms of the relevant evaluation criteria/performance measures is important to understanding their overall effectiveness.

Recommendation for Resolution. Examine the performance measure values provided in Table 4-1 and check whether they align with the summary narrative statements. Do the facts presented support the summary conclusions? Provide greater detail what the performance measure scores mean (for slough vegetation and soil oxidation PM's).

SFWMD Response. As described in detail in Appendix G, the calculation of ecosystem benefits (quantitative scoring) consisted of four general steps: (1) rescaling of performance measures to common units; (2) combining performance measures into an aggregate score for each of the zones in the project area (i.e., two zones in the Northern Estuaries, nine zones in WCA 3 and ENP, and six zones in Florida Bay); (3) and converting the zone scores into HUs that were then used to (4) compare alternatives.

The numbers in Table 4.1 indicate the difference in the Rescaled Performance Measure Score (score) across the hydrologic zones in the Everglades and Northern Estuaries. These numbers also represent the total range of the difference in scores across all zones compared to the FWO. For the Slough Vegetation PM the objective is to provide additional freshwater flows to the Everglades to restore seasonal hydroperiods and freshwater distribution to support a natural mosaic of wetland and upland habitat in the Everglades System. Ridge and slough is the most common habitat in the central Everglades. The slough vegetation performance measure (PM) provides a measure of the suitability of hydrologic conditions for two key species of slough vegetation. Hydrologic conditions that support a more natural habitat mosaic generally improve for all the alternatives. A value of -2 to 3 means that there was a hydrologic zone for Alts R240A and R240B that was 2 scores less than the FWO and a hydrologic zone for Alts R240A and R240B that was 3 scores more than the FWO.

For the Soil Oxidation PM the objective is to provide additional freshwater flows to the central Everglades to improve sheetflow patterns and surface water depths/durations in the Everglades in order to reduce soil subsidence, frequency of damaging peat fires, decline of tree islands, and salt water intrusion. For the Soil Oxidation PM, a difference between the FWO and the three alternatives (R240, R360 and C360) showed that there was no hydrologic unit that was negatively affected by the CEPP PACR. The worst-case scenario was a zero value which meant that the PACR had the same level of protection as CEPP. The fact that regions of the Everglades were as high as 4 scores greater in soil protection than CEPP is important because the Everglades is a peat-based "corrugated" system that has been flattening out. Hundreds of years of peat can be destroyed in one peat fire. Restoration of the ridge and slough pattern is strongly linked to the soil oxidation PM. The greater the PM the more protective and restorative the plan and a small increase in the Soil Oxidation scores can have a big impact. Detailed information on the PMs for the FWO and alternatives are presented in Appendix G.

The CEPP is identified as the first increment of restoration by providing hydroperiod and water depth improvements in the central Everglades, and resumption of some sheetflow with proper timing, continuity and distribution during the onset of the dry season. The CEPP also acknowledges that additional flow would provide greater benefits to WCA3A and ENP. The CEPP PACR provides the additional flow needed as identified in the CEPP and CERP extending the improved hydroperiod and depth performance into the latter portion of the dry season while maintaining the integrity of the other performance metrics described in Table 4-4 for the Greater Everglades (WCA3A and ENP). The traditional use of the habitat unit calculations conducted in the CEPP and CEPP PACR make it difficult to capture the true project benefits associated with the timing shift of water deliveries and the additional flow volume introduced into the central Everglades by the CEPP PACR.

In this case, the performance measures are not sensitive enough to detect the true benefits of redistribution and additional flow provided by the TSP over the large aerial extent of the Everglades indicator regions. However, modeling results when compiled by mean monthly simulated flow showing these improvements are captured in Figure 6-6 on page 6-17 of the CEPP PACR main report. The increase in freshwater flow to the Everglades that the CEPP PACR provides is effective in meeting the CERP goal (see Figure 4-10).

The narrative provided in the PACR that indicates a 55% reduction in water released from Lake Okeechobee to northern estuaries and 63% reduction in high discharge events is a metric that is not captured in Table 4-1, Summary Comparison of Alternatives in Effectiveness. This is because Table 4-1 captures the effects of the individual CEPP PACR alternative only (benefits above FWO - CEPP) while the 55% and 63% refer to the CEPP PACR inclusive of the previously authorized projects (benefits above the ECB).

The St. Lucie Estuary oyster monitoring program has determined that flows more than 2,000 cfs for longer than 42 days causes wide-spread adult oyster mortality. The monitoring program for the Caloosahatchee Estuary has determined that flows more than 2,800 cfs for longer than 60 days causes wide-spread adult oyster mortality. If flows can be maintained below these adult oyster mortality thresholds reproduction and recruitment rates can be maintained at a sustainable level in the Northern Estuaries. It was determined that there was a 55% reduction in high flow events (>2,000 cfs) lasting more than 42 consecutive days in the St. Lucie Estuary. This is calculated from the FWO project condition where there are 9 events that exceed this threshold of 42 consecutive days. The TSP reduces the number of events that exceed this threshold to 4 events. It was determined that there was a 40% reduction in high flow events (>2,800 cfs) lasting more than 60 consecutive days in the Caloosahatchee Estuary. This is calculated from the FWO project condition where there are 10 events that exceed this threshold of 60 consecutive days. The TSP reduces the number of events that exceed this threshold to 6 events. The ability to meet these thresholds is paramount to Northern Estuary resiliency, health, reproduction and recruitment, and the ability for them to recover from high volume damaging discharge events. Furthermore, the TSP approaches the CERP goal in reducing damaging discharges to the Northern Estuaries (see Figure 4-10).

The SFWMD will include this information by an addendum in Section 4.1.1 Effectiveness with the Effectiveness Table (Table 4-1) and Progress Towards CERP Goals (Figure 4-1).

Final OASACW/HQUSACE Assessment. Response is adequate, comment is resolved.

W. Ecological Improvements/ Project Justification. The overall ecological improvements delivered by the CEPP PACR improvements in Table 4-8 (Average Annual Habitat Unit Lift) are not significant. Total "lift" provided by the alternatives over the FWOP vary from 2.2% for Alts R240A and R240B to 2.8% for Alt C360C, while costs increase over the FWOP from 66% for Alt R240A to 88% for Alt C360C (by $1.431 billion and $1.829 billion, respectively). This calls into question whether the additional benefits are worth the substantial additional investments required to achieve them, i.e., a 2-3% increase in benefits for a 66-88% increase in costs. In short, while the changes proposed under the CEPP PACR would overall reduce damaging discharges to the northern estuaries and would increase beneficial flows to the WCA's, Everglades National Park, and Florida Bay, are the incremental improvements to these ecosystems worth the additional costs to achieve them over the FWOP (CEPP as currently authorized, plus other planned and authorized projects)?

Basis for Concern. ER 105-2-100, E-41. b. states: "Reasonableness of Costs. All costs associated with a plan should be considered. Even after tests of cost effectiveness and incremental cost analysis have been satisfied, the decision-maker must ascertain that the benefits to be realized are really worth the costs. This will almost always be a subjective decision and ultimately must rely on experience, reasonableness and common sense."

Significance of Concern. High. This is not an indictment of the technical work performed in service of this CEPP PACR. This is a fundamental question to be answered by the agency decision-maker.

Recommendation for Resolution. Perhaps a discussion of the essential nature of the changes proposed under this CEPP PACR could help in the justification of this project? Is this additional storage capacity in the EAA a linchpin feature, critical to the overall success of CERP and other CERP components? Are there other criteria or metrics (e.g., besides habitat units) that could be used to justify the TSP? Otherwise, the slight increase in ecological benefits (2-3%) doesn't seem to justify the significant additional costs $1.4 to $1.8 billion.

SFWMD Response. The CEPP as authorized by Congress in 2016, redirects undesirable freshwater discharges from the Northern Estuaries by providing an average of approximately 210,000 acre-feet per year of additional clean freshwater flowing into the central portion of the Everglades. The undesirable discharge events that CEPP captures and redirects south are predominately of short duration and moderate or less in volume. The increase in freshwater flow to the Everglades that CEPP provides by redirecting these undesirable events is approximately two-thirds of the additional flow estimated to

be provided by the CERP. The undesirable discharges to the Northern Estuaries that CEPP redirects is a step towards achieving the CERP goal of an 80% reduction in estuary flows.

The additional conveyance, storage, and treatment features provided by the CEPP PACR allow for a reduction in damaging discharges that the CEPP did not address. The damaging discharge events that the CEPP PACR captures and redirects south are of much longer duration and higher in volume than those managed in CEPP. The CEPP PACR is effective in approaching the CERP goal of an 80% reduction in estuary flows and achieving the CERP goal in sending water to the central Everglades. The CERP Plan is designed to enlarge the supply of freshwater by storing water that is currently discharged to tide and redirecting it south to the Everglades. The EAA storage feature is the only component of CERP that can deliver dry season flows to the Everglades system. After the benefits claimed in the CEPP, remaining CERP system-wide goals must address more extreme conditions. Projects like the CEPP PACR must deal with larger magnitude events that present a significant design challenge and usually cost more per incremental lift. Another challenge is a reduced sensitivity in performance measures (e.g. capture 10 big events rather than 30 smaller events, so the improved "event count" is not as dramatic mathematically but of significance within the ecosystem).

The CEPP is identified as the first increment of restoration by providing hydroperiod and water depth improvements in the central Everglades, and resumption of some sheetflow with proper timing, continuity and distribution during the onset of the dry season. The CEPP also acknowledges that additional flow would provide greater benefits to WCA3A and ENP. The CEPP PACR provides the additional flow needed as identified in the CEPP and CERP extending the improved hydroperiod and depth performance into the latter portion of the dry season while maintaining the integrity of the other performance metrics described in Table 4-4 for the Greater Everglades (WCA3A and ENP). The traditional use of the habitat unit calculations conducted in the CEPP and CEPP PACR make it difficult to capture and underestimate the true project benefits associated with the timing shift of water deliveries and the additional flow volume introduced into the central Everglades by the CEPP PACR. The increase in freshwater flow to the Everglades that the CEPP PACR provides is effective in meeting the CERP goal (see Figure 4-10).

One of the more significant benefits to ENP of the CEPP PACR not captured by Habitat Units is the increase hydraulic head in Shark River Slough (SRS) compared to sea level. Coastal wetlands are prone to peat collapse and loss with rising sea levels. The increased volumes of water delivered to SRS during the dry season will maintain the same water depths as the CEPP but will do it for a longer period of time, which will make a critical difference in the intrusion of saltwater up into the freshwater marshes of ENP. A recent study by Dessu et at. (2018) looked at this head difference and concluded: "*Results indicate that fresh-to-marine head difference (FMHD) was the single most important factor affecting marine-to-freshwater hydrologic connectivity and transport of salinity upstream from the Gulf of Mexico."* The CEPP-PACR maybe the most significant increment to CERP for dealing with the degradation associated with accelerated sea level rise.

There are two other features of the CEPP PACR not captured by HU in WCA-3A and 3B that are significant: 1) Increased flexibility to incrementally restore tree islands to WCA-3B, and 2) to deliver critical sediment entrainment velocities to the ridge & slough habitats. The sloughs from WCA-3B are gone and for this critical habitat to be restored water depths will need to increase. However, if depths are too high, for too long a period, then tree islands in 3B will suffer. The CEPP PACR provides the flexibility to work with climate forecasts to slowly improve the hydrology in 3B, allowing the tree islands to build peat while increasing the productivity and biodiversity of the entire region. The CEPP PACR will also help maintain microtopography throughout WCA-3A and ENP because the additional volumes of water will allow velocities to occasionally reach 2.3 cm/sec, which will resuspend floc. The lack of flow has caused the entire Everglades to either get relatively deep (e.g., WCA-1) or to flatten out and loose its distinctive slough patterning (e.g., WCA-3A-North). The occasional redistribution of floc and slough bottom sediments will reduce the flattening of the system, provide resilience against droughts and increase the restoration of wading birds.

The CEPP PACR further reduces the number, return frequency and severity of damaging high volume and long duration regulatory releases to the Northern Estuaries from Lake Okeechobee. The long duration, high-flow discharge events that are most detrimental to the estuarine species, such as oysters and seagrasses, would be reduced by 40% and 55% to the Caloosahatchee and St Lucie estuaries respectively, in addition to the benefits provided by CEPP. In combination with the previously authorized projects the CEPP PACR provides a 55% reduction in discharge volumes and 65% reduction in mean monthly high-flow discharge events to the Northern Estuaries from Lake Okeechobee. These benefits significantly improve the northern estuary conditions above and beyond CEPP by further reducing the volume, duration and return frequency of damaging events. Reducing the duration and return frequency of these damaging discharges alone allow more time for the estuaries to recover and establish resiliency. The traditional use of the habitat unit calculations conducted in the CEPP and CEPP PACR make it difficult to capture and underestimate the true project benefits associated with the establishment of ecosystem resiliency. The damaging discharge events that the CEPP PACR captures and redirects south is effective in approaching the CERP goal (see Figure 4-10).

