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Revised Final Draft **July 2007**

CENTRAL AND SOUTHERN FLORIDA PROJECT

COMPREHENSIVE EVERGLADES RESTORATION PLAN

Programmatic Regulations

Six Program-Wide Guidance Memoranda

U.S. Army Corps of Engineers
Jacksonville District

South Florida Water
Management District

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INTRODUCTION

COMPREHENSIVE EVERGLADES RESTORATION PLAN

First authorized by Congress in 1948, the Central and Southern Florida (C&SF) Project provides the South Florida ecosystem with flood control, regional water supply, prevention of saltwater intrusion, preservation of fish and wildlife, recreation, and navigation. In fulfilling these objectives, the project has had unintended adverse effects on the natural environment that constitutes the Everglades and South Florida ecosystem. As a result, in 2000 Congress authorized the Comprehensive Everglades Restoration Plan (CERP) or "the Plan" to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region. CERP consists of structural and operational modifications to the C&SF Project and will be implemented over the next 35 years. Together these components are expected to deliver benefits to improve the ecological functioning of over 2.4 million acres of the South Florida ecosystem, improve urban and agricultural water supply, improve deliveries to coastal estuaries, and improve regional water quality conditions, while maintaining the existing levels of flood protection.

GOALS AND PURPOSES OF THE PLAN

The Water Resources Development Act of 2000 (section 601 of WRDA 2000) approved the Plan contained in the "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement" dated April 1, 1999. As stated in section 601(h) of WRDA 2000, "the overarching objective of the Plan is the restoration, preservation, and protection of the South Florida ecosystem while providing for other water-related needs of the region, including flood protection and water supply." As approved by Congress, the Plan contains 68 major components that anticipate the creation of approximately 217,000 acres of reservoirs and wetland-based water treatment areas, wastewater reuse plants, seepage management, and the removal of levees and canals in natural areas. These components increase storage and water supply for the natural system, as well as for urban and agricultural needs, while continuing to fulfill the original objectives of the existing CS&F Project. The Plan will restore more natural flows of water, including sheetflow; improve water quality; and establish more natural hydroperiods in the South Florida ecosystem. Improvements to fish and wildlife habitat, including those that benefit threatened and endangered species, are expected to occur as a result of the restoration of hydrologic conditions. This will promote the recovery of native flora and fauna, including threatened and endangered species.

Section 601 of WRDA 2000 requires that:

> "The Plan shall be implemented to ensure the protection of water quality in, the reduction of the loss of fresh water from, and the improvement of the environment of the South Florida ecosystem 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."

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THE PROGRAMMATIC REGULATIONS

Section 601 of WRDA 2000 required the Secretary of the Army, with the concurrence of the Secretary of the Interior and the Governor of Florida, and after notice and opportunity for public comment, to promulgate Programmatic Regulations to ensure that the goals and purposes of the Plan are achieved and to establish the processes necessary for implementing the Plan. The final Programmatic Regulations became effective on December 12, 2003 as Title 33, Part 385 of the Code of Federal Regulations (CFR).

INTEGRATED FRAMEWORK FOR ASSURING THE GOALS AND PURPOSES OF THE PLAN ARE ACHIEVED

Section 601(h) of WRDA 2000 and the Programmatic Regulations establish an integrated framework of tools, processes, and an enforcement mechanism for ensuring that the goals and purposes of the Plan are achieved. This framework includes tools for planning, implementation, and evaluation; a process for developing these tools in an open public process, with input from other Federal, Tribal, State, and local agencies; and an enforcement mechanism to ensure that the requirements of the statute are carried out.

Tools

Section 601 of WRDA 2000 establishes the following tools for ensuring that the goals and purposes of the Plan are achieved:

- The specific planning tool established by section 601(h) of WRDA 2000 is the Project Implementation Report (PIR).
- The specific implementation tools established by section 601(h) f WRDA 2000 are Project Cooperation Agreements (PCAs) and Operating Manuals.
- The specific evaluation tool established by section 601(h) of WRDA 2000 is the interim goals for evaluating the restoration success of the Plan.
- In addition to the specific planning, implementation, and evaluation tools established by section 601(h) of WRDA 2000, the Programmatic Regulations establish additional tools, including but not limited to, Project Management Plans, Program Management Plans, Comprehensive Plan Modification Reports, the Master Implementation Sequencing Plan (MISP), and interim targets for evaluating progress towards achieving the other water-related needs of the region.

Processes

The Programmatic Regulations establish the processes for developing these tools. Consistent with section 601(h) of WRDA 2000, the Programmatic Regulations were developed after notice and opportunity for public comment, with the concurrence of the Secretary of the Interior and the Governor, and in consultation with the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, the Administrator of the Environmental Protection Agency, the Secretary of Commerce, the Florida Department of Environmental Protection, and other Federal, Tribal, State, and local agencies.

Enforcement Mechanism

The specific enforcement mechanism established by section 601(h) of WRDA 2000 is the "Comprehensive Everglades Restoration Plan Assurance of Project Benefits Agreement," dated January 9, 2002, between the President of the United States and the Governor, under which the State will ensure by regulation or other appropriate means, that water made available by each project in the Plan will not be permitted for a consumptive use or otherwise made unavailable by the State until such time as sufficient reservations of water for the restoration of the natural system are made under State law in accordance with the PIR and consistent with the Plan.

GUIDANCE MEMORANDA

Section 385.5 of the Programmatic Regulations specifically requires the development of six program-wide Guidance Memoranda that are consistent with the Programmatic Regulations and applicable law, and establish additional procedures to achieve the goals and purposes of the Plan. The Guidance Memoranda are fundamental to the integrated framework; provide direction for using the tools for planning, implementation, and evaluation; and provide assurances that the goals and purposes of the Plan will be achieved. Figure A illustrates the interrelationship between the tools and technical guidance used to implement the tools. Figure A also illustrates the interrelationship between each of the Guidance Memoranda as well as with the integrated framework of tools, processes, and enforcement mechanisms. Presenting the six Guidance Memoranda as one complete package also demonstrates how the Guidance Memoranda work in concert to ensure the goals and purposes of the Plan are achieved. The Guidance Memoranda address numerous topics including common methods, general procedures, and guidance to implement the Plan. The six program-wide subjects for the Guidance Memoranda as set forth in the Programmatic Regulations are:

- Guidance Memorandum #1: Project Implementation Reports
- Guidance Memorandum #2: Formulation and Evaluation of Alternatives for Project Implementation Reports
- Guidance Memorandum #3: Savings Clause Requirements
- Guidance Memorandum #4: Identifying Water Made Available for the Natural System and for Other Water-Related Needs
- Guidance Memorandum #5: Operating Manuals
- Guidance Memorandum #6: Assessment Activities for Adaptive Management

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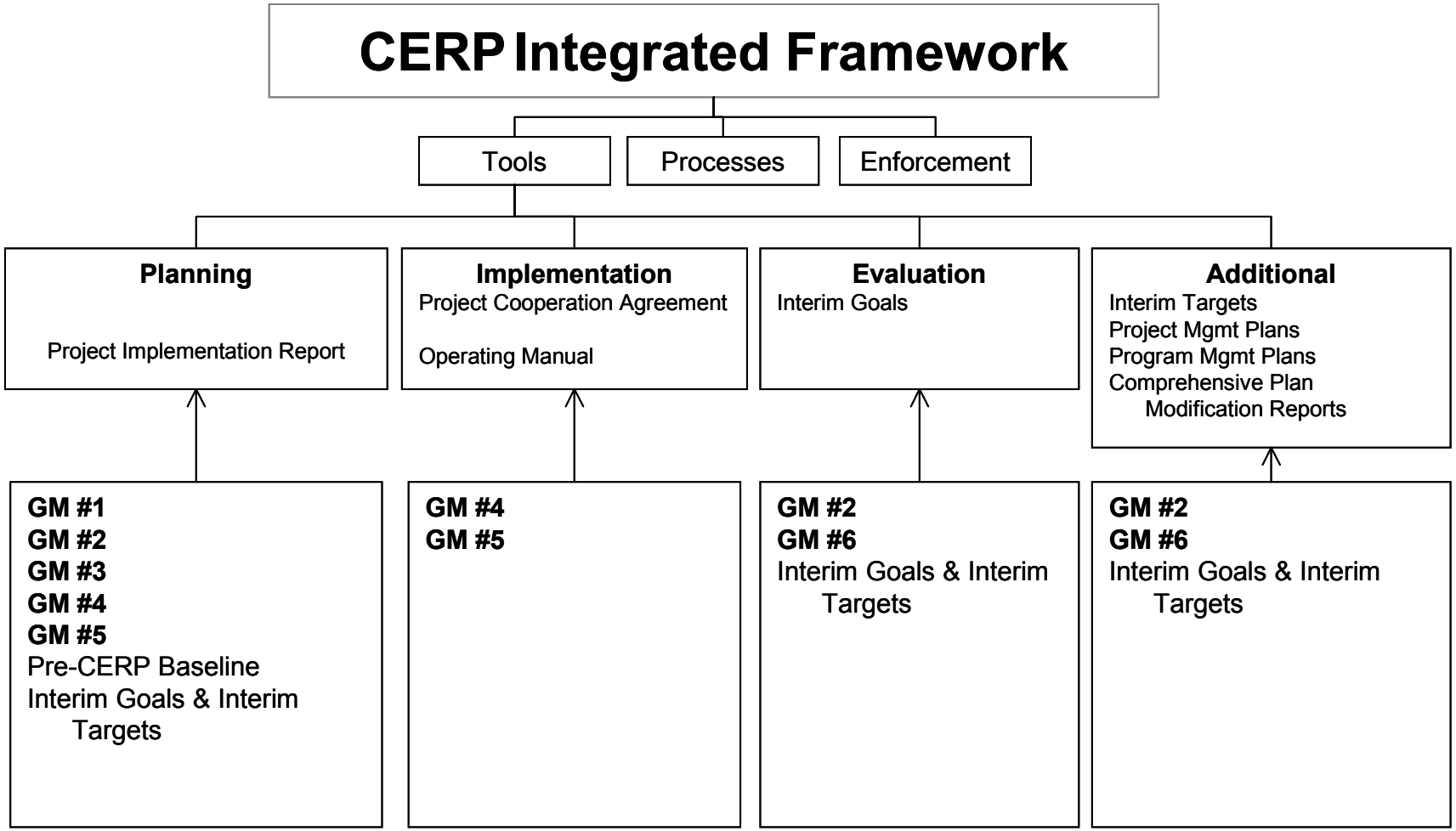

Figure A: Framework for Assuring Goals and Purposes of the Plan are Achieved

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GUIDANCE MEMORANDA DEVELOPMENT AND APPROVAL PROCESS

Section 385.1 of the Programmatic Regulations requires the Secretary of the Army to ensure that the public understands the linkage among the processes, tools, and enforcement mechanism and to ensure that the Secretary can monitor the effectiveness of this integrated framework in assuring that the goals and purposes of the Plan are achieved by:

- Providing for public notice and comment in the development of planning, implementation, and evaluation tools;
- Providing notice of final action on planning, evaluation, and implementation tools;
- Making available to the public on a web site or by other appropriate means final, and where appropriate, draft copies of all planning, evaluation, and implementation tools; and
- Explaining through the Programmatic Regulations and by other appropriate means the process for developing the tools, the linkage between the process, tools, and enforcement mechanism, and the means by which these elements constitute an integrated framework for assuring that the goals and purposes of the Plan are achieved.

Section 385.5(b) of the Programmatic Regulations describes the special processes for the development of the six program-wide Guidance Memoranda. The development process for these Guidance Memoranda was initiated prior to the effective date of the Programmatic Regulations in order to layout a strategy for effectively and efficiently developing the technical work products and to elevate issues for resolution within the prescribed time frame. The Programmatic Regulations require that the US Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD) develop, in consultation with the Department of the Interior, the Environmental Protection Agency, the Department of Commerce, the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, the Florida Department of Environmental Protection, and other Federal, Tribal, State, and local agencies, the six Guidance Memoranda for approval by the Secretary of the Army. Figure B illustrates the Guidance Memoranda development and approval process as required by section 385.5 of the Programmatic Regulations.

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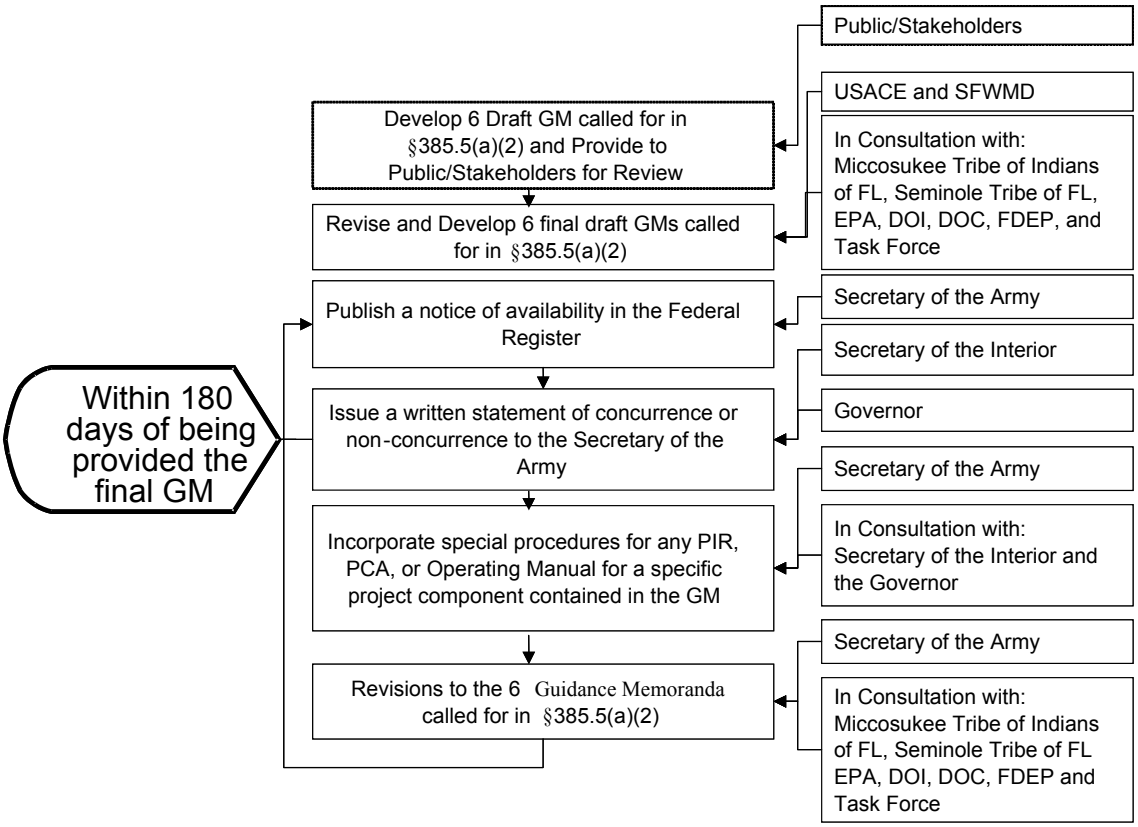

Figure B: Guidance Memoranda Approval Process

The USACE and the SFWMD began the development process by inviting all of the governmental entities that would be consulting on the documents to participate on a team responsible for developing the Guidance Memoranda. This interagency team was then further divided into sub-teams responsible for preparing initial outlines and drafting the documents. This process was designed to be open and inclusive. An initial public meeting was held at SFWMD in West Palm Beach, Florida to invite the public to participate in the process and present the strategy for developing the guidance. Information about the work of the teams (meeting summaries and initial work products) was posted on the CERP website (www.evergladesplan.org). Throughout the yearlong development process briefings were conducted for the SFWMD Water Resources Advisory Commission and the South Florida Ecosystem Restoration Task Force. In October 2004, an In-Progress Review meeting was held with USACE South Atlantic Division and USACEHQ and the Office to the Assistant Secretary of the Army for Civil Works to review the draft work products, resolve issues, and request direction from USACE management.