The CEPP alternatives reduce the moderately high estuary discharge events while the additional storage afforded by the CEPP PACR TSP can manage the extremely high and longer duration lake inflows by diverting larger flows to the south, to additional storage and treatment areas therefore further reducing those most damaging high and extended releases to the estuaries. As we get closer to reaching full restoration goals holding and diverting those larger damaging discharges becomes more expensive, but the ecological significance of doing just that cannot be understated. The capacity for the estuaries to withstand and recover from these continued perturbations in volume and duration of high flow damaging events is being tested over and over. The estuaries are currently showing signs of vulnerability to state change. The reproductive capability of the oysters is extremely stressed, in spring of 2018 following hurricane Irma oyster monitoring showed

the lowest number of oyster spat in the entire period of record of the RECOVER monitoring program (14 years).

The CERP identifies storage north, south, east and west of Lake Okeechobee that work together to achieve beneficial ecological effects. These complete storage components are critical to the overall success of the CERP and other CERP components. The combination of these storage features with other CERP components provide synergy in achieving Everglades restoration. The authorized CEPP is composed of increments of project components that were identified in the CERP, reducing the risks and uncertainties associated with project planning and implementation. The term "increment" is used to underscore that CEPP formulated portions (scales) of individual components of the CERP. It was envisioned that later studies would investigate additional scales of components of the CERP to expand upon this initial "increment" to achieve the level of restoration envisioned for the CERP. This approach is consistent with the recommendations of the National Research Council to utilize Incremental Adaptive Restoration to achieve timely, meaningful benefits of the CERP and to lessen the continuing decline of the Everglades ecosystem. The CEPP PACR expands upon the initial "increment" of CEPP and achieves the level of restoration envisioned for the CERP (See Section 1.4 and Section 4.6).

For the CEPP PACR, CEPP and other CERP actions in the study area that have been authorized are assumed to be in place and operational in the FWO condition. The largest and most important reasonably foreseeable future action not accounted for in the FWO condition is the Lake Okeechobee Watershed Restoration Project (LOWRP). Section 6.3 of the CEPP PACR includes an evaluation that indicates the LOWRP will complement authorized and proposed CERP projects including the CEPP PACR TSP to improve conditions in Lake Okeechobee and Northern Estuaries. To demonstrate this, a sensitivity analysis was conducted with the CEPP PACR coupled with the CERP North of Lake Okeechobee Storage Reservoir and CERP Lake Okeechobee Aquifer Storage and Recovery. From an effectiveness standpoint, the CEPP PACR TSP with LOWRP is very close to achieving the total CERP Goal in reducing damaging discharges to the Northern Estuaries and meets the CERP Goal for flows to the Everglades. The Lake Okeechobee Watershed Project with storage north of Lake Okeechobee (Components A, GG) and storage south of Lake Okeechobee (Component G) are the major components in the CERP for decreasing the damaging discharges from Lake Okeechobee to the Northern Estuaries. Performance information on the analysis conducted with the CEPP PACR and the LOWRP and effectiveness in achieving the CERP goal for reduction in damaging discharges to the Northern Estuaries is summarized in Table 6-7 and further supports the "linchpin" nature of the CEPP PACR features being critical to the overall success of the CERP and other CERP components.

Section 6.2.3 also references several economic studies from the region that describe the recreation and tourism value of the St. Lucie and Caloosahatchee estuaries. The *Indian River Lagoon Economic Update* estimated that $873 million per year could be attributed to the use of the St. Lucie Estuary and other connected inshore areas in Martin and St. Lucie Counties (ECFRPC and TCRPC 2016). Another study concluded that the marine-

related industries in Lee County that are dependent on the health of the estuary and the ecosystem services contributed $1.27 billion to the economy in 2013 (Hodges et al. (2015). The economic impact to these estuaries from continued damaging discharges is significant and not quantifiable in terms of ecological benefits.

Discussion. Habitat units don't always provide the complete proposed plan benefits story. The additional benefits to the estuaries, synergy with other projects in the area and ability to help meet overall CERP hydrologic goals further highlight the benefit per cost of the project. Suggest including in an addendum a summary of the additional ecological benefits provided by the project outside of the habitat units.

Final OASACW/HQUSACE Assessment. Comment is resolved. The additional information provided in the response represents a concise summary of the ecological benefits to the greater Everglades ecosystem and the northern estuaries above and beyond the quantified average annual habitat units described in Section 4.2, which are admittedly an incomplete metric. Please include this summary as an addendum to the Final Section 203 Report to support the rationale used to identify and justify the recommended plan. However, it is noted that the ASA (CW), the Administration, and Congress will still have to ascertain that the benefits to be realized are really worth the project costs, per ER 105-2-100, E-41. b.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

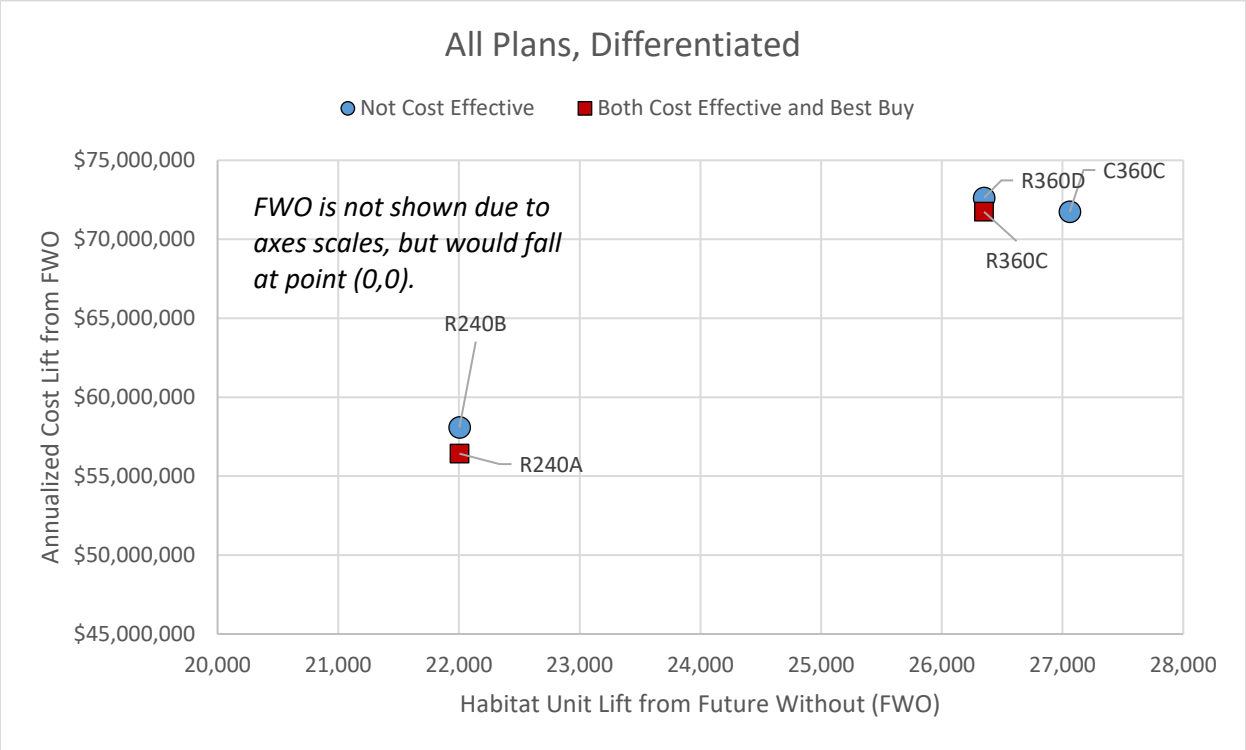
X. CE/ICA Graphic. The results of CE/ICA are not shown graphically. While the overall results shown in Section 4.2.3 and Tables 4-9 and 4-10 appear to be calculated and presented correctly, the cost effectiveness and incremental cost analyses should also be portrayed graphically to aid in decision-making and justification of the TSP.

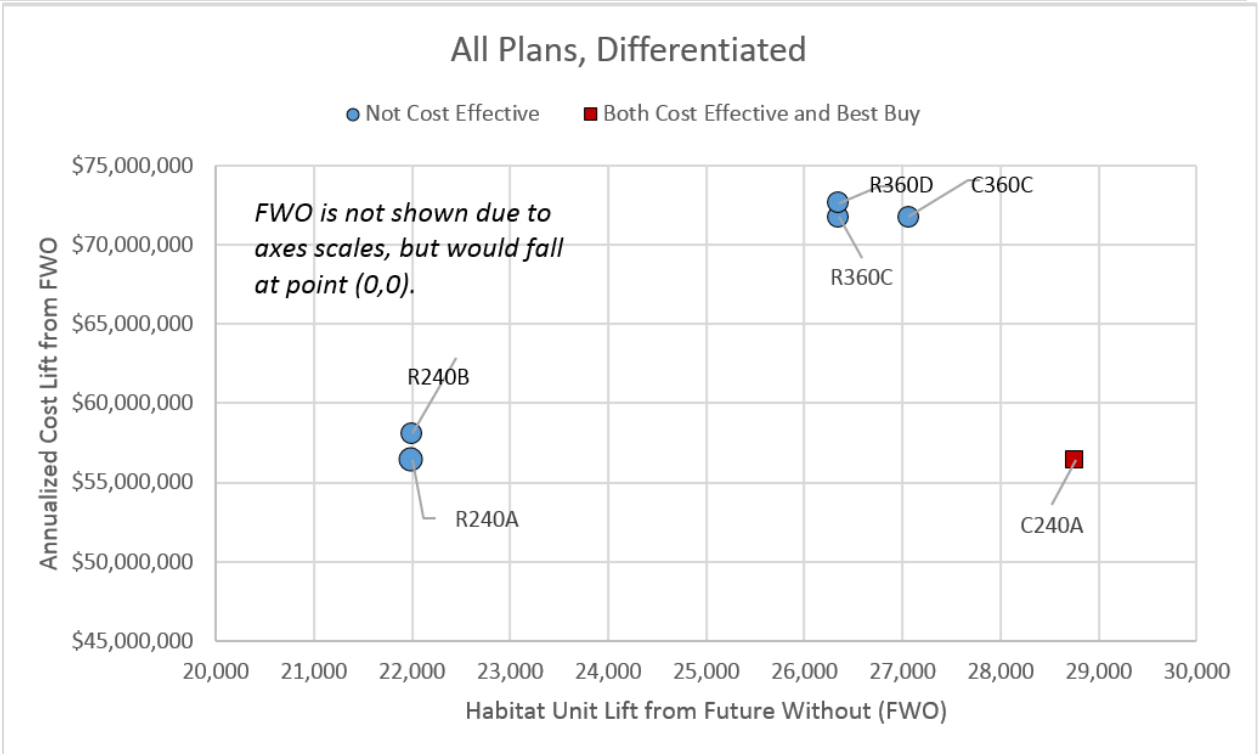
Basis for Concern. ER 105-2-100, E-36. C. (7) states: "Step 7. The final step in the CE/ICA process is to tabulate and graph the incremental costs. (a) It is not necessary to display all such iterations in ecosystem restoration report documentation. What should be provided, however, is a table that summarizes the pertinent incremental cost and output information associated with the increasing size (in terms of output) of the Best Buy plans. (b) Graphing the Best Buy plans can help visually display the relationship between the increasing financial investments required for increasing environmental outputs. Figure E-8 shows the incremental costs of alternative plans (in $1000) on the y-axis and the average annual environmental benefits (in habitat units) on the x-axis. A similar one should be provided in ecosystem restoration report documentation."

Significance of Concern. Low.

Recommendation for Resolution. Please provide graphical CE/ICA results from IWR Planning Suite to accompany tables 4-9 and 4-10.

SFWMD Response. The following figures will be added to the addendum (Sections 4.2.3.1 and 4.6.1.)





Final OASACW/HQUSACE Assessment. Comment is resolved. However, in the upper graphic of "All Plans Differentiated," Alternative R360C is mislabeled as "both cost effective and best buy," while the Alternative C360C is mislabeled as "not cost effective." These labels should be reversed, as Alternative R360C is not cost effective compared to Alternative C360C and the latter is both cost effective and a best buy plan.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

Y. PACR Purpose. The report does not clearly lay out the need for the PACR.

Basis of Concern. While the report discusses the need to reduce flows to St. Lucie and Caloosahatchee Estuaries, and increase flows to the south, it does not clearly lay out why the originally authorized project does not address those concerns, nor does it discuss the reasons as to why the new recommended plan was not recommended during the original CEPP study. Per r Section G-16 of Appendix G of ER 1105-2-100, the post authorization change report should "give a description and rationale of any changes in project scope, using a subparagraph for each.

Significance of Concern. Medium

Recommendation for Resolution. Provide further clarification as to the shortcomings of the originally authorized project and how the PACR TSP will address those shortfalls.

SFWMD Response. The original CEPP PIR partially addressed the established CERP goals (1) to deliver treated new water to the natural system and (2) reduce damaging discharges to the Northern Estuaries (St. Lucie and Caloosahatchee). A larger reservoir and STA configuration was considered during the CEPP PIR planning process. However, at that time "the deep reservoir storage was not brought forward (for detailed analysis) due to unacceptable cost levels associated with the large increase in both storage and treatment capacity required to provide greater delivery of water to the Everglades" (CEPP PIR, Section 3.4, page 3-39). The rationale for rejecting a deep storage reservoir option in the CEPP PIR focused almost entirely on the total cost associated with the delivery of additional water to the Everglades that would be necessary to fully achieve the CERP goal. At the time the CEPP PIR was prepared this premise was appropriate. Since that time, there have been several concurrent years of well above average rainfall in both the wet and dry seasons that resulted in increasing Lake Okeechobee releases to the estuaries. These events highlighted the need to expedite CERP projects that would focus on reducing these damaging discharges.

In screening out the deep storage reservoir cost effective measure as cost prohibitive, the CEPP PIR developed the first increment of restoration to obtain early benefits and emphasized flows to the central Everglades when considering the collateral ecological benefits that would be expected from further reduction in damaging regulatory releases to the St. Lucie and Caloosahatchee estuaries that would occur with a deeper storage reservoir with greater capacity and operational flexibility than a shallow FEB. CEPP acknowledged there would be a need for future investments. The CEPP PACR expedited

the EAA Reservoir Project on the Integrated Delivery Schedule by proposing a cost effective plan now to achieve these goals earlier.

The authorized CEPP plan with the A-2 FEB storage component would deliver about "two thirds of the overall water that CERP envisioned providing to the natural system" (CEPP PIR, Section 3.2.1.6, page 3-13) and would provide for only moderate reductions in damaging regulatory releases from Lake Okeechobee to the St. Lucie and Caloosahatchee estuaries. Since the completion of the CEPP PIR in December 2014, the CEPP study area has experienced exceptional wet years, resulting in substantially increased regulatory releases from Lake Okeechobee over extended periods of time, substantial adverse effects on the estuaries, and heightened public interest in potential solutions that would further decrease these damaging regulatory releases. The PACR reevaluated the authorized CEPP plan to determine if appropriate modifications and system-wide operations could be made to further address these concerns for damaging releases to the estuaries while also taking steps to meet the established CERP goal for delivery of new water to the Everglades ecosystem.

The CEPP PIR (Section 6.9.9, page 6-84) was also very clear to establish that future increments of CERP planning to include additional storage in the EAA could be expected to fully achieve CERP goals:

> The A-2 FEB does not preclude future increments of CERP planning for additional storage in the EAA … For example, the A-2 FEB could be converted to an STA or deeper reservoir and STA that works in conjunction with the State's existing STA system to accommodate any future upstream storage to further increase water deliveries to the WCAs … CEPP is not seeking the deauthorization of the CERP EAA Reservoir Phase – I, recognizing that improvements will need to be considered in future increments of CERP that provide additional storage for capturing water currently being sent to tide from Lake Okeechobee… Future CERP increments that provide this additional storage will increase water made available in the regional system.

The CEPP PIR (Section 6.9.1) references the National Academy of Sciences (National Resource Council 2007) recommendation on the implementation of CERP through an incremental adaptive restoration (IAR) process. This section discusses how CEPP adopted that recommendation and formulated a solution for an increment of overall restoration of the south Florida ecosystem and is not meeting all targets of CERP leaving problems and opportunities that remain. Although the CEPP provides a significant increase in freshwater needed for the restoration of the central Everglades, additional actions are needed to achieve the restoration envisioned in CERP. The actions include further reducing harmful discharges of freshwater from Lake Okeechobee to the St. Lucie and Caloosahatchee Estuaries and improve estuary habitat for oysters and SAV.

Section 1.3 in the CEPP PACR provides a thorough description of the purpose and need for the proposed modifications to the authorized CEPP plan. In addition, Table 1-3 on pages 1-19 through 1-23 of the CEPP PACR provides a detailed summary addressing all

of the required elements of a post-authorization change report (including specific references to relevant information found elsewhere in the report.

Final OASACW/HQUSACE Assessment. The text provided in this response should be incorporated into the document such that the reader can fully understand the factors dictating the need for the PACR. Comment is resolved pending addition of this text to report.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

Z. Cost Contingencies. It is unclear as to the basis for assuming a 20% contingency for the recommended plan.

Basis for the Concern. The analysis used to identify project contingencies does not appear to follow USACE cost engineering guidance. This is particularly concerning due to the fact that projects that have undergone the USACE cost certification process typically are assigned contingencies well above 20%, including the authorized CEPP project which had contingencies well in excess of 20%.

Significance of the Concern. Medium

Recommendation for Resolution. Provide further discussion as to how project contingencies were developed.

SFWMD Response. The ROM costs were prepared by SFWMD contractors experienced with design and construction of similar infrastructure in the south Florida environment. The contractor estimates were vetted through SFWMD's cost engineer for review. Because of the SFWMD's experience with similar construction projects, construction of similar features and project components, as well as the geographical location of the reservoir (immediately adjacent to the previously designed A-1 Reservoir), the ROM cost estimates utilized a 20% contingency.

However, for the project costs for the TSP a 34% contingency was used which was determined based on the risk analysis provided in Appendix B. Under Sec. 203 it is the project cost estimate (not the ROM costs) that will be used to determine if the cost increase may exceed the limit established by Section 902 of the WRDA of 1986.

Final OASACW/HQUSACE Assessment. Response is adequate, comment is resolved.

AA. Environmental Compliance. The PACR was prepared by a non-Federal interest and only includes a preliminary environmental evaluation and compliance discussion pursuant to NEPA, other national environmental statutes, executive orders and Federal planning requirements. A policy compliant document is pending due to the fact that many of the environmental statutes still require the lead Federal agency to consult and coordinate.

Basis for Concern. ER 200-2-2 and ER 1105-2-100 provide guidance on the requirements to comply with NEPA and other applicable Federal environmental laws and regulations.

Significance of Concern. Medium. The lead Federal agency, USACE Jacksonville District, will be undertaking certain environmental requirements in support of the PACR.

Recommendation for Resolution. Many environmental statutes require the lead Federal agency to consult and coordinate with State and Federal agencies as well as affected Tribes. In addition, some environmental statutes require specific analysis and determinations by the lead Federal agency. Jacksonville District will be undertaking certain environmental requirements, and should consider the following during this undertaking: *(note: the following discussions should not be interpreted to mean that the environmental laws referenced below are the only environmental laws that require compliance).*

1. Section 401 of the Clean Water Act (State Water Quality Certification). The PACR does not include a Section 404(b)(1) evaluation. Jacksonville District is to complete the evaluation during EIS development and submit to the State of Florida for review. If the WQC cannot be obtained prior to NEPA decision (because more details on design will be needed), then Jacksonville District should outline the information that would be developed after NEPA decision to meet the requirements of a request for WQC. Jacksonville District should provide this information to the State in the form of a letter. The State should then acknowledge coordination with USACE and issue a letter of confirmation and potential preliminary findings or intent to issue. WQC is required prior to the initiation of project construction.

2. Coastal Zone Management Act. PACR Section 7.0 indicates that a consistency determination will be prepared. Once prepared, Jacksonville District must coordinate the determination with the State. The determination of consistency should be included as an appendix to the EIS, and results summarized in the main body.

3. NEPA Section 1501.6 Cooperating agencies. Jacksonville District is to identify potential cooperating agencies for development of the EIS in accordance with Section 1501.6, ER 200-2-2 Paragraph 16, and Implementation Guidance for Section 1005 of WRRDA 2014.

4. Fish and Wildlife Coordination Act (FWCA). Coordination under the FWCA should be initiated at the beginning of a study to meet the purpose of the act, and to inform the alternative development process. However, in the case of this PACR, the alternative plans have already been developed and analyzed. It is not clear if USFWS has provided input into the TSP development, or how compliance with the act will be achieved. The PACR states that status is pending; USACE to initiate coordination. The EIS must demonstrate how compliance with the act has been achieved in accordance with ER 1105-2-100, Appendix C.

5. Endangered Species Act (ESA). A draft Biological Assessment (BA) is included with the PACR, but it is not clear how this BA aligns with the USFWS Programmatic Biological Opinion (April 2014) discussed in Section 5.2.4. This section states that further consultation is required when more details are finalized in PED. Jacksonville District should closely review the preliminary conclusions of the BA, and make the final determination of effects to each species and critical habitat. The draft EIS must be clear with explaining what Opinions apply to this project and/or whether a new Opinion will be likely. In addition, Section 5.2.4 indicates that the National Marine Fisheries Service (NMFS) provided a Programmatic Biological Opinion for CEPP in December 2013 and concurred with no effect determination for species under their purview. If the TSP measures/effects/impacts are different than what was previously coordinated with NMFS under CEPP, then Jacksonville District should re-confirm the no effect determination.

6. Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended. Section 5.2.7 indicates that a detailed Essential Fish Habitat assessment is included in Appendix C. The EFH discussion in Appendix C does not demonstrate a complete EFH assessment. Jacksonville District should improve the EFH assessment, include any beneficial effects of the proposed action, and coordinate with the National Marine Fisheries Service per the Department of Commerce guidelines for implementing the EFH coordination and consultation provisions of the MSFCMA (50 C.F.R. 600.905-930).

7. Farmland Protection Policy Act of 1981. It is not clear from reviewing the PACR when compliance with the FPPA will be met. Section 5.2.1.14.2 states that 4,155 acres of sugar cane lands will be converted to wetlands. Appendix C.4.10 indicates that some coordination was done with USDA and NRCS, and NRCS determined it would defer further coordination until PED. Jacksonville District should continue coordination with USDA/NRCS during EIS development, and document coordination efforts and compliance status if full compliance cannot be met before NEPA decision.

8. Section 106 of the National Historic Preservation Act. The PACR, Appendix C.4.17 (NHPA Section) states that the proposed project is in compliance with the act; however, Section C.2.2.18. indicates that coordination with SHPO/THPO will begin after PACR is submitted to ASA(CW). These are conflicting statements. If coordination hasn't happened, then the proposed project is not in compliance with the act. Furthermore, in Section C.2.2.18.1 (Area of Potential Effect) it indicates that the APE for cultural resources that was not already evaluated under CEPP includes the A-2 Expansion Area. Jacksonville District should continue coordination efforts with SHPO/THPO, and confirm the APE as it relates to this proposed action. The EIS is to consider identification of historic properties and project impacts based on surveys or inventories. If Cultural resource investigations are necessary, Jacksonville District should describe what will be done prior to NEPA decision, and what will be delayed until PED. If Jacksonville District anticipates a Programmatic Agreement, the agreement should specify the process for required surveys / evaluations, effect determination, mitigation planning, and coordination.

SFWMD Response. The SFWMD continues to acknowledge and has repeatedly requested assistance from the USACE to comply with the many environmental statutes requiring a lead Federal agency to consult and coordinate with State and other Federal agencies as well as affected Tribes. On July 1, 2017, SFWMD requested that the USACE jointly develop a PACR for the federal-state Central Everglades Planning Project. Regrettably, it has been a very slow and disappointing experience trying to reach agreement with the USACE on the Scope of Work for the SFWMD's requested technical assistance as outlined in the SFWMDs letter to the ASA on December 22, 2017.

In addition, some environmental statutes require specific analysis and determinations by the lead Federal agency. The SFWMD acknowledges that the Jacksonville District will be undertaking these responsibilities.

Final OASACW/HQUSACE Assessment. The SFWMD acknowledged and concurs that Jacksonville District will be undertaking the Federal responsibilities outlined above, including preparation of the Environmental Impact Statement (EIS) for the proposed action. The Jacksonville District was directed to expedite completion of environmental compliance and formal agency consultation on the proposed project per guidance provided in CECW-SAD memorandum dated 5 May 2018, subject: CEPP, SFWMD Proposed PACR, Integrated Feasibility Study and EA (March 2018). Jacksonville District is to utilize the preliminary environmental analysis prepared by the SFWMD and utilize any other existing reports, documentation, data and analysis to assist with the NEPA evaluation and timely completion of the EIS. Jacksonville District recently coordinated with HQUSACE via email on May 1, 2018 (G. Ralph SAJ to J. Savinon SAD-RIT) indicating the Biological Assessment was coordinated with USFWS on May 1, 2018. A Biological Opinion is anticipated on/before 13 September 2018. A notice of availability (NOA) of the draft EIS is expected to appear in Federal Register on June 8, 2018. Public meetings are tentatively scheduled for week of 26 June. HQUSACE will continue to get updates from Jacksonville District to monitor progress throughout the NEPA process. If major issues or concerns are raised that may impact the NEPA analysis or timeframe as outlined in the schedule for completion, HQUSACE will immediately coordinate the issue with OASACW.