As part of the consultation process required by the Programmatic Regulations, a draft of this document containing the six Guidance Memoranda was made available for review by agencies and the public in November 2004. The review period for the agencies and the public remained open until January 2005. Meetings were held with stakeholder groups during this period. Consultation meetings were held with the Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida. The USACE and the SFWMD also

consulted with the South Florida Ecosystem Restoration Task Force at their meetings in December 2004 and January 2005. Comments were received from a number of agencies, stakeholder groups, and individuals. These comments were posted on the CERP web site. The USACE and SFWMD then prepared a final draft of this document containing the Guidance Memoranda.

In accordance with the Programmatic Regulations, a final draft containing the Guidance Memoranda was submitted to the Secretary of the Army for approval and concurrence by the Secretary of the Interior and the Governor. On May 6, 2005, the Department of the Army placed a Notice of Availability in the Federal Register to indicate the availability of the final draft of the Guidance Memoranda and that public comments would be accepted until June 6, 2005. Following the close of the public comment period, the comments were reviewed and considered. Due to the extensive comments that were received and the concerns that were raised by the public, the May 2005 draft was revised and this revised final draft was prepared for public comment.

ORGANIZATION OF THIS DOCUMENT

The Guidance Memoranda are fundamental to the integrated framework; provide direction for using the tools for planning, implementation, and evaluation; and provide assurances that the goals and purposes of the Plan will be achieved.

This document contains the six Guidance Memoranda and is divided into six main sections, one for each of the Guidance Memoranda. Where necessary, technical details that will assist Project Delivery Teams with using the guidance are included at the end of that section as an attachment. This document also contains appendices that include a glossary of terms, a list of acronyms, and a list of references.

REVISIONS TO THE GUIDANCE MEMORANDA

These Guidance Memoranda are based on the best information available during their development. In accordance with the Programmatic Regulations, the Secretary of the Army may, whenever the Secretary believes it is necessary, and in consultation with the Department of the Interior, the Environmental Protection Agency, the Department of Commerce, the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of Florida, the SFWMD, the Florida Department of Environmental Protection, other Federal, Tribal, State, and local agencies, and the public, revise the Guidance Memoranda. Such revisions will be developed and approved consistent with the process used to develop the Guidance Memoranda document and will require the same concurrence process.

RELATIONSHIP WITH OTHER FEDERAL OR STATE GUIDANCE

These Guidance Memoranda are intended to supplement existing Federal and State policy guidance. For example, the USACE has numerous Engineering Regulations (ERs) that set forth the requirements for planning and implementation of Federal water resources

projects and will be used in conjunction with these Guidance Memoranda to plan and implement projects.

FLEXIBILITY IN IMPLEMENTING GUIDANCE MEMORANDA

In accordance with section 385.5(b)(1) of the Programmatic Regulations, the Guidance Memoranda should be consistent with applicable law in accordance with the goals and purposes of the Plan. Should a situation arise in development of a PIR where the procedures set forth in the Guidance Memoranda are in conflict with achieving the goals and purposes of the Plan or applicable law, the Secretary of the Army, Secretary of the Interior and the Governor, or their designees, shall determine whether a special procedure should be utilized in the PIR to address the issue.

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SECTION 1: GUIDANCE MEMORANDUM #1
PROJECT IMPLEMENTATION REPORTS

1.1 PURPOSE

The Programmatic Regulations (33 CFR Part 385) for the Comprehensive Everglades Restoration Plan (CERP) require that a Guidance Memorandum be developed "that describes the major tasks that are generally needed to prepare a Project Implementation Report (PIR) and the format and content of a PIR." This Guidance Memorandum provides information about the purpose and requirements of a PIR and presents an outline for the content of a PIR.

1.2 APPLICABILITY

This Guidance Memorandum applies to all CERP projects. Section 601 of WRDA 2000 requires that a PIR be prepared for each CERP project (except for pilot projects) prior to implementation. The major tasks, PIR format, and PIR content should be similar for all PIRs. There may be differences in the level of detail included in each PIR and in the time necessary for completion based on specific situations. For example, the amount of detail necessary to complete each section of the PIR, the extent of previous formulation, the planning research activities, and/or the design detail may differ from project to project.

1.3 ROLE OF THE PROJECT DELIVERY TEAM

As defined in the Programmatic Regulations, Project Delivery Team (PDT) means the inter-agency, interdisciplinary team led by the US Army Corps of Engineers (USACE) and the non-Federal sponsor that develops the technical products necessary to implement a project. The USACE and the non-Federal sponsor, in consultation with other agencies, the tribes, and the public, are responsible for plan selection and preparation of the PIR for review and approval in accordance with applicable law.

1.4 PROJECT IMPLEMENTATION REPORTS

As required by section 601 of WRDA 2000 and the Programmatic Regulations (section 385.26), a PIR is required to be completed prior to implementing any component of CERP, with the exception of pilot projects. The PIR is intended to bridge the gap between the conceptual level of detail contained in the April 1999 "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement," and the detailed design necessary to prepare plans and specifications required to proceed to construction. The PIR should provide to decision-makers and the public a well-organized, clear and concise documentation of the process the PDT followed during the planning effort. Additionally, the PIR provides environmental compliance information, such as Endangered Species Act coordination and section 404(b)(1) of the Clean Water Act evaluations, and includes an integrated National Environmental Policy Act (NEPA) document that will fully disclose anticipated effects

associated with the implementation of the alternative plans being evaluated, including the "no action" alternative.

The PIR documents the planning process and all relevant assumptions and rationale for project decision-making. All planning analyses, including economic, environmental, water quality, flood protection, real estate, and plan formulation, conducted during the planning phase are documented and included in the PIR. The PIR includes a full description and analysis of the benefits expected for each alternative plan. The PIR also identifies and quantifies uncertainties regarding the cost or performance of alternative plans or project components as well as impacts to formulation, operations, and performance. These uncertainties are not limited to hydrologic performance of the specific structure component, but also include uncertainties about the expected ecosystem response to the component. In addition, the PIR documents design activities for the selected alternative plan such as modeling, hydraulic design, and real estate.

In accordance with section 601 of WRDA 2000, all PIRs must accomplish the following:

- Provide the level of information, documentation, and analysis in addition to that in the "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement" dated April 1, 1999, necessary for the Federal government and the State of Florida to approve CERP projects for authorization.
- Present the formulation, evaluation, selection, justification, and description of the selected alternative plan.
- Document the project cost and cost-sharing requirements of the non-Federal sponsor and the USACE, along with their responsibilities for implementation and operation of the project.
- Link the actions proposed in the subject PIR to the overall system-wide CERP Plan.
- Fulfill the assurances requirements of section 601 of WRDA 2000 and the Programmatic Regulations.

While the PIR has many aspects of a USACE feasibility study, the primary difference in these two reports is in the steps taken to complete formulation and evaluation of the project. Unlike a feasibility study, the PIR is based on components that have previously been formulated to a certain level in developing the Plan and are expected to accomplish specific Plan goals. As such, the PIR always begins with the formulation already completed in developing the Plan. In many cases, it is envisioned that the PIR effort will focus on optimization of the project described in the Plan. However, in some cases, formulation of additional alternatives will be needed. Additionally, unlike a feasibility study, the PIR must contain the additional analyses required by section 601 of WRDA 2000 and the Programmatic Regulations.