AB. Discrepancies. Consistency between the PACR and EIS.

Basis of Concern. Different authors/writers for PACR and EIS could lead to inconsistencies within the two reports.

Significance of Concern. Medium, but quality control measures and reviews should focus on this concern.

Recommendation for Resolution. Cross check both documents before they are finalized. Have quality control measures in place. Keep alternative plan names and descriptions consistent between PACR, EIS and appendices.

SFWMD Response. Quality control measures and protocols for consistency review are in place. Routine coordination and communication between the SFWMD and the USACE Jacksonville District has already begun on the Environmental Impact Statement and will continue through completion of both the CEPP PACR and supporting EIS. In addition to these document quality control measures and protocols, identification of the appropriate timing and procedures for final document back-checks is complete and will be conducted to ensure consistency between the PACR, EIS and appendices.

Final OASACW/HQUSACE Assessment. Response is adequate, comment is resolved.

AC. Concern re State Legal Compliance with State Consent Orders, NPDES permits, and Federal Litigation Settlement Agreement, and U.S. EPA Determinations – consultation with U.S. DOJ and U.S. EPA needed

Basis of Concern. The original CEPP plan authorized by Congress was produced in consultation with U.S. DOJ and U.S. EPA regarding water quality and Clean Water Act (CWA) compliance permitting in the area of the project. Before any change to CEPP could be similarly authorized, those Federal agencies will need to be consulted on the impacts of the proposal to the State's compliance with a number of legal requirements.

Total phosphorous concentrations in discharges from SFWMD STAs have been subject to ongoing Federal and state litigation currently managed under State and Federal consent orders. These include 2012 state Consent Orders issued to SFWMD by FDEP to build additional water quality improvement projects, including the A-1 FEB. The SFWMD preferred alternative includes the construction of a new 6,500 acre foot STA to treat the water quality of the increased water flow contemplated, and a reservoir in the A-2 FEB footprint integrated into the A-1 FEB, the latter of which is a state "Restoration Strategies" feature subject to the state consent orders.

To effectuate SFWMD's new preferred change to CEPP, the state consent orders issued to SFWMD by FDEP in 2012 associated with NPDES and EFA permits will presumably need to be modified to incorporate the proposed new 6,500 acre foot STA required to treat the additional proposed flow of water, and to address and the additional water quality treatment proposed to achieve water quality based effluent limits (WQBEL) for total phosphorous and other CWA pollutants impacting the A-2 FEB footprint and the A-1 FEB. The FDEP and SFWMD will similarly need to seek amendment or modification to the NPDES and EFA permits. It is unclear in SFWMD's Sec. 203 materials how these processes have been incorporated into the development of SFWMD's proposed plan.

The water quality of flows entering the Everglades Protection Area, including but not limited to Everglades National Park, have also been subject to litigation at the Federal level involving the United States, represented solely by the U.S. Department of Justice, and SFWMD. This is currently subject to a Settlement Agreement entered in *United States v. SFMWD*, Case No. 88-1886-CIV (U.S.D.C., S.D. Fla) establishing long-term water quality limits for water entering areas that will receive flows from CEPP (Appendix A). SFWMD's Sec. 203 study admits in multiple sections that "[i]t is uncertain how

changes in flow distributions proposed under CEPP will impact compliance with Appendix A of the 1991 Settlement Agreement." Prior to authorization, state compliance with these requirements must be resolved to avoid the chance of SFWMD's preferred alternative, if authorized, from being challenged in court as potentially violating the terms of the Settlement Agreement. As such, the compliance of this project with the Settlement Agreement must be reviewed in consultation with the U.S. Department of Justice on an early basis, prior to Federal authorization. It is unclear in SFWMD's Sec. 203 materials how this process has been incorporated into the development of SFWMD's proposed plan.

FDEP's specific rules concerning Total Phosphorus are also subject to the continued oversight and review of the U.S. EPA through a number of legal instruments, including through a Framework Agreement between the U.S. EPA and FDEP to ensure compliance with CWA and water quality requirements flowing into the Everglades, and through an Amended Determination by the U.S. EPA developed under separate litigation in Federal court ("Judge Gold litigation"). In its Main Report, the SFWMD's Sec. 203 study states that the effect of the SFWMD preferred alternative on TP rule compliance is "uncertain." Moreover, while the CEPP PIR contained a Water Quality Assessment in WCA 3 and ENP subject to EPA review under Annex F, SFMWD's Sec. 203 includes an Appendix F that focused only on a single pollutant (phosphorous), this time without that same EPA review. Prior to any final Federal action on the proposal, state compliance of this project with the CWA, including but not limited to the instruments of the Framework Agreement and EPA's Amended Determination, must be determined by U.S. EPA, incorporating any further amendments to FDEP rules or the above listed legal instruments as necessary. It is unclear in SFWMD's Sec. 203 materials how this process has been incorporated into the development of SFWMD's proposed plan.

Significance of the Concern. High.

Recommendation for Resolution. Likely modification of state consent orders issued to SFWMD by FDEP in 2012 associated with NPDES and EFA permits, to incorporate the new STA and address and the additional water quality treatment proposed to achieve water quality based effluent limits (WQBEL) for total phosphorous and other CWA pollutants impacting the A-2 FEB footprint and the A-1 FEB. Consultation with U.S. Department of Justice on Settlement Agreement compliance. Consultation with U.S. EPA, and determination by U.S. EPA on state's CWA compliance.

SFWMD Response. The EFA and NPDES permits for the existing STAs will be modified for the additional water delivered to the Everglades by the PACR. The existing EFA permit for the A-1 FEB will also be modified for the new connection to the A-2 Reservoir. For the new features in the CEPP PACR it is anticipated; 1) the A-2 Reservoir will be constructed and operated under a CERPRA Permit, 2) the new A-2 STA will be constructed and operated under an EFA and NPDES permit, 3) all other applicable state and federal permits will be acquired.

Although the FDEP is the issuing permitting agency, the EPA oversees the implementation of the regulatory program for the Clean Water Act in the state of Florida.

The process for ensuring compliance with Florida Statutes, applicable water quality standards, obtaining permits from FDEP and Section 404 permits from the USACE, and compliance with the Everglades Settlement Agreement/Consent Decree was thoroughly outlined in Section 7 and Annex B of the PACR. On Page 7-15 of the PACR, it states "All required Federal and State permits and/or modifications to existing permits would be acquired prior to construction activities." During the permit acquisition process, coordination will occur with all relevant federal agencies, including the U.S. EPA, in order for the SFWMD to be able to obtain a State Water Quality Certification and Coastal Zone Consistency Determination, both of which are prerequisites to issuance of the Section 404 Permit, and both of which will be included within the Comprehensive Everglades Restoration Program Regulation Act (CERPRA) Permit, which will be issued under 373.1502 F.S.

As noted on Page 7-13 of the PACR, the State of Florida has enacted several laws pertaining to implementation of CERP projects. These include amendments to Section 373.026 (8) F.S., which establishes a requirement for the SFWMD to submit a State Compliance Report pursuant to Section 373.1501 F.S., for review and approval by FDEP prior to formal submission of a request for authorization from Congress and prior to receiving an appropriation of State funds for construction and other implementation activities (except the purchase of lands from willing sellers); the enactment of Section 373.1501 F.S., which establishes the intent of the Florida Legislature with respect to CERP and the criteria for FDEP approval and the procedures to be followed by the SFWMD and FDEP for submitting and reviewing requests for approval; the enactment of Section 373.1502 F.S., which establishes permitting requirements and a process for the submittal, review, and issuance of certain regulatory permits for CERP projects.

Additionally in Annex F (pages F-30/31) of this PACR, the SFWMD identifies the need for sequencing the features of CEPP and this CEPP PACR to avoid unintended adverse consequences and outlines several principles that were considered in the development of the plan, including: 1) completing all Restoration Strategies features, 2) meeting State water quality standards prior to operating CEPP PACR features, 3) ensuring that CEPP or CEPP PACR features will not cause or contribute to state water quality standards violations or violations of any applicable water quality discharge limits, 4) providing reasonable assurance demonstrating adverse impacts to flora or fauna will not occur in areas influenced by CEPP or the CEPP PACR, 5) addressing Appendix A water quality compliance for new water entering Everglades National Park, and 6) acknowledging that additional CEPP and CEPP PACR water quality treatment features may be necessary if water quality standards are not met upon operation of CEPP or CEPP PACR.

Previously, the USACE and the State of Florida agreed to certain concepts regarding water quality to govern implementation and operation of CERP projects produced in consultation with the FDEP, U.S. EPA, U.S. DOJ, and U.S. DOI, (outlined in Section 8.3 of the CEPP FINAL PIR/EIS), to which the State of Florida has not deviated from and

remains committed to with this PACR (see Section 8.5). Consistent with the process and agreements made under CEPP, the principals to the settlement agreement have continued discussions and technical work regarding the methodology for compliance described in Appendix A. Those discussions are still active and meetings are scheduled for the Appendix A sub-team through the end of this summer. This process was codified in the Congressionally authorized document for the CEPP including the Chief's Report.

Additionally, coordination with the U.S. EPA (EPA) was done during the development of the PACR. The EPA provided scoping comments on November 21, 2017, which the District adequately addressed in the CEPP PACR. The EPA was also invited to participate in the Agency Technical Review of the PACR. The EPA responded on February 23, 2018, stating that no technical comments would be provided at that time and that upon acceptance of the report by the USACE and subsequent sharing with EPA, they would then be authorized to provide comments through the lead Federal agency during the NEPA review process.

Discussion. The development of the PACR was coordinated with EPA and the SFWMD believes the concerns from EPA have been adequately addressed. The Corps will take the additional information under advisement and provide an assessment during the next iteration of this document. Any documentation in support of the Atlanta office representative's participation in the development of the PACR would be useful information for reference during assessment determination.

Final OASACW/HQUSACE Assessment, including review of Addendum May 2018. The issues addressed in this comment are beyond the unilateral authority of USACE and/or the State of Florida to resolve. Instead, resolution of the issues in this comment is contingent upon the review and actions of several additional parties, and subject to the review, alteration, rejection, and/or order of courts.

1) As stated in the sections from the Sec. 203 study cited in SFWMD's comments, it is not clear how the increased flows being proposed here by SFWMD would affect compliance with Appendix A of the Federal Everglades settlement agreement. Without the benefit of reviewing the results (if any) of any discussions being held (or to be held) by the Technical Oversight Committee to reviewing the Appendix A methodology, it not clear how such a review may (or may not) resolve this acknowledged legal compliance uncertainty at this present time. The U.S. Department of Justice is the sole representative for the U.S. government on the requirements of United States v. SFMWD, Case No. 88-1886-CIV (U.S.D.C., S.D. Fla), including issues of compliance with Appendix A of its Settlement Agreement. Compliance with that agreement is also subject to the continued oversight of a Federal judge and a Special Master.

2) Without the benefit of any pending or proposed EFA, NPDES, and/or CERPRA permit modifications being made available to review, it is not possible to assess whether such current or future permit actions may (or may not) resolve Clean Water Act compliance concerns, either whole or in part, at this time.

3) The Sec. 203 study has been received by the Federal government and is subject to U.S. EPA review through the Federal agency NEPA review process. During that review, the issue as to whether SFWMD's study has adequately addressed issues of Clean Water Act compliance subject to U.S. EPA's regulatory oversight and jurisdiction should be decided by U.S. EPA.

AD. Concern re State Compliance with CERP Programmatic Regulations. Evaluation of Alternatives, RECOVER performance evaluation, and tribal consultation.

Basis of Concern. Projects designed, built, and operated under the CERP statutory authority are required to comply with the Programmatic Regulations for the Comprehensive Everglades Restoration Plan, the "CERP Programmatic Regulations" found at 33 C.F.R. Sec. 385. As drafted, the SFWMD Sec. 203 study does not document compliance with a number of requirements under this regulation.

At 33 C.F.R. Sec. 385.10, in addition to any other applicable provisions for tribal consultation, the CERP Programmatic make consultation with Native American tribes on the implementation of CERP, including CERP project activities, the joint responsibility of the Corps of Engineers and the non-Federal sponsor. This joint Federal/non-Federal consultation is to be conducted on a government-to-government basis to ensure meaningful and timely tribal input on CERP activities. Here, SFWMD's Sec. 203 study was developed by SFWMD without initiating formal consultation with the Seminole or Miccosukee Tribes (see, e.g., 5-45, 7-11 of Main Report). As a result, the SFWMD has not yet performed its share of joint tribal consultation responsibilities, resulting in a preferred alternative that cannot demonstrate meaningful and timely tribal input in its contents pursuant to the CERP Programmatic Regulations.

Moreover, pursuant to 33 CFR 385.26, the alternatives considered by a CERP PIR/NEPA document must include the project as described in the CERP Yellow Book, i.e., "the Yellow Book Alternative." This alternative is treated equally to other alternatives in the final array of alternatives, subject to the same evaluations, including modeling and RECOVER performance evaluations. For the purposes of this Sec. 203 study, SFWMD has identified the Everglades Agricultural Storage Reservoir (Component G), Flow to Northwest and Central WCA 3A (Component II), Everglades Water Supply Deliveries to the St. Lucie Estuary (Component C), and Environmental Water Supply Deliveries to the Caloosahatchee Estuary (Component E) as the CERP Yellow book components under evaluation (see, e.g., ES-5, 1-13) and to support a change in project scope requiring a post-authorization change to CEPP. When identifying its Yellow Book Alternative, however, SFWMD has limited this alternative to only one of these components (component G), and then has screened out this alternative prior to the development of its final array alternatives (3-19). Here, to ensure compliance with the CERP Programmatic Regulations, SFWMD would need to reformulate the YBA for its study to include all of the CERP components within this proposal's scope – Components G, II, C, and E – and then carry this YBA into its final array subjecting it to the same evaluations (including the same modeling and RECOVER performance evaluation) as its other alternatives.

[NB – the "Final Draft" Guidance memoranda cited in the Sec. 203 at 3-19 have not been adopted or made final, and are of no regulatory effect in meeting CERP Programmatic Regulation requirements].

Finally, pursuant to 33 CFR 385.26, alternative plans in the final array of CERP reports are required to undergo RECOVER performance evaluations prior to the identification of a selected alternative plan. SFWMD's preferred alternative was apparently selected without this RECOVER performance evaluation being performed, meaning that this regulatory requirement has not been fulfilled.

Significance of the Concern. High.

Recommendation for Resolution. Reformulation of the YBA to include all CERP components within project scope – Components G, II, C, and E - with subsequent evaluation of this YBA, subjecting it to the same evaluations (including the same modeling and RECOVER performance evaluation) as other alternatives in the final array. Initiation of joint formal consultation by SFWMD and USACE with tribes to ensure meaningful and timely tribal input into the development of SFWMD's preferred alternative in accordance with CERP Programmatic Regulations. Note that under USACE policy, "[u]nder no circumstance is the [USACE] District or Division to engage the State of Florida or the Miccosukee Tribe of Indians in discussions of water quality issues associated with the judicial proceedings [Gold and Moreno litigations]" on those subjects. The U.S. Department of Justice is the only representative of the Federal Government on those matters. See Memorandum for Commander, SAD, from Director of Civil Works, HQUSACE, 3 Sep. 2010.

SFWMD Response. The CERP Programmatic Regulations used to develop the CEPP PACR are summarized in Section 6.8 and Table 6.22 of the report. How the specific regulations identified above were addressed during development of the PACR are described below:

TRIBAL

Government to Government consultation with Tribes is required to be initiated by the lead Federal agency. While official Government to Government Tribal consultation was not initiated during development of the PACR, the SFWMD did coordinate and solicit feedback from the Seminole Tribe of Florida (STOF) and the Miccosukee Tribe of Indians of Florida (MTOIOF) on the CEPP PACR. The SFWMD met twice with each Tribe to provide updates on (1) the project scope, schedule, and plan formulation, and (2) an update on the tentatively selected plan. The STOF briefing and project discussions occurred on November 17, 2017, and on February 26, 2018, and the MTOIOF briefing and project discussion occurred on November 20, 2017, and February 27, 2018. In addition, the SFWMD received letters from STOF via the Tribal Historic Preservation Office dated December 5, 2017 and a letter from the MTOIOF dated January 8, 2018.

The USACE initiated formal Government to Government consultation on April 16, 2018, after submittal of the CEPP PACR for review.

RECOVER

As RECOVER reviews are a shared responsibility, the SFWMD sought USACE assistance for a RECOVER review, but USACE authority and technical staff under Section 203 were limited under the MOA and Support Agreement (1144 Form) so a full RECOVER team evaluation of the CEPP PACR was not possible. However, some coordination with members of the RECOVER team did occur during the planning phase of this study. A technical Government Agency Coordination Meeting was held on November 29, 2017 where members of the USACE RECOVER team were present. The purpose of this meeting was to inform and engage governmental agencies early about the project scope, schedule, plan formulation, conceptual alternatives and path forward for the study. No comments were received from the USACE team members during this meeting.

SFWMD evaluated the CEPP PACR consistent with RECOVER evaluation for CEPP. In the CEPP PIR, the RECOVER team prepared a full evaluation which included a System-wide Evaluation, RECOVER Consistency Review and a RECOVER review of the Draft Operating Manual. During that review, RECOVER identified and used a full suite of ecologic tools available. As stated in Section 4.4 of the PACR, the team used this same set of tools, modeling output and RECOVER performance measures to evaluate the PACR alternatives and select a TSP including:

1. Lake Okeechobee stages and their effect on in-lake biota were analyzed.
2. In the Northern Estuaries, flows and their relationship to salinity distributions and the health of key indicators such as oysters were evaluated.
3. In the Greater Everglades, hydrologic model output included overland flow and stage duration at key locations as well as ground water levels. These hydrologic indicators were related to key Everglades habitats such as slough, open water marsh, sawgrass, marl prairie and Rockland pine forest. Hydrologic effects on endangered species such as the Cape Sable Seaside sparrow were also analyzed.
4. In Florida Bay, the effect of increased flows on salinity and that relationship to seagrass health was also examined.

Due to the similarity in tools and RECOVER performance measures, the RECOVER review in the CEPP PACR is consistent with the RECOVER review summarized in Annex E of the CEPP PIR.

Yellow Book Alternative

The “Yellow Book” alternative was evaluated during plan formulation, consistent with the language in the Programmatic Regulations that require that a “Yellow Book” alternative be examined “relative to desired objectives” using “predictive modeling and other tools”. It is important to point out that many of the authorized CERP projects have not explicitly modeled the “Yellow Book” alternative for evaluation in the final array. In fact, in the SMART planning framework, the cost associated with including a “Yellow Book” alternative in the modeling strategy is likely not justified when other tools have already screened out or refined the “Yellow Book” alternative. See table below for past PIR approaches to “evaluating” the Yellow Book alternative.

CERP YBA Project Planning Strategies

CERP Project	**Yellow Book Alternative Modeled for Evaluation in the Final Array?**
Indian River Lagoon-South (2004)	Yes
Picayune Strand Restoration (2004)	No, Screened prior to modeling due to flood risks
Site 1 Impoundment (2006)	No, Screened prior to modeling due to limited land availability
Caloosahatchee River (C-43) West Basin Storage (2007)	Yes
Broward County Water Preserve Areas (2007)	Yes
Biscayne Bay Coastal Wetland Phase 1 (2011)	Yes
C-111 Spreader Canal Western Project (2011)	No, Project scope change and phasing considerations
Water Conservation Area 3 Decomp and Sheet Flow Enhancement (2012, incorporated into CEPP)	Included as preliminary alternative for screening, not proposed for final array modeling
Central Everglades Planning Project (2014)	No, Screened due to land availability, lack of fill and phasing considerations

The Programmatic Regulations state, “In formulating alternative plans to be evaluated, the project as described in the “Final Integrated Feasibility Report and Programmatic Environmental Impact Statement,” dated April 1, 1999 shall be included as one of the alternative plans that is evaluated.” Since a comprehensive evaluation of the YBA had been performed, both in this effort and previous PIRs, it was not necessary to model this alternative. For example, the 2006 EAA PIR evaluated the YB alternative for Components G and II. As shown in TABLE 5-9 of that report, ALT 2 had a higher cost than smaller footprint deeper depth options. We would expect the performance / habitat unit lift of a YBA to be similar to the C360 alternative evaluated in the PACR (or worse due to additional ET loss resulting from the footprint) with a higher cost, therefore additional detailed modeling is not necessary. Section 3.3 of the CEPP PACR clearly lays out the rationale behind not moving the YBA forward for further consideration.

Furthermore, Section 385.26(b) of the Programmatic Regulations requires the USACE and the SFWMD develop Guidance Memorandum #2 to describe the process for

formulating and evaluating alternatives. We agree that this Guidance Memorandum was never finalized. Until such Guidance is completed, planning guidance for this Section 203 feasibility study reverts to Appendix B in ER 1165-2-209 and Appendix G in Army Corps Planning Guidance Notebook, ER1105-2-100 (April 11, 2000) on the content of feasibility and post authorization reports.

To better align the CERP Components that are listed on page 1-13 as being addressed by CEPP and CEPP PACR all references to Environmental Water Supply Deliveries to the St Lucie Estuary (Component C) and Environmental Water Supply Deliveries to the Caloosahatchee Estuary (Component E) have been removed from the document.

Final OASACW/HQUSACE Assessment, including review of Addendum May 2018.

Tribal consultation: The consultation requirements of 33 CFR.10(b) apply equally to the Corps and non-Federal interests. Consistent with this requirement, the SFWMD jointly participates in tribal consultation with the Corps in the development of water resources projects. See, e.g., Western Everglades Restoration Project (WERP) formulation. Here, resolution of this concern is contingent upon SFWMD participating in tribal consultation to ensure meaningful and tribal input by tribal officials regarding SFWMD's Sec. 203 study. It is unclear in SFWMD's responses and its study how the meetings it has named with various tribes has resulted in meaningful and timely input to its study.

RECOVER: It is unclear in SFWMD's responses and its study how an internal SFWMD review for this study may substitute for a RECOVER performance evaluation as a matter of regulation under 33 CFR 385.26(b)(3), or how the original CEPP PIR performance review evaluated the proposal contained in SFWMD's Sec. 203 study.

Yellow Book Alternative: SFWMD's most recent studies with USACE have correctly applied the regulatory requirement of the CERP Programmatic Regulations to evaluate the Yellow Book Alternative in the final array (see Western Everglades Restoration Project (WERP) and Lake Okeechobee Watershed Restoration Project). This returns CERP project formulation to the practice followed by most projects closest to the period of the original CERP authorization, and CERP Programmatic Regulations promulgation. Such an evaluation, by regulatory definition, includes the use of predictive modeling. 33 CFR 385.3. Feasibility studies for CERP projects are required to comply with the CERP Programmatic Regulations, meaning that the CERP Programmatic Regulations are subject to the Federal regulatory compliance assessment of 33 USC 2231(b). By not including its Yellow Book Alternative in a final array, and by not subjecting that alternative to the same predictive modeling as other alternatives in that array, this issue of CERP Programmatic Regulation compliance is unresolved.

AE. Concern re Study's Compliance with Army and USACE CERP Water Quality Cost Share Policy

Basis of Concern. Current Army/USACE policy governing water quality improvements for CERP projects is contained in a Memorandum from the ASA-CW to the Director of

Civil Works, USACE, dated 20 Nov. 2007. This memo includes the following policy determination:

"It is expressly against Federal policy to recommend for implementation projects or features that would result in treating or otherwise abating pollution problems caused by other parties where those parties have, or are likely to have a legal responsibility for remediation or other compliance responsibility… for CERP projects were inflows do not currently meet water quality standards the Corps will evaluate the benefits of any water quality features in Project Implementation Reports (PIRs) and if the benefits are determined to be essential to Everglades restoration, then the Corps may recommend to Congress in a PIR that it be given specific statutory authority to build and cost share the subject water quality features to both help achieve water quality requirements and provide additional restoration benefits critical to the successful implementation of CERP. The cost of operating and maintaining (O&M) such features would be allocated so that the costs of bringing the inflowing water into compliance with pre-project water quality requirements would be born 100% by the Non-Federal Sponsor."

As explained in a contemporary policy memorandum by the Director of Civil Works, USACE, dated 25 May 2007, a determination that a particular water quality feature is deemed "essential to the CERP restoration effort… must be based on some finding other than the project is part of CERP and generally will aid the restoration effort."

The SFWMD Sec. 203 does not cite these USACE and Army policy statements, making it unclear how and whether these policies have been applied. In particular, it is unclear how water quality treatment for the Northern Estuary components (components C and E) have been deemed essential to the CERP restoration effort in CEPP's Central Everglades flow-way, other than the Northern Estuaries are also part of CERP and water quality improvement in those areas generally will also aid the CERP restoration effort.

Significance of the Concern. High.

Recommendation for Resolution. Citation and application of above policy statements to the SFWMD Sec. 203, and the addition of some finding on how addition of water quality treatment for project areas in components C and E will aid the Central Everglades' restoration effort in CEPP.