1.4.1 Programmatic Regulations Requirements

The Programmatic Regulations (section 385.26) require that each PIR:

- Be consistent with the Plan and applicable law, policy, and regulation, including the Federal government's Principles and Guidelines of the Water Resources Council, as modified by section 601(f)(2)(A) of WRDA 2000;

- Be based on the best available science;
- Comply with all applicable Federal, State, and Tribal laws;
- Contain sufficient information for proceeding to final design of the project, such as: additional plan formulation and evaluation, environmental and/or economic benefits, engineering and design, costs, environmental impacts, real estate requirements, and the preparation of the appropriate NEPA documentation;
- Contain the information necessary to determine that the activity is justified by the environmental benefits derived by the South Florida ecosystem in accordance with section 601(f)(2)(A) of WRDA 2000 and/or that the benefits of the project are commensurate with costs, and that the project is cost-effective;
- Comply, in accordance with section 601(b)(2)(A)(ii) of WRDA 2000, with applicable water quality standards and applicable water quality permitting requirements;
- Identify the appropriate quantity, timing, and distribution of water dedicated and managed for the natural system taking into account the availability of Pre-CERP Baseline water and previously reserved or allocated water as well as the estimated total quantity of water that is necessary for restoration of the natural system and the quantity of water anticipated to be made available from future projects;
- Identify the amount of water to be reserved or allocated for the natural system under State law necessary to implement the provisions of sections 601(h)(4)(A)(iv) and (vi) of WRDA 2000;
- Identify the quantity, timing, and distribution of water made available for other water-related needs of the region;
- Determine if existing legal sources of water are to be eliminated or transferred;
- Determine that implementation of the selected alternative will not reduce levels of service for flood protection that: (1) were in existence on the date of enactment of WRDA 2000; and (2) are in accordance with applicable law; and, as appropriate, consider opportunities to provide additional flood protection;
- Include an assessment of the monetary and non-monetary benefits and costs, optimization and justification, cost-effectiveness, and engineering feasibility of the project;
- Include a discussion of any significant changes in cost or scope of the project from that presented in the "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement," dated April 1, 1999;
- Include an analysis, prepared by Restoration Coordination and Verification (RECOVER) of the project's contributions towards achieving the goals and purposes of the Plan, including, as appropriate, suggestions for improving the performance of the alternative plans;
- Describe how the project contributes to the achievement of interim goals and interim targets;
- Include a Draft Project Operating Manual (POM) as an appendix; and
- Include, as appropriate, information necessary for the non-Federal sponsor to address the requirements of Chapter 373 of the Florida Statutes (F.S.), and other applicable planning and reporting requirements of Florida law.

1.4.2 Level of Detail for Project Implementation Reports

The level of detail contained in a PIR should be commensurate with the complexity and cost of the project while including the information necessary to meet the specific content requirements of section 601 of WRDA 2000 and NEPA. A specific opportunity to reduce the level of detail are the programmatic authority projects described in section 601(c) of section 601 of WRDA 2000 that allows the Secretary of the Army to approve certain projects in the Plan that meet the criteria specified in section 601(c) of WRDA 2000.

1.5 SEEKING IMPROVEMENTS TO THE COMPREHENSIVE PLAN

The Plan as approved by section 601 of WRDA 2000 was not intended as an artificial constraint on innovation in its implementation. Rather, the Programmatic Regulations direct the USACE to seek continuous improvements to the Plan, by using new information to enhance the restoration benefits of the Plan while providing for other water-related needs (section 385.9 [c]). Several approaches provide opportunities to improve on the benefits of the Plan. At the project level, projects can enhance performance of the Plan by including features of operations that maximize system-wide benefits within the range of options defined by the project's goals and objectives. Minor adjustments to the Plan may therefore be accomplished through PIRs. For the Plan as a whole, the Programmatic Regulations provide for a process to update the plan no less frequently than every five years, and to make improvements to the Plan as needed. This is accomplished through the assessment and planning activities of RECOVER (section 385.20 [e], the adaptive management program [section 385.31]), the development of Comprehensive Plan Modification Reports (CPMR) (section 385.32), and revisions to the Master Implementation Sequencing Plan (MISP) (section 385.30).

1.6 ELEVATION OF ISSUES

Issues, in general, should be resolved at the lowest level possible; however, technical issues that can't be resolved by the PDT, issues that affect completion schedules, and policy issues should be elevated by the PDT to the appropriate authority level for resolution. Issues should be coordinated through the Design Coordination Team (DCT) and the Quality Review Board (QRB), as appropriate. Finally, In-Progress Review (IPR) meetings, the Feasibility Scoping Meeting, and the Alternative Formulation Briefing provide an opportunity to resolve issues and to document their resolution.

1.7 IN-PROGRESS REVIEWS AND OTHER MEETINGS

As required by applicable USACE regulations, policies, and procedures, In-Progress Review (IPR) meetings with USACE vertical team and the Office of the Assistant Secretary of the Army for Civil Works (OASA(CW)) will be held periodically during the development of the PIR. The primary objective of IPR meetings is to discuss and resolve policy issues to ensure that the PIR progresses in an orderly manner and that preparation of the final PIR is not delayed. An IPR may be held at any time during the PIR process to provide an update of findings and progress, identify potential problems (technical/policy), and document

decisions. In addition, in accordance with USACE policy and procedures, checkpoint meetings such as the Feasibility Scoping Meeting (FSM) and the Alternative Formulation Briefing (AFB) will be held during the development of the PIR. Senior managers from the USACE vertical team, the non-Federal sponsor, and resource agencies should participate in the FSM and AFB meetings to ensure that decisions are made and that appropriate guidance is given to the PDT.

The Feasibility Scoping Meeting is held to bring the USACE vertical team, the OASA(CW), the non-Federal sponsor, and resource agencies together to reach agreement on the problems and solutions to be investigated during the PIR phase of the project and the scope of analysis required. The FSM will be held after preliminary formulation and evaluation has been completed and will include discussion of the following items:

- Existing and future without project conditions
- Problem and opportunities, planning objectives and constraints
- Identification and evaluation of management measures (preliminary screening)
- Determining whether plan formulation should focus on optimization or formulation of additional alternatives and plans to be studied further
- System-wide and project-level performance measures
- Regional modeling assumptions and constraints including scope of analyses for reviewing existing operations
- NEPA scoping results
- Regulatory coordination and regulatory issues
- Independent technical review and external peer review (if conducted)
- Policy issues or questions
- Future milestones and completion dates

The Alternative Formulation Briefing is held to bring the USACE vertical team, the OASA(CW), the non-Federal sponsor, and resource agencies together to confirm that the plan formulation and selection process, the tentatively selected plan, and the division of Federal and non-Federal responsibilities are consistent with applicable laws, statutes, Executive Orders, regulations and current policy guidance. The goal is to identify and resolve any legal or policy concerns that would otherwise delay or preclude Washington-level approval of the draft PIR, and to allow for the release the draft PIR to the public concurrent with the Headquarters policy compliance review of the draft report. The AFB will be held after identification of the tentatively selected plan and will include discussion of the following items:

- Current description of future without project condition, problems and opportunities, and planning objectives and constraints
- Formulation and evaluation of alternative plans
- The tentatively selected plan
- Status of WRDA assurances activities including Initial Operating Regime assumptions, identification of water made available, and Savings Clause analyses and potential issues
- Status of environmental compliance actions, coordination, and NEPA documentation
- Status of engineering activities

- Identification of any LERRD issues and status of real estate activities
- Status of M-CACES cost estimate
- Mitigation and monitoring requirements
- Regulatory coordination and regulatory issues
- Independent technical review and external peer review (if conducted)
- Policy issues or questions
- Status of non-Federal sponsor support
- Future milestones and completion dates

1.8 COORDINATION WITH RECOVER

RECOVER provides assistance to the PDT in accomplishing specific activities for the PIR. These activities ensure that projects are analyzed from a system-wide perspective and include planning level opportunities for adaptive management. The PDT will coordinate with RECOVER on the following activities:

- **Future Without CERP Baseline**–RECOVER maintains and periodically updates the system-wide Future Without CERP Baseline. RECOVER will provide the PDT with the latest description, assumptions, and model version of the Future Without CERP Baseline for the PIR.
- **Future With CERP Condition**–RECOVER maintains and periodically updates the system-wide Future With CERP Condition. RECOVER will provide the PDT with the latest description, assumptions, and model version of the Future With CERP Condition for the PIR.
- **Performance Measures**–RECOVER has developed a set of system-wide hydrologic and ecologic performance measures for CERP that are to be used for the evaluation of alternative plans from a system-wide perspective. In addition, PDTs will have RECOVER review project-level performance measures developed by the PDT to ensure that the project-level performance measures are consistent with the system-wide performance measures developed by RECOVER.
- **Evaluation of Alternatives**–RECOVER will evaluate alternative plans developed by the PDT from a system-wide perspective using the system-wide performance measures during the plan formulation and evaluation process. RECOVER will also review alternatives for robustness in keeping with adaptive management opportunities at the planning level. RECOVER will prepare a report to be included in the PIR, in accordance with the Programmatic Regulations.
- **Project Monitoring Plans**–RECOVER has developed a system-wide Monitoring and Assessment Plan (MAP) as part of the adaptive management program for CERP (refer to Guidance Memorandum #6 for more information on adaptive management). The MAP provides a systematic way to monitor and assess how well CERP as a whole is achieving the benefits of the Plan. RECOVER will review the project monitoring plan developed by the PDT to ensure that the monitoring plan is consistent with the MAP, does not duplicate system-wide monitoring activities, and supports application of the principles of adaptive management in implementing CERP. As appropriate, RECOVER may need to consider modifications to the MAP to incorporate additional system-level monitoring that is identified by the PDT.

1.9 PLAN SELECTION

Following the formulation and evaluation of alternative plans for the PIR (see Guidance Memorandum #2), a tentatively selected plan will be identified. The tentatively selected plan will be the plan that reasonably optimizes net benefits, monetary and non-monetary, consistent with the objectives of the Plan. The PDT should refer to Engineer Regulation (ER) 1105-2-100 (Planning Guidance Notebook) for the criteria for determining the National Ecosystem Restoration (NER) Plan. In accordance with ER 1105-2-100, an AFB will be held to obtain approval of the tentatively selected plan as the selected alternative plan for the PIR. The selected alternative plan is synonymous with the "Preferred Alternative" or the "Preferred Plan" in the NEPA regulations (40 Code of Federal Regulations [CFR] 1500-1508).

1.10 REAL ESTATE CONSIDERATIONS

1.10.1 Lands Already Acquired for the Project

The South Florida Water Management District (SFWMD) and others have been acquiring lands needed for CERP implementation in advance of completion of a PIR, based on the April 1999 "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement." Under current USACE policy, the fair market value of lands, regardless of when the lands are acquired, is used in plan formulation, in determining project costs, and for crediting local sponsors. Due to extremely high rate of appreciation of real estate values in south Florida, application of this policy for lands already acquired by the SFWMD and others would result in higher project costs. As a result, the PIR will use the actual cost of the land bought for the project instead of the estimated value of the land. Consequently, the PDT should use actual acquisition costs in plan formulation and cost estimating, subject to those costs being reasonable, allocable, and allowable. The actual amount to be credited for lands acquired by the non-Federal sponsor will be determined on a case-by-case basis by the Secretary of the Army and as authorized by Congress.

1.10.2 Cost of Real Estate As Percentage of Project Cost: Individual Projects

Current USACE policy for environmental restoration projects has a guideline that real estate costs for ecosystem restoration projects should not exceed 25 percent of total project costs in order to ensure that individual projects do not focus on achieving restoration or enhancement solely through land purchase. The Plan presented in the April 1999 "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement" as a whole meets this policy, with real estate costs of approximately $2 billion for the $8 billion plan presented in 1999. However, individual CERP projects can vary widely in land costs as a percentage of total project costs. Individual CERP projects are exempted from the USACE guideline stipulating that real estate costs for ecosystem restoration projects should not exceed 25 percent of total project costs; however, the CERP program as a whole will conform to the 25 percent of total cost policy.

1.10.3 Estates Required for CERP Projects

For all lands determined to be required for CERP projects, the interests required for implementation generally will be fee simple, based on assumptions that all or a significant portion of the rights in the land will be required for project purposes. Although fee acquisition should be the standard estate for CERP projects, lesser estates such as flowage or conservation easements should be considered, as appropriate, if the benefits of the project can still be achieved with the lesser estate. The PIR should provide the rationale for such lesser estates.

To verify the appropriateness of fee simple acquisition or less than fee acquisition, the PIR must include the following analysis and the conclusions must be reflected in the appropriate report sections. The level of detail required for the analysis will vary depending on the project feature involved:

1. Determine the Rights that Are Required to Construct and Perform Operation, Maintenance, Repair, Rehabilitation, And Replacement (OMRR&R) for the Project:

- Identify the affirmative rights on the land that are required to implement the project.
- In addition to affirmative rights that may be required, identify restrictions on use (restrictive covenants) by the fee owner that are required so as not to interfere with project purposes and outputs.
- Identify the length of time that the affirmative rights or restrictive covenants are needed for the project.
- Determine whether constructed project features may need to be modified over time due to uncertainties in science, formulation, or design (adaptive management).
- Determine whether project land, or portions thereof, will be open for public use (either active or passive uses).

2. Other Factors to be Considered:

- Compare the cost/value of specific types of easements to fee value.
- Assess potential for severance damages from fee acquisition.
- Determine whether public owners have legal capability to convey fee.
- Assess stewardship/OMRR&R considerations regarding the risk and consequences of encroachment on project land by adjacent owners; the risk and consequences of violation of easement terms by fee owners; and monitoring and enforcement capabilities of Sponsor.
- Assess negative perception by public of private benefits or gain due to landowner reservations where easements are selected.
- Assess whether State Marketable Title Act requires re-recording of easement instruments.

1.11 INFORMATION TO ADDRESS REQUIREMENTS OF FLORIDA LAW

The State of Florida has established procedures, requirements, and approvals under Chapter 373 of the Florida Statutes (F.S.) that are needed before the State or the South Florida Water Management District can participate as the non-Federal sponsor for CERP projects. The specific requirements are found in sections 373.026, 373.470, 373.1501. and 373.1502. Project Implementation Reports will include information necessary for the non-Federal sponsor to address the requirements of these sections, and other applicable planning and reporting requirements of Florida law.

1.12 CREDITING OF NON-FEDERAL SPONSOR CONSTRUCTION

Section 601(e)(5)(B) of WRDA 2000 authorizes the Secretary of the Army to provide credit to the non-Federal sponsor for construction work that the non-Federal sponsor accomplishes during the period of construction pursuant to the Project Cooperation Agreement (PCA) for the project and a determination by the Secretary that the work is integral to CERP. However, section 601(e)(5)(B) of WRDA 2000 makes no provision for a credit for any work the non-Federal sponsor constructs in advance of project authorization or the execution of a PCA. Therefore, credit for construction accomplished by the SFWMD or other non-Federal sponsor prior to project authorization or PCA execution requires Congressional authorization. Accordingly, any PIR that includes project features constructed or expected to be constructed in advance of project authorization should include a recommendation that the non-Federal sponsor be credited for construction work completed prior to PCA execution, subject to the Secretary of the Army determining that the work is necessary and integral to the recommended project, that the costs are reasonable, allowable, necessary, auditable and allocable, and that the work has been completed consistent with the USACE design and construction standards and applicable Federal and State laws.

1.13 EXTERNAL PEER REVIEW

As required by section 601 of WRDA 2000, an independent scientific review panel has been established to review the Plan's progress toward achieving the natural system restoration goals of the Plan and to report to Congress on a biennial report to Congress. The Programmatic Regulations require that draft pilot project technical data reports and draft assessment reports for the adaptive management program be externally peer reviewed. For some PIRs, external peer review may be beneficial due to technical complexity or public concerns (e.g. aquifer storage and recovery [ASR]). In those cases, external peer review will be considered during the preparation of the Project Management Plan in accordance with USACE regulations and policy and a final decision made at the Feasibility Scoping Meeting (FSM), so that external peer review can be accomplished in a timely manner and appropriate adjustment to planning activities may be made as appropriate. Regardless of whether external peer review is conducted, each PIR will undergo independent technical review, in accordance with USACE regulations and policy.