SFWMD Response. An addendum to the PACR will delete references to Environmental Water Supply Deliveries to the St. Lucie Estuary (Component C) and Environmental Water Supply Deliveries to the Caloosahatchee Estuary (Component E).

In addition, the current USACE policy governing water quality improvements for CERP projects contained in a Memorandum from the ASA-CW to the Director of Civil Works, USACE, dated 30 Nov 2007 and as explained in a policy memorandum by the Director of Civil Works, USACE, dated 25 May 2007 will be referenced in a revised version of Section 8.2 Cost Sharing of New Water Quality Treatment Feature.

Section 8.2 of the CEPP PACR will be revised to more fully explain the cost sharing of the new water quality feature as follows:

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8.2 COST SHARING OF NEW WATER QUALITY TREATMENT FEATURE

Section 528(e)(2) of WRDA 1996 (P.L. 104-303) provides that the non-Federal share of the costs of features for water quality improvement shall be 100% unless the Secretary of the Army determines that a project feature to improve water quality is essential to Everglades restoration, in which case the non-Federal cost share for the feature shall be 50%, provided the feature is not part of the Everglades Construction Project of the State of Florida.

Section 601 of WRDA 2000 (P.L.106–541) approved the 1999 C&SF Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (Yellow Book) as the framework for modifications and operational changes to the Central and Southern Florida Project. Section 601 also elaborates on features of the Yellow Book that may be required for the protection and improvement of the water quality of the South Florida ecosystem. The relevant provisions are underlined for emphasis.

(b) COMPREHENSIVE EVERGLADES RESTORATION PLAN.—

(1) APPROVAL.—

(A) IN GENERAL.—Except as modified by this section, the Plan is approved as a framework for modifications and operational changes to the Central and Southern Florida Project that are needed to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. <u>The Plan shall be implemented to ensure the protection of water quality in</u>, the reduction of the loss of fresh water from, and the improvement of the environment of <u>the South Florida ecosystem</u> and to achieve and maintain the benefits to the natural system and human environment described in the Plan, and required pursuant to this section, for as long as the project is authorized.

(2) SPECIFIC AUTHORIZATIONS.—

(A) IN GENERAL.

(i) PROJECTS.—The Secretary shall carry out the projects included in the Plan in accordance with subparagraphs (B), (C), (D), and (E).

(ii) CONSIDERATIONS.—In carrying out activities described in the Plan, the <u>Secretary shall—</u>

<u>(I) take into account the protection of water quality by considering applicable State water quality standards</u>; and

<u>(II) include such features as the Secretary determines are necessary to ensure that all ground water and surface water discharges from any project feature authorized by this subsection will meet all applicable water quality standards and applicable water quality permitting requirements</u>.

Subsequent to the passage of WRDA 1996, the USACE adopted policy guidance for implementing Section 528(e)(2) of WRDA 1996 (Water Quality Policy for South Florida Ecosystem Restoration, 7 Nov 1997, CECW-AG by the Director of Civil Works).

This 1997 policy guidance states that in order to qualify for Federal cost sharing on a CERP water quality improvement project, the project must be designated as a (1) water reclamation project or a (2) water reuse project. Water reclamation is defined as diverting water that was formerly discharged to tide or disposed of in some other way and pumped back into the C&SF Project system to increase the volume of water available for the Everglades. Water reuse is defined as modifying the use of water from its present function (e.g., flood control) in a current location to a preferred function (e.g., hydrologic restoration) in a preferred location. This 1997 policy guidance was utilized in the Yellow Book to recommend 22 water quality improvement components in the Yellow Book (See Table 9-4 on page 9-64) that were subsequently determined by the Secretary to be essential to Everglades restoration and eligible for Federal cost-share (See page 9-63).

Current Army/USACE policy governing water quality improvements for CERP projects is contained in a Memorandum from the ASA-CW to the Director of Civil Works, USACE, dated 30 Nov 2007. This memo includes the following policy determination:

> "It is expressly against Federal policy to recommend for implementation projects or features that would result in treating or otherwise abating pollution problems caused by other parties where those parties have, or are likely to have a legal responsibility for remediation or other compliance responsibility…
>
> However, for CERP projects where inflows do not currently meet water quality standards the Corps will evaluate the benefits of any water quality features in Project Implementation Reports (PIRs) and if the benefits are determined to be essential to Everglades restoration, then the Corps may recommend to Congress in a PIR that it be given specific statutory authority to build and cost share the subject water quality features to both help achieve water quality requirements and provide additional restoration benefits critical to the successful implementation of CERP. The cost of operating and maintaining (O&M) such features would be allocated so that the costs of bringing the inflowing water into compliance with pre-project water quality requirements would be born 100% by the Non-Federal Sponsor.

As explained in a contemporary policy memorandum by the Director of Civil Works, USACE, dated 25 May 2007, a determination that a particular water quality feature is deemed "essential to the CERP restoration effort… must be based on some finding other than the project is part of CERP and generally will aid the restoration effort."

The A-2 STA is a water reclamation feature as defined in the 1997 policy guidance and in the Yellow Book. The A-2 reservoir and A-2 STA will capture, store and treat water that would otherwise be discharged to the Atlantic Ocean through the C-44 Canal or the Gulf of Mexico through the C-43 Canal in accordance with the Lake Okeechobee

regulation schedule. This redirected water requires water quality improvement treatment prior to being used for ecosystem restoration in Water Conservation Area 3, Everglades National Park and Florida Bay. The redirected water will be stored in the EAA A-2 Reservoir, then treated in the A-2 STA before being released as "new water" to the central Everglades for ecosystem restoration.

It is noted that the original EAA Reservoir component was not identified in Table 9-4 of the Yellow Book as an essential water quality improvement feature because at that time, the Yellow Book had not identified a specific water quality improvement feature for the EAA Reservoir component. However, the 1997 Policy Guidance and Yellow Book rationale for Federal cost share of water quality features applies to the A-2 STA in the CEPP PACR TSP because an STA is required to improve the quality of water that would otherwise be discharged to tide, but will instead be redirected and reclaimed for restoration of essential flows to WCA-3 and Everglades National Park and Florida Bay.

As discussed in Section 4.1.1 of this PACR, analyses conducted during the Restudy and subsequent analyses by RECOVER during the development of the CEPP PIR and during the development of this CEPP PACR have established a CERP goal of 300,000 acre-feet of "new water" needed to restore the natural flows and hydroperiods to the central Everglades.

An examination of the environmental benefits of the CEPP PACR TSP, including the STA, as discussed in detail in Section 6, reveals that the "new water" provided by the TSP is critically important to the health of Everglades and therefore "essential" to Everglades restoration. Section 6 concludes that the additional "new water" provided by the TSP is essential to restore:

> "…water depth, duration and distribution in WCA 3A, WCA 3B, and ENP and will serve to recreate a landscape characteristic of a pre-drained system that will support a healthy mosaic of plant and animal life. The restored hydrology of the Everglades ecosystem will more closely resemble a naturally occurring rainfall-driven system with wet and dry cycles essential to flora and fauna propagation. Improved water depths and sheet-flowing distribution will begin to re-establish the unique ridge, slough and tree island micro-topography that once provided sustenance to the vast diversity of species inhabiting the Everglades.

The original CEPP PIR approved by the Secretary and authorized by Congress already determined that the first increment (210,000 acre-feet) of additional flows that will be delivered by the CEPP are essential to Everglades restoration (CEPP PIR, p. 8-11). While not specifically stated, the CEPP PIR also implicitly determined that water quality treatment was essential to ensure that the "new water" was compatible with the needs of the Everglades ecosystem by approving the State's request for cost-share on the OMRR&R costs for water quality treatment provided by State facilities. Rather than recommending a new water quality improvement feature (i.e. STA), the CEPP PIR recommended a more cost-effective plan that utilized existing State facilities and provided

for Federal cost-share on the OMRR&R costs associated with additional usage of these State facilities (CEPP PIR, p. 8-11).

For the purpose of analyzing Federal participation in the cost-share of the water quality feature (i.e., A-2 STA) in the CEPP PACR, the future without project (FWO) condition was developed based on the assumption that the non-Federal interests will meet the requirements of the Clean Water Act and State water quality standards for existing flows (both runoff and additional water redirected from Lake Okeechobee flows). The FWO condition assumes BMPs and all reasonable water quality improvement measures within the EAA will be in place to ensure that the waters being received by the C&SF Project system are of sufficient quality to meet published water quality standards.

Further, consistent with the rationale used by the CEPP PIR to determine that the "new water" flows to the central Everglades and associated water quality treatment are essential for Everglades restoration, it follows that the new A-2 STA recommended in the CEPP PACR TSP is also essential to ensure that the additional redirected "new water" will protect and restore the central Everglades and meet applicable water quality standards. Without such treatment, the "essential" new flow cannot occur. The proposed water quality improvement feature, the A-2 STA, recommended as part of the CEPP PACR TSP is not part of the Everglades Construction Project and is therefore not excluded from federal cost share. Accordingly, the new A-2 STA water quality treatment feature in the TSP is recommended for 50% Federal cost share.

Discussion. Concur with recommendation to include additional information in an addendum, but requires back check of the addendum. Concurrence with the proposed cost share is still pending review of the information and provide an assessment in the next iteration of this document.

Final ASACW/HQUSACE Assessment. It is unclear how the draft addendum language itself consists of the technical evaluation of the restoration benefits of the proposed new STA water quality feature in its proposed location by the Corps necessary to support a recommendation by the Corps to the ASA-CW that the construction of that feature is essential to Everglades restoration.

Without knowing what is being proposed for BMPs and "other reasonable water quality improvements," it is also unclear what clarity those future actions provide to this question.

The reference to the EAA as being a "water reclamation feature" in the Yellow Book does not appear appropriate, as this was not one of those features listed at the time in the Yellow Book. The 1997 documents being cited were produced before the authorized Yellow Book, which specified the approach to water quality treatment further specified in the 2007 policies discussed in the original HQUSACE comments.

Final ASACW/HQUSACE Assessment of Addendum May 2018: As stated in the Addendum, the proposed A-2 reservoir is intended to capture "undesirable discharges from the Northern Estuaries" before sending this water further south (p.15). See also

Addendum p. 17 ("… the proposed plan is expected to improve the ability of the Northern Estuaries to recover or bounce back…."). While the section 203 study and its Addendum note the benefits to the Northern Estuaries of such a redirection of flow, with the removal in the Addendum of Components C and E (the CERP components for the Northern Estuaries) from SFWMD's revised Sec. 203 study, those benefits now are realized by CERP component areas beyond the scope of SFWMD's study. At the same time, the discussion of the restoration benefits achieved by CEPP areas from receiving water otherwise discharged to the Northern Estuaries remains underdeveloped. At present, it is unclear how the Sec. 203 or its Addendum makes a scientifically justified case that the additional flows of water diverted from the Northern Estuaries are essential to the restoration of the Central Everglades. The opinion at Addendum page 35 that such water is "essential" to Everglades restoration because that water is "critically important to the health of Everglades" is conclusory; it does not provide a technical basis by which to judge the reasonableness for adopting such a conclusion. At present, the Addendum's statement on the health-promoting function of this water in the Central Everglades also appears belied by the fact that this same water is identified in the Sec. 203 study and Addendum as being "undesirable" when flowing elsewhere.

AF. Concern re Misappropriation by Non-Federal Interest of Purported Review Functions Inherent to the Federal Interest

Basis of Concern. The study produced by SFWMD under the Sec. 203 study authority titles itself "the CEPP PACR." The particular class of post-authorization change report (PACR is a general designation) that the study presumes to be is not identified. As explained in the Executive Summary, the SFWMD study reanalyzes the previously completed and authorized CEPP study in response to state legislation responding to new/recent ecological conditions in the Northern Estuaries. Produced under Sec. 203, the state study recommends changes to the authorized CEPP project where cost increases may exceed the limit established by Section 902 of the WRDA of 1986, and will now require a determination of whether the proposal is feasible made by the ASA-CW, contained in a report to Congress. Because of these factors, its scope is that of a draft General Reevaluation Report (GRR), one of the several particular classes of "post-authorization change reports" specified by USACE planning guidance. The study itself purports to focus upon the "New Water" project component of CEPP. Rather than the general term "the CEPP PACR" being used, describing this document as a SFWMD CEPP New Water GRR produced under WRDA 1986 Sec. 203 study authority is more accurate.

The document also identifies SFWMD's preferred alternative as CEPP's "the Tentatively Selected Plan" or "the TSP." As the selection of a TSP is an action only taken by the Corps under its internal planning process if it undertakes a study itself, the re-appropriation of this term here is problematic as the Corps as a matter of law could not participate in the selection of SFWMD's preferred alternative under Sec. 203. More accurately, the TSP is in fact SFWMD's locally-preferred alternative, submitted for the first time to a Federal interests for Sec. 203 review.

Finally, the study also identifies itself as a "Draft Environmental Impact Statement." The production of NEPA documents such as draft and final Environmental Impact Statements are inherently Federal government functions that apply to Federal actions taken by Federal agencies. The development of a Sec. 203 study is not a Federal action subject to NEPA; instead, by statute it is an action taken by a non-Federal interest. As such, its supporting environmental materials are not NEPA documents as a matter of Federal law. In this case, SFWMD's environmental support materials cannot and do not serve the "DEIS" function. As seen in a recent Federal Register NOI, the USACE is currently developing a Draft EIS pursuant to NEPA to support ASA-CW review of SFWMD's Sec. 203 study.

Significance of the Concern. High, especially with regard to appropriation of "Draft Environmental Impact Statement" term by non-Federal interest

Recommendation for Resolution. Retitle document "SFWMD CEPP New Water Sec. 203 Study" and/or issue appropriate public clarification that also changes reference from "TSP" to "SFWMD preferred alternative"; change "Draft Environmental Impact Statement" references to "Draft Environmental Material."

SFWMD Response. The intent of SFWMD's CEPP PACR was to pursue a post-authorization change to the authorized CEPP plan, as presented in the CEPP PIR. The focus of the PACR is to propose a plan to increase water storage and treatment capacity (and associated conveyance measures) south of Lake Okeechobee in the EAA to (1) further reduce damaging discharges to the Northern Estuaries and (2) concurrently deliver additional flow to the Greater Everglades at levels exceeding those expected under the currently authorized CEPP plan and at levels more consistent with overall CERP goals. All other authorized CEPP features would not be affected by this PACR. The only available mechanism for the SFWMD to initiate and pursue this post-authorization change was to conduct a "feasibility study" pursuant to Section 203 of WRDA 1986, as amended. Since the proposed post-authorization change to CEPP is significant from both a cost and scope perspective, the SFWMD concurs that the scope of the change is consistent with that of a General Reevaluation Report (GRR) as defined in the post-authorization change guidance in ER 1105-2-100, Appendix G, Section G-16. The scope of a GRR where some plan reformulation effort is necessary most likely would be similar to a feasibility study in many respects, especially when congressional authorization would be required. In fact, paragraph G-16.a. of the post-authorization guidance states "the PAC reports will be reviewed by the RIT (Regional Integration Team) as a *feasibility report* seeking authorization. The SFWMD was careful to follow the USACE post-authorization change guidance in developing the PACR and to repeatedly explain its relationship to Section 203 of WRDA 1986, as amended. Nonetheless, if a name change for the report is required to satisfactorily resolve this comment, we will make that change.

The SFWMD worked diligently to follow USACE planning guidance, including applying the USACE SMART planning principles to prepare the CEPP PACR. During informal discussions with the Jacksonville District staff as we prepared the report, we were strongly

encouraged to use the term "Tentatively Selected Plan" (TSP) rather than "Recommended Plan" in recognition that the latter term would appear to be pre-decisional without the benefit of ASA(CW) review and completion of NEPA and other environmental compliance coordination and consultation actions. The SFWMD followed the Jacksonville District's advice to identify the plan that best met the planning criteria to advance forward as the TSP for ASA(CW) review. The TSP in the CEPP PACR is the SFWMD's recommended plan, which is based upon our application of the USACE planning guidance and subject to review and concurrence by ASA(CW) and USACE. SFWMD prefers not to replace "TSP" with the "SFWMD's locally preferred plan" or "SFWMD's preferred plan" because these terms could be misconstrued to imply that the Plan is not recommended for full 50-50 cost-share under CERP. We consulted with the preparers of another recent Section 203 study for the Houma Navigation Channel, Louisiana, that was submitted to ASA(CW) for review in September 2017. In that study, the preparers used the term "Tentatively Recommended Plan" (TRP) to identify the plan they had proposed for approval and received no objections from the ASA(CW) or HQUSACE. If the USACE feels it is necessary to avoid use of the terms "Tentatively Selected Plan" or "TSP" in this PACR, SFWMD could use an addendum to clarify that all references to the Tentatively Selected Plan (TSP) are to be changed to Tentatively Recommended Plan (TRP) or some other mutually acceptable term.

Our intent with the use of the term "Draft Environmental Impact Statement" (Draft EIS) was not to inappropriately take over or assume a responsibility that is clearly a Federal responsibility. Perhaps we should have called the document a "preliminary" draft EIS to be clearer that we were not intending to misappropriate an inherently governmental function. Appendix B, paragraph 2.(h)(1), of ER 1165-2-209 (the guidance for Section 203 studies) states "the non-Federal interest should document their decision-making process involved in developing the proposed project in a manner that would comply with NEPA." Our intent was to develop a draft NEPA-compliant document with the format and content of an EIS (1) to insure we addressed all appropriate issues and (2) to facilitate USACE review, modification, and preparation of the document to coordinate with agencies and the public as a USACE Draft EIS with a minimum amount of reworking. We are aware that USACE is currently developing a Draft EIS, hopefully using much of the content of the draft document submitted by the SFWMD, for agency and public coordination in support of ASA(CW) review of the CEPP PACR.

Final OASACW/HQUSACE Assessment. It is unclear whether a name change will be included in SFWMD's addendum to resolve the concern regarding the misappropriation of the TSP term. If no change is made, then this issue appears unresolved. If a name change is included to resolve, the name change should include the possessive "SFWMD's" in front of the proposed "Tentatively recommended plan," to read "SFWMD's Tentatively recommended plan." The SFWMD response that it does not want to make such a change because making such a change could be "misconstrued to imply that the Plan is not recommended for full 50-50 cost-share under CERP" does not appear to clarify matters. Such a change would in fact give the SFWMD study its proper construction under law as a Sec. 203 study *by the SFWMD* submitted to the ASA-CW, now subject to

an *independent ASA-CW determination* of whether or not to recommend for a full 50-50 cost-share (a determination which has not yet been made).

It is unclear what, if any, changes SFWMD will be making to its document to resolve the issue regarding the misappropriation of the "Draft EIS" term prior to the preparation of a Draft EIS for a Federal action. As SFWMD states, USACE (not SFWMD) is now preparing the first and only Draft EIS for the Federal action at issue here.

It is unclear how the "informal" discussions with USACE mentioned in the SFWMD comments were part of the deliverables specified in the SFWMD/SAJ "technical assistance" contract for this study.

Final ASACW/HQUSACE Assessment of Addendum May 2018. The term "TSP" and "Tentatively Selected Plan" persist in SFWMD documentation. At one place in its Addendum, the term "SFWMD's tentatively recommended plan" is mentioned as something in addition to "The TSP" (Addendum page 3). But there is no indication that these terms are recognized as equivalent, or that the term TSP and "Tentatively Selected Plan" have been removed and replaced universally with "SFWMD's tentatively recommended plan."

AG. Concern re Misattribution of a State law constraint to Federal legal sources

Basis of Concern. At page 1-19 of its Main Report, the SFWMD Sec. 203 study states that the project formulation constraint of "land acquisition on a 'willing seller' basis" is in accordance with the CERP authorization (Sec. 601(h)(4) and (5)) and applicable Federal standards. This is incorrect as a matter of law, as this constraint has no basis in the CERP authorization and is instead the product of state legislation, "SB 10." This constraint also was not included in the authorized CEPP PIR's list of constraints.

Significance of the Concern. High.

Recommendation for Resolution. Redraft this section, provide errata sheet, or issue appropriate public clarification to remove references to CERP authorization or congressionally authorized CEPP PIR when discussing state legislation "willing seller" constraint. Explicitly including such a constraint in a Federally-authorized Corps plan as a Federal constraint would have little to no precedent.

SFWMD Response. SFWMD concurs. Page 1-19 of the CEPP PACR Main Report will be updated in an addendum to delete the bullet "Land acquisition on a 'willing seller' basis" as follows:

In accordance with the Savings Clause provisions of the CERP authorization in WRDA 2000 (Sections 601(h)(4) and (5)) and applicable State and Federal standards, the following constraints were applied to CEPP PACR planning, ~~many of~~ which were included in CEPP planning and implementation:

- Avoid reduction in the existing level of service for flood protection caused by Plan implementation

- Provide replacement sources of water of comparable quantity and quality for existing legal users that could experience water supply reductions caused by Plan implementation

- Meet applicable State water quality standards

- No effect on Tribal Compact

~~- Land acquisition on a "willing seller" basis~~

Discussion. Response adequate, no further action required.

AH. Concern re Use of Presumptive/Pre-Decisional Language Concerning Future Federal Decisions/Actions

Basis of Concern. Language presuming actions by USACE that are in fact subject to future Federal actions and contingencies such as review and approvals at the USACE, ASA-CW, and/or congressional levels occurs throughout SFWMD's Sec. 203 study. An early example is "The USACE and the SFWMD will incorporate the CEPP PPA North and South features and the CEPP PACR and other projects…" (Main Report ES-14) (emphasis added). This language presumes that USACE will be taking particular actions before USACE or the ASA-CW have actually made any decisions regarding whether to recommend statutory authority to do so.

Significance of the Concern. Medium.

Recommendation for Resolution. Redraft document or issue appropriate public clarification to reflect that Federal actions to be taken under SFWMD's Sec. 203 study will only be taken if SFWMD's preferred alternative receives necessary statutory authorization.

SFWMD Response. It was not the SFWMD's intent to make presumptive or pre-decisional statements about future USACE actions in the CEPP PACR, since the document was prepared to present a Tentatively Selected Plan (TSP) contingent upon ASA(CW) and USACE review and subsequent concurrence. Based on the example provided in the comment, we thoroughly researched the main report for specific instances where statements could be interpreted to assume future actions by USACE that would occur only after ASA(CW) concurrence with the proposed action (as modified or conditioned during the review process) and subsequent congressional authorization, as applicable.

We propose to include the following revision to the above cited statement on page ES-14 in an addendum to the CEPP PACR. The revised statement would read as follows: "In

addition to the authorized CEPP PPA North and South features, the USACE and the SFWMD will incorporate the CEPP PACR TSP, contingent upon ASA(CW) concurrence and subsequent congressional authorization, into the south Florida ecosystem restoration program's integrated delivery schedule along with other remaining CERP projects awaiting authorization."

There are several statements in the report that refer to USACE initiating government-to-government coordination/consultations with agencies and tribes following SFWMD submittal of the CEPP PACR to ASA(CW). We presume that this comment is not directed at those statements, as we are aware that preparations are presently underway in USACE to initiate those actions. Several statements appear in Section 6 (mostly between pages 6-40 and 6-56) that may imply expectations for future USACE actions related to implementation of the TSP presented in the CEPP PACR. We propose to identify each statement in Section 6 that implies a presumption of a future USACE action in an addendum and include clarification that each of these future actions "would be contingent upon ASA(CW) concurrence with the report and subsequent congressional authorization of the recommended post-authorization changes to CEPP."

Final OASACW/HQUSACE Assessment. It is unclear what exact language will be edited by SFWMD to address the HQUSACE comment. It is also unclear why this editing will be limited to Section 6, and will not extend to other sections where USACE decisions or actions are being presumed in earlier SFWMD language.

Final OASACW/HQUSACE Assessment of Addendum May 2018. Upon review of the May 2018 Addendum, it appears that SFWMD has not amended any pre-decisional language appearing outside of Section 6. Issue can be resolved by removing all pre-decisional language from study.

AI. Confusion surrounding Finality of previous Report of the Chief of Engineers on CEPP project previously authorized by Congress

Basis of Concern. The SFWMD Sec. 203 study suggests a number of "recommended modifications" to a document, the Report of the Chief of Engineers on CEPP, previously signed by the Chief of Engineers and authorized by Congress. A number of the changes recommended by SFWMD would materially alter the sequencing and cost-share percentages of CEPP features from the previously authorized Plan recommended by the Chief of Engineers. To the extent that a change to the CEPP project on some or any of these elements is recommended by the Chief of the Engineers at some later time, that would be contained in a new Report, not as an amendment to a previous Report. However, at present, the only Federal "Report" that is presently under development is a Report by the Secretary of the Army under Sec. 203 of WRDA 1986. Furthermore, this study would not be considered the post authorization change report outlined in paragraph 15 of the Chief's Report, a subsequent report that reevaluates all components of the New Water PPA phase is still required to meet the intent of the Chief's Report that was also outlined as a requirement by OMB in their clearance letter.

Significance of the Concern. High.

Recommendation for Resolution. Review by the ASA-CW under Sec. 203 to determine whether the SFWMD complies with Federal law and regulation, to make a determination on the study's feasibility, and to identify any conditions or recommendations. Once complete, packaging of the results of this review into a Report by the ASA-CW to the appropriate congressional committees.