1.14 FEATURES TO IMPROVE WATER QUALITY

Section 528(e)(2) of WRDA 1996 (Public Law [P.L] 104-303) provides that the non-Federal share of the costs of features for water quality improvement will be 100 percent unless: the Secretary of the Army determines that a project feature to improve water quality is essential to Everglades restoration, then the cost share for the feature will be 50 percent, provided the feature is not part of the Everglades Construction Project. Subsequent to the passage of WRDA 1996, the USACE adopted guidance for implementing section 528(e)(2) of WRDA 1996 (Water Quality Policy for South Florida Ecosystem Restoration, 7 November 1997, CECW-AG by the Director of Civil Works). This policy states that in order to qualify for Federal cost sharing, CERP features providing water quality improvement must be designated as (1) water reclamation or (2) water reuse projects. For the purpose of this USACE policy, water reclamation is defined as diverting water formerly discharged to tide or otherwise disposed to increase the volume of water available for the Everglades ecosystem restoration and water reuse is defined as modifying the use of water from the water's present function (e.g., flood control) in a current location to a preferred function (e.g., hydrologic restoration) in a preferred location. The April 1999 "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement" describes how this policy was applied to the projects in the Plan.

For the purpose of analyzing Federal participation in water quality features of a project, the Future Without Project Condition must be developed based on the assumption that non-Federal interests will meet the requirements of the Clean Water Act and applicable State water quality standards. The PDT should identify any features necessary to improve water quality in the PIR in a manner consistent with the cost sharing provisions of section 528 of WRDA 1996 and section 601 of WRDA 2000 so that the Secretary of the Army may determine whether the project feature is essential to Everglades restoration.

1.15 PROJECT MONITORING PLAN

RECOVER has developed a system-wide MAP that is an integral part of the adaptive management program for CERP. The MAP provides a systematic way to monitor key indicators throughout the South Florida ecosystem to assess how well implemented CERP projects are performing and how well the benefits of the Plan are being achieved, including the achievement of the interim goals and interim targets. The MAP provides information for periodic assessment reports that are required by the Programmatic Regulations as part of the adaptive management program. Consequently, project monitoring plans should not duplicate system-wide monitoring activities that are being conducted for the MAP or duplicate elements of the adaptive management program. In addition, there may be other on-going monitoring programs that the PDT should consider when designing the project monitoring plan. Accordingly, the project monitoring plan for the PIR should include only activities that are necessary to:

- comply with necessary regulatory requirements (e.g. water quality standards, Endangered Species Act, etc.); and/or
- verify that the project is functioning as designed.

Project monitoring plans must comply with USACE guidance for monitoring, such as cost caps and length of program, unless a deviation has been approved by the vertical team. As appropriate, RECOVER may need to consider modifications to the MAP to incorporate additional system-level monitoring that is identified by the PDT.

1.16 COMPLIANCE WITH FISH AND WILDLIFE COORDINATION ACT (FWCA)

The US Fish and Wildlife Service (FWS) is the lead Federal stewardship agency for freshwater fish and wildlife resources and its advice, as well as that of the Florida Fish and Wildlife Conservation Commission (FWC), will be sought by the USACE for planning individual CERP projects. The FWS participates on every CERP PDT, with emphasis on technical assistance to the ecosystem sub-team and evaluation of project benefits and effects. The FWS provides the report of the Secretary of the Interior as required under section 2(b) of the Fish and Wildlife Coordination Act (FWCA). Additionally, the FWS provides "Planning Aid Letters" or PALs during PIR development, approximately every 6 months. These PALs contain information on fish and wildlife resources, issues and opportunities. PALs should be collated and included in early review submittals to the USACE vertical team. After the TSP has been identified and verified by USACE policy review, a draft Fish and Wildlife Coordination Act [draft CAR] (or section 2(b)) Report should be received from FWS.

A draft CAR should be submitted after the AFB and within 90 days of approval of the TSP. It will be included in the draft PIR and integrated environmental document as an Annex. The PIR should summarize and respond to FWS recommendations. After public and agency coordination of the draft PIR and after revisions to the main PIR text are made and coordinated with FWS, FWS will submit a final CAR, for inclusion as an Annex to the final PIR and integrated environmental document. The final PIR and integrated environmental document should include enough information in its paragraphs on fish and wildlife resources to show responsiveness to the CAR recommendations. If the PDT disagrees with the FWS recommendations, the PIR must explain why the FWS recommendations cannot be implemented.

Under the FWCA, the FWC can submit a separate CAR. This document or any letter from FWC describing its coordination with FWS in developing the FWS CAR must also be included in the FWCA Report and Endangered Species Act Annex of the PIR (Annex A). The National Marine Fisheries Service (NMFS) may also submit separate recommendations for projects involving marine habitats or species.

1.17 COMPLIANCE WITH ENDANGERED SPECIES ACT (ESA)

The USACE is required to make a determination of effect on each and every Federally listed threatened and endangered species or candidate species within the action area of each CERP project. FWS manages freshwater and terrestrial listed species and their habitats, as well as nesting marine turtles. NMFS manages marine species and sea turtles in the water. Because evaluation of Endangered Species Act (ESA) effects may be complex and require considerable time, consultation under ESA should begin as early as possible in the PIR

planning process. Information necessary for consultation will be provided in a timely manner to allow ESA consultation to be completed prior to the finalization of the NEPA documentation.

During scoping, the project environmental lead should provide a list of potentially affected species in the project action area via letter to the FWS and NMFS. As alternatives are formulated and evaluated, FWS and NMFS should assist the PDT to make a preliminary and informal "determination of effect." Options are: no effect (no further coordination is necessary), "may affect, not likely to adversely affect" and "may affect, likely to adversely affect". The formal vehicle to coordinate with FWS and NMFS is called a Biological Assessment (BA). Except in the case of "no effect" determinations, this preliminary assessment should be developed by the project environmental lead and provided to the FWS as soon as a TSP is identified. If the project may adversely affect one or more species or their designated habitat, such that a Biological Opinion (BO) from FWS/NMFS is required, formal consultation should be initiated as soon as possible, following ESA regulations, prior to compilation of the draft PIR and integrated environmental document. The BA should be coordinated with FWS/NMFS prior to publication of the draft PIR if possible, and included in the FWCA Report and Endangered Species Act Annex to the PIR (Annex A). FWS may require additional information, but once all information at the PDT's disposal is provided, FWS has up to 135 days to issue the BO. If the formal consultation is initiated at TSP and all required information is submitted as required, it should be possible for FWS to issue the BO prior to publication of the final PIR and integrated environmental document.

1.18 CONSULTATION WITH TRIBES

Section 601 of WRDA 2000 requires that the Secretary of the Army and the Secretary of the Interior fulfill their obligations under the Indian trust doctrine as well as other applicable legal obligations to the Indian tribes in south Florida. The Programmatic Regulations require that the Corps of Engineers and non-Federal sponsors consult with and seek advice from the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida throughout the implementation process for CERP projects to ensure meaningful and timely input by tribal officials. Consultation with the tribes is to be conducted on a government-to-government basis.

1.19 CONSIDERATION OF RECREATION OPPORTUNITIES

Recreation is an authorized purpose of the C&SF Project and the C&SF Project includes a number of recreation features. A Master Recreation Plan (MRP) for CERP is currently under development. The primary goal of the CERP MRP is to develop a comprehensive plan for addressing recreational needs within the C&SF Project consistent with the C&SF Project authorized purpose.

The PDT may consider recreation opportunities in the development of the PIR. The PDT should determine whether the selected alternative plan affects existing recreation features and the appropriateness of mitigating adverse effects on existing recreation facilities. Additional recreation features may be considered and any recreation features will be formulated in

conjunction with the tentatively selected plan and included with the selected plan. Recreation features will be consistent with USACE regulation and policy. USACE regulations and policy require that recreation at ecosystem restoration projects be compatible with these types of projects and enhance the visitation experience by taking advantage of natural values (see ER 1105-2-100). USACE regulations and policy also provide guidance on the types of facilities that may be included and limitations on the total cost of the recreational facilities that may be included with the recommended plan and the cost-sharing for such features. Recreation features must be analyzed and justified in accordance with USACE regulations and policy. The formulation and evaluation of the recreation features should be included in the plan formulation section of the PIR. The Recreation Appendix (Appendix H) of the PIR will include the recreation analyses conducted for the PIR.

1.20 REGIONAL MODELING ANALYSES

There are a number of system-wide baselines and with project conditions needed for the formulation and evaluation process and for other analyses described in the Guidance Memoranda. Table 1-1 describes the various baseline conditions that are needed for the PIR while Table 1-2 describes the various with-project conditions for the PIR. Table 1-3 summarizes the various analyses for the PIR.

If the baseline conditions need to be updated, information is available from Federal, Tribal, State, and local agencies (including county planning departments) and tribal governments. Federal and State environmental and health standards and regulations, including requirements outlined in Chapter 373 F.S., should be considered, as appropriate.

Any updating of the existing conditions inventory will be focused by the goals, planning objectives and constraints, and approved performance measures. The existing conditions include compiling information on significant environmental resource attributes (ecological, cultural, and aesthetic), land use, population, water demand, and operations of the Central and Southern Florida (C&SF) Project system. The information collected serves two broad purposes: 1) to adequately describe the problems and opportunities at the project and system level; and 2) to provide enough information to characterize the significant effects and differences between the alternative plans.

The PDT should consider including, as appropriate, changes to operations in other areas of the system in order to optimize the delivery of system benefits for the project being formulated. Such changes should be considered only where there are direct beneficial impacts to a project. For example, changes to the WCA regulation schedules should be considered for projects, such as the Everglades Agricultural Area Storage Project, which are designed to improve the natural hydrology in the Water Conservation Areas and Everglades National Park. Changes to operations should be considered if there would be a direct beneficial impact to the natural system. Whenever possible, the PDT should incorporate Everglades Rainfall Driven Operations (ERDO) in the project being formulated to the greatest extent possible without creating harm elsewhere. PDT recommendations regarding the scope of possible operational changes will be presented at the FSM.

EXHIBIT 9

Information concerning the modeling conducted for a PIR should be included in the Engineering Appendix (Appendix A) to the PIR. The same model runs that are used to support plan formulation and evaluation will also be used for Savings Clause analyses (Guidance Memorandum #3), identification of water (Guidance Memorandum #4), and development of the Project Operating Manual (Guidance Memorandum #5). Consequently, the PDT needs to fully document all of the assumptions of each model run.

EXHIBIT 9

Table 1-1: Baseline Conditions for PIRs

Condition	*Modeling Assumptions*	*Applications*
Pre-CERP Baseline	• Conditions on date of enactment of WRDA 2000	• Savings Clause analyses (see GM #3)
Future Without CERP Baseline	• 2050[1] conditions and demands • 2050[1] non-CERP activities • No CERP projects	• "Without condition" for formulation and evaluation of alternatives (see GM #2)
Existing Conditions Baseline[2]	• Actual conditions at the time that the TSP is identified • Estimated permitted demands at the time that the TSP is identified • Existing operations of the C&SF Project system at the time that the TSP is identified • Non-CERP activities with approved Operating Manuals at the time that the TSP is identified • Authorized CERP projects[3] with approved Operating Manuals at the time that the tentatively selected plan is identified	• Baseline for NEPA analysis (40 CFR1500-1508) • Determining baseline water availability (see GM #2) • Identify State 373.1501 requirements • Savings Clause analyses (See GM #3)
Next-Added Increment (NAI) Baseline[2]	• 2050[1] conditions and demands • 2050[1] non-CERP activities • Authorized CERP projects[3] with approved Operating Manuals at the time that the tentatively selected plan is identified	• "Without condition" for NAI analysis (see GM #2) • "No action" alternative under NEPA • "Without condition" for identification of water made available (see GM #4)

1. Or last year of the period of analysis, whichever is greater (refer to GM #2 for a discussion of the period of analysis)
2. This model condition must be operationally "optimized"
3. Approved either through specific authorization of Congress or approved by the Secretary of the Army under the programmatic authority of section 601(c) of WRDA 2000

EXHIBIT 9

Table 1-2: With Project Conditions for PIRs

Condition	*Modeling Assumptions*	*Applications*
Future With CERP Condition	• 2050[1] conditions and demands • 2050[1] non-CERP activities • All of CERP (the Plan)	• Expected benefits of the Plan • Water expected to be made available by the Plan (see GM #4)
Future With Project Condition[2]	• 2050[1] conditions and demands • 2050[1] non-CERP activities • Each alternative plan being evaluated • Rest of CERP (the Plan)	• Formulation and evaluation of alternative plans • Savings Clause screening of Alternative Plans for existing legal sources of water and levels of service for flood protection
Next-Added Increment (NAI) Condition[2]	• 2050[1] conditions and demands • 2050[1] non-CERP activities • Authorized CERP projects[3] with approved Operating Manuals at the time that the tentatively selected plan is identified • Tentatively selected plan	• "With condition" for NAI analysis (see GM #2) • "With condition" for identification of water (see GM #4)
Initial Operating Regime[5]	• Estimated conditions at the time that the TSP is identified • 20xx[4] demands or estimated permitted demands[6] at the time that the TSP is identified, whichever is greater. Calculation of the 20xx demands and the estimated permitted demands will be made by summing the Lower East Coast Service Area demands as a whole and summing the Lake Okeechobee Service Area demands as a whole. • Existing operations of the C&SF Project system at the time that the TSP is identified • Non-CERP activities with approved Operating Manuals at the time that the TSP is identified • Authorized CERP projects[3] with approved Operating Manuals at the time that the tentatively selected plan is identified • Tentatively Selected Plan	• Identify State 373.1501 requirements • "With condition" for Savings Clause analysis (see GM #3) • "With condition" for identification of water and water to be reserved or allocated for the natural system (see GM #4) • Project Operating Manual (see GM #5)

1. Or last year of period of analysis, whichever is greater (refer to GM #2 for a discussion of the period of analysis).
2. This model condition must be operationally "optimized"
3. Approved either through specific authorization of Congress or approved by the Secretary of the Army under the programmatic authority of section 601(c) of WRDA 2000
4. Where 20xx: For PIRs completed up to January 2010 will utilize 2010 demand projections; beginning January 2010 through December 2015 will utilize 2015 demand projections; etc. Demands will be estimated via straight-line interpolation of demands for end-point years (i.e., 1995 and 2050) used

during formulation of the Final C&SF Comprehensive Review Study, April 1999; or updated demand projections incorporated into an approved Comprehensive Plan Modification Report. These projections may be modified as a result of application of the SFWMD Basis of Review requirements.

5. The Project Development Team should develop the Initial Operating Regime using the operational intent and proportionality of benefits of the Next-Added Increment. The Initial Operating Regime should maximize the achievement of benefits to the extent possible given existing infrastructure and constraints.
6. Updates to these demands will occur as a result of application of the SFWMD Basis of Review requirements.

Table1-3: Summary of Analyses for PIRs

Analysis	*"Without Condition"*	*"With Condition"*
Base Conditions Analysis		
Determining if Pre-CERP Baseline Water is Still Available	Pre-CERP Baseline	Existing Conditions Baseline
Formulation and Evaluation		
Formulation and Evaluation of Alternative Plans	Future Without CERP Baseline	Future Without CERP Baseline + alternative plan + rest of the Plan
Next-Added Increment Analysis	NAI Baseline	NAI Condition
Savings Clause Analyses		
Intervening Non-CERP Activities	Existing Conditions Baseline	Initial Operating Regime
No Intervening Non-CERP Activities	Pre-CERP Baseline	Initial Operating Regime
Project Operating Manual		
Project Operating Manual	N/A	Initial Operating Regime
Identification of Water Made Available		
Identification of Water Made Available	1. Existing Conditions Baseline 2. NAI Baseline	1. Initial Operating Regime 2. NAI Condition
Identification of Water to be Reserved or Allocated		
Identification of Water to be Reserved or Allocated	Existing Conditions Baseline	Initial Operating Regime

1.21 DETERMINING HYDROLOGIC CONNECTIONS AND SPATIAL EXTENT OF PROJECT EFFECTS

Attachment 1-A provides a guide for the PDT to use in: determining whether a project is hydrologically separate from the regional water management system; selecting the model used to perform evaluations; and identifying the spatial extent of the effects of a project.

1.22 UPDATING THE COMPREHENSIVE PLAN

As necessary, reformulation of the Plan will be accomplished through preparation of a Comprehensive Plan Modification Report (CPMR). This is a system-wide reevaluation that considers program and project-level considerations and should not be confused with formulation of individual CERP projects. Project level formulation activities during the PIRs are intended to address optimization of the project's contribution to the system-wide goals and objectives in general, and project goals and objectives more specifically. While a PIR may result in project modifications that impact or modify system output, these modifications are not intended to address system-wide issues within the comprehensive plan.

1.23 MAJOR PIR ACTIVITIES

Preparation of the PIR involves three major groups of activities: develop base conditions and models; plan formulation and evaluation; and design of the selected plan. In general, developing base conditions and models is similar to Steps 1 through 3 in the USACE planning process; plan formulation and evaluation is similar to Steps 3 through 6 and the final group provides more detailed information on the selected plan including the analyses required by section 601 of WRDA 2000, the Programmatic Regulations, and the other requirements that are set forth in these Guidance Memoranda. Attachment 1-B provides more detailed information on all these activities.

1.23.1 Develop Base Conditions and Models

1. Review the information provided in the Plan regarding the project's purpose, cost, benefits, and contributions to achieving the goals and purposes of the Plan.
2. Conduct NEPA scoping to identify problems and opportunities, constraints, and other issues related to the project. Scoping should explore the problems and opportunities (at the local, regional, and system level), as well as describing any agency or public workshops that were held to gather additional information on the problems and opportunities. RECOVER should be consulted as part of the scoping process for assistance in identifying problems and opportunities. Scoping will reveal any new issues or opportunities or lead to gathering new data and information.
3. Revise the above information if needed, by developing additional problems and opportunities, project goals, and planning objectives and constraints. Confirm that all additional goals, objectives, opportunities and constraints contribute to achieving the Plan's goals and purposes.

4. Obtain the Pre-CERP Baseline, the Future Without CERP Baseline, and the Future with CERP Condition which are provided by RECOVER. Also, develop the Existing Conditions Baseline.
5. Determine the availability of Pre-CERP Baseline water and identify existing water reservations or allocations.
6. Update the cost of the project described in the Plan based on updated information.
7. Develop project performance measures and targets, including the tools to measure differences between the performance of alternative plans. The conceptual ecological models developed for the South Florida ecosystem should guide the selection of the ecological performance measures; other ecological and hydrologic performance measures should be applied as needed. RECOVER should be consulted for assistance in developing project level performance measures and selection and development of tools to measure differences in alternative plan performances.
8. Conduct an initial screening effort to determine if the project as described in the Plan will still achieve the benefits as described in the Plan in a cost-effective manner. Rough order of magnitude costs should be presented for the alternatives. RECOVER should be consulted in evaluating the project's contributions towards meeting the goals and purposes of CERP.
9. Hold a FSM to determine whether plan formulation should focus on optimization and detailed design of the project described in the Plan, or if additional alternative plans should be formulated. The extent of additional plan formulation will be based on whether the project will still achieve the benefits of the project as described in the Plan in a cost-effective manner.

1.23.2 Plan Formulation and Evaluation

1. If it is determined that the PIR effort should continue with optimization and detailed design of the project described in the Plan, then the PDT should develop alternative design configurations to optimize the project described in the Plan. Optimization is conducted to enhance design, size and/or configuration of the project components and to achieve outputs required for the system in a cost-effective manner, and includes the following activities:
   a. Develop alternative design configurations.
   b. Evaluate and compare alternatives using approved hydrologic and ecologic performance measures and screen for potential Savings Clause concerns using appropriate indicators.
   c. Determine which of the alternative plans are considered cost-effective, based on a comparison of the selected hydrologic and ecologic outputs and their costs.
   d. Retain only cost-effective alternatives for further analysis by eliminating alternative plans that are not cost-effective.
   e. Conduct NEPA evaluation of the no-action alternative (i.e. NAI Baseline) and all alternative plans developed. Conduct other environmental analyses including the Endangered Species Act and cultural resources assessments.
2. If additional alternative plans need to be developed, formulate additional alternatives by developing management measures at different scales or sites to meet the project's goals and purposes and includes the following activities:

a. Develop the plan formulation strategy
b. Formulate alternative plans
c. Evaluate and compare alternatives using approved hydrologic and ecologic performance measures and screen for potential Savings Clause concerns using appropriate indicators.
d. Determine which of the alternative plans are considered cost-effective, based on a comparison of the selected hydrologic and ecologic outputs and alternative plans costs.
e. Retain only cost-effective plans for further analysis to demonstrate the efficiency (cost per unit of output) for successively larger (greater output) cost-effective plans. Based on this analysis, describe why some alternative plans were eliminated and identify the alternative plans retained.
f. Conduct NEPA evaluation of the no-action alternative (i.e. NAI Baseline) and all alternative plans developed. Conduct other environmental analyses including the Endangered Species Act and cultural resources assessments.

3. Identify a tentatively selected plan based on the evaluation and comparison analyses that identifies the plan with the greatest net system-wide benefits produced by a project (as measured by appropriate outputs and consistent with ER-1105-2-100 plan selection criteria).
4. Conduct NAI analyses on the tentatively selected plan to determine the level of output or benefits that can be achieved in absence of unauthorized or unapproved CERP projects (Guidance Memorandum #2).
5. As appropriate, incorporate justified recreation components into the tentatively selected plan.
6. Hold an AFB to obtain approval of the tentatively selected plan as the selected alternative plan and permission to simultaneously release the draft PIR to the public, USACE vertical team and OASA(CW)) for review.

1.23.3 Design Selected Plan

1. Develop the Initial Operating Regime (IOR).
2. Complete design analyses on the selected alternative plan including:
   a. Engineering design
   b. Real estate information, including takings analysis
   c. Micro-Computer Aided Cost Engineering System (M-CACES) cost estimate
3. Complete additional analyses on the selected alternative plan to comply with Federal and State laws concerning CERP projects. These include:
   a. Determining if there has been an elimination or transfer of existing legal sources of water (Guidance Memorandum #3).
   b. Confirming that the level of service for flood protection in existence on the date of enactment of WRDA 2000 and in accordance with applicable law will not be reduced by implementation of the project (Guidance Memorandum #3).
   c. Identifying the total water necessary to achieve the benefits of the project and the water made available by the project, and the amount of water to be reserved or allocated for the natural system (Guidance Memorandum #4).

   d. Describing the project's contribution to the achievement of the interim goals and interim targets.
   e. Determining compliance with applicable water quality standards and permitting requirements.
   f. Providing, as appropriate, information necessary for the non-Federal sponsor to address the requirements of Chapter 373 of the Florida Statutes (F.S.), and other applicable planning and reporting requirements of Florida law.
4. Compare the selected alternative plan's costs to the component's cost described in the Plan (or section 902 of WRDA 1986 cost limit for the initially authorized projects in section 601 of WRDA 2000) to determine if there are any issues related to increases in cost, excluding inflation. If a cost issue exists, an IPR meeting will be held to resolve the issue.
5. Develop the Draft POM (Guidance Memorandum #5).
6. Develop the project monitoring plan.
7. Develop an implementation schedule