SFWMD Response. SFWMD concurs. It was not SFWMD's intent to imply that the December 2014 Chief of Engineers' Report for CEPP would be revised. The purpose of Section 8.1 is to provide suggested language to address the pertinent provisions of the 2014 Chief's Report for the Secretary of the Army to consider and incorporate, as appropriate, into a new Secretary's Report to Congress, such that the Secretary's Report would support successful implementation of the proposed modifications to the authorized CEPP plan. If changes are necessary to clarify the intent of SFWMD's recommendations in Section 8.1, the SFWMD will modify the CEPP PACR in an addendum.

As implied in the last sentence of the "Basis of Concern," SFWMD did not intend to suggest that potential ASA(CW) review and concurrence with the PACR and subsequent congressional authorization of the recommended CEPP modifications would supersede the need for any future CEPP post-authorization change documentation in the form of LRRs or GRRs. USACE will make those decisions in the future in coordination with the SFWMD.

Final OASACW/HQUSACE Assessment. SFWMD's recommendations to the Secretary should be self-contained in a readable format and addressed to the Secretary, not drafted as recommended selective edits to a previous final Report of the Chief of Engineers that require a careful review and side-by-side comparison of a previous final Report of the Chief of Engineers to decipher. If this information is included in the "recommended changes" format, then the original language should probably also be included for comparison, along with a specific justification for each recommendation change.

Final OASACW/HQUSACE Assessment of Addendum May 2018. Upon review of SFWMD's Addendum, the issues discussed in the original HQUSACE remain. The unprecedented approach of recommending selective edits to a previous final Chief of Engineers Report that has been authorized by Congress and that now has the force and effect of law has been retained by SFWMD. This approach is a flaw in SFWMD's Sec. 203 study; to remedy, the language should be removed.

The 23 December 2014 Chief's Report for CEPP has been adopted by Congress; it cannot be edited after the fact (that would be analogous to going into the Congressional Record and changing the testimony of a Member of Congress, or revising a Conference Report after the passage of a statute to revise its legislative history after enactment). Many of those provisions were negotiated to allow authorization of the CEPP project and cannot be unilaterally altered in a Section 203 study. The statement in the Addendum that these edits single out "provisions in the CEPP Chief of Engineers Report that would

need to be updated in the Secretary's Report to Congress" reflects a misunderstanding of standard USACE and Army planning and authorization processes. To restate from above, to the extent that a change to the CEPP project on some or any of these elements is recommended by the Chief of the Engineers at some later time, then it would be contained in a new Report, not as an edited "update" deleting sections from an authorized Chief's Report.

Further, upon review of SFWMD's Addendum, which contains the "track changes" version of SFWMD's recommendations, it is unclear why the edits are in fact necessary to "update" CEPP project documentation in light of SFWMD's proposed A-2 reservoir. The majority are unrelated to the reservoir in SFWMD's study. Many of the provisions marked for deletion were negotiated to allow authorization of the CEPP project and cannot be unilaterally altered in a Section 203 study. For instance, it is unclear why deleting the Chief of Engineers' statement in the authorized CEPP Chief's Report that "[t]he USEPA provided significant comments regarding assurances that flows to the Everglades meet applicable water quality standards" would serve as either a required or legally feasible "update" to authorized CEPP project documentation. The same goes for SFWMD's recommendation to delete the Chief of Engineers' statements in the CEPP Chief's Report that FDEP "was concerned with the discussion in paragraph 14 of the proposed report of the Chief of Engineers" (involving state responsibilities for water quality compliance requirements), but that the paragraph 14 language was nevertheless being retained by the Chief in his final Report "to reiterate the process negotiated and agreed to by the non-federal sponsor and the Assistant Secretary of the Army (Civil Works) that will be used to address water quality issues during CEPP implementation." It is unclear how such a change would in fact serve to "update opportunities to buy down risk," as claimed in SFWMD's Addendum Attachment 2.

Because the practical effect of adopting some or all of SFWMD's edits would be to alter fundamental negotiated terms of the authorized CEPP project, and because these edits are plainly not needed to update CEPP to propose the inclusion of SFWMD's proposed A-2 reservoir, the significance of this concern has been changed from "Medium" to "High." Such edits are not consistent with law, are unnecessary, and should be removed.

AJ. Executive Order (EO) 11988. The report fails to describe compliance with EO 11988. EO 11988 requires Federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

Basis of concern. The Water Resources Council Floodplain Management Guidelines for implementation of EO 11988, as referenced in USACE ER 1165-2-26, require an eight-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain. The eight steps reflect the decision-making process required in Section 2(a) of the EO. The report needs to articulate the consideration of the eight steps and how the Recommended Plan complies with EO 11988.

Significance of concern. Medium

Action needed to resolve concern. To more fully demonstrate compliance with EO 11988 and the aspect of the Savings Clause regarding "no impacts to level of flood protection…..", a discussion of the 8-step process should be included with the documentation.

SFWMD Response. Appendix C, Section C.4.25 of the 2014 CEPP PIR contained the following assessment of E.O. 11988 compliance:

> E.O. 11988 directs Federal agencies to avoid siting projects in floodplains and to avoid inducing further development of flood-prone areas. The project is not a development but rather a restoration action. Commitment of lands to project restoration would preclude such development. The proposed action would help restore and preserve the natural and beneficial uses of the floodplain. The project would be operated in a manner that would not increase flooding of private property. The project is in compliance with the goals of this E.O.

In the CEPP PIR, the E.O. 11988 assessment applies to all features of CEPP over the entire study area. Given the overall purpose of the project (ecosystem restoration), the eight-step analysis prescribed in ER 1165-2-26 was not included in the CEPP PIR. In the CEPP PACR, the proposed A-2 reservoir and STA would basically replace the authorized A-2 Flow Equalization Basin (FEB) on the same site, plus an additional 4,156 acres of contiguous A-2 expansion lands. The basic ecosystem restoration purpose of the A-2 reservoir and STA would not change compared to the A-2 FEB. Therefore, the project team concluded that the E.O. 11988 assessment contained in the CEPP PIR would be equally applicable to the project changes proposed in the CEPP PACR. Refer to Section C.4.25, Appendix C, of the CEPP PACR.

In response to the comment, SFWMD reviewed the eight-step procedures for implementation of E.O. 11988 as prescribed in Section of ER 1165-2-26 relative to the modifications to the authorized CEPP plan proposed in the CEPP PACR. The following additional information is provided:

1. *Determine if the proposed action is in the base flood plain.* – Yes, the proposed A-2 reservoir and STA is located in the base flood plain (Zone AE based on FEMA maps, October 2017, https://maps.co.palm-beach.fl.us/cwgis/?app=floodzones). https://maps.co.palm-beach.fl.us/cwgis/?app=floodzones).

2. *If the action is in the base flood plain, identify and evaluate practicable alternatives to the action or to location of the action in the base flood plain.* – Since the development and authorization of the Comprehensive Everglades Restoration Plan (CERP) in 1999, reservoir storage in the EAA (Component G) has been an integral part of the plan for restoration of the Everglades ecosystem. For the authorized CEPP plan, the A-2 FEB was determined to be a necessary element of the restoration project. The change to an

A-2 reservoir and STA to provide more storage and treatment for restoration purposes, in virtually the same location as the A-2 FEB, supports the conclusion that practicable alternatives to locating the storage and treatment facilities in the flood plain have been considered.

3*. If the action must be in the flood plain, advise the general public in the affected area and obtain their views and comments.* – The SFWMD conducted extensive public scoping and outreach efforts during the development of the CEPP PACR. Various configurations for A-2 reservoir storage and STAs in the same general area of the authorized A-2 FEB were considered and presented to the public. See Section 7.1 of the main report and Appendix C.3 for details on public involvement efforts.

4. *Identify beneficial and adverse impacts due to the action and any expected losses of natural and beneficial flood plain values. Where actions proposed to be located outside the base flood plain will affect the base flood plain, impacts resulting from these actions should also be identified.* – The proposed modifications to CEPP addressed in the PACR will further support restoration of the Everglades ecosystem while reducing undesirable discharges to the Northern estuaries. The land where the proposed A-2 reservoir and STA would be constructed is agricultural land that has limited natural and beneficial flood plain values. Thus, the proposed changes to the authorized CEPP plan are expected to have little overall effect on natural flood plain values.

5. *If the action is likely to induce development in the base flood plain, determine if a practicable non-flood plain alternative for the development exists.* – The project modifications proposed in the CEPP PACR would be for ecosystem restoration purposes and is not expected to induce development in the base flood plain.

6. *As part of the planning process under the Principles and Guidelines, determine viable methods to minimize any adverse impacts of the action including any likely induced development for which there is no practicable alternative and methods to restore and preserve the natural and beneficial flood plain values. This should include reevaluation of the "no action" alternative.* – The “no action” alternative would involve construction of the A-2 FEB, as currently authorized in the CEPP plan. The impacts on the flood plain under the “no action” alternative would be similar to those resulting from construction of the A-2 reservoir and STA. No induced development in the flood plain would be expected as a result of the project modifications proposed in the CEPP PACR.

7*. If the final determination is made that no practicable alternative exists to locating the action in the flood plain, advise the general public in the affected area of the findings.* – The public has been advised of the proposed modifications addressed in the CEPP PACR. Agencies and the public are fully aware that some form of water storage and treatment in the EAA is necessary to achieve the expected Everglades restoration benefits.

8. *Recommend the plan most responsive to the planning objectives established by the study and consistent with the requirements of the Executive Order.* – The proposed

modifications to the authorized CEPP plan to provide additional storage and treatment in the EAA (a) is the only practicable alternative to achieve the restoration objective; (b) would not increase flood risks; (c) would not increase the impacts of floods on human safety, health, and welfare; and (d) would restore and preserve the natural and beneficial values of the base flood plain downstream of the proposed A-2 reservoir and STA.

Final OASACW/HQUSACE Assessment. The 8-step assessment should be documented in the PACR Addendum to more fully demonstrate compliance with EO 11988.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

AK. Terminology. The report utilizes the Corps of Engineers SMART Planning terminology with respect to reference of the "tentatively selected plan". However at the conclusion of the formulation process the plan becomes the Recommended Plan.

Basis of concern. As noted above.

Significance of concern. Low

Action needed to resolve concern. The concluding section(s) of the PACR should more accurately identify the TSP and the Recommended Plan – or somehow document that SFWMD is recommending the TSP and their recommended plan.

SFWMD Response. The SFWMD worked diligently to follow USACE planning guidance, including applying the USACE SMART planning principles, to prepare the CEPP PACR. During informal discussions with the Jacksonville District staff as we prepared the report, we were strongly encouraged to use the term "Tentatively Selected Plan" (TSP) and specifically advised not to use the term "Recommended Plan" in recognition that the later term would appear to be pre-decisional without the benefit of ASA(CW) review and completion of NEPA and other environmental compliance coordination and consultation actions. The SFWMD followed the Jacksonville District's advice to identify the plan that best met the planning criteria to advance forward as the TSP for ASA(CW) review. The TSP in the CEPP PACR is the SFWMD's recommended plan for modification of the CEPP, which is based upon our application of the USACE planning guidance and subject to review and concurrence by ASA(CW) and USACE.

Final OASACW/HQUSACE Assessment. The report (Addendum) should conclude/document that the TSP is SFWMD's recommended plan.

OASACW/HQUSACE Assessment of Addendum May 2018. Comment is resolved.

AL. Recreation Features. The submittal does not provide a clear discussion/description of proposed changes to the recreation plan for the project.

Basis of concern. Cost table (6-1) indicates that the only added feature is a boat ramp, however the narrative (sections 6.1.5, 6.5 and Appendix F) indicates there will be additional support facilities such as picnic tables, toilet, signage, parking, etc.

Significance of concern. Low

Action needed to resolve concern. Provide a clear comparison of features contained in the authorized project versus the plan recommended in the 203 study PACR.

SFWMD Response. There are two major recreation facility changes of the CEPP PACR TSP. A substantial change in design and costs at the Site A boat ramp facility using the same named features, but providing access over a high levee for the A-2 reservoir instead of a low levee to the CEPP A-2 FEB. Site C, incorporates additional toilet and parking facilities and provides for public vehicle access to this site due to the expected high use at the A-2 STA. The additional levees result in approximately 28 miles of levee top trails that will loop around the A-2 Reservoir and A-2 STA. Recreation elements of the TSP include sufficient gravel parking with boat ramps and trailheads, dry vault toilets, shelters, primitive camping sites and Americans with Disabilities Act–compliant fishing platforms as described in Section 6.1.6 and Appendix F. Recreation plans for Site B, D-J have remained unchanged from the CEPP PIR. Also see Appendix F Table F-1 and Table F-3 for the revised CEPP PACR Recreation Plan Features and associated costs.

Final OASACW/HQUSACE Assessment. The response provides adequate clarity. No further action is needed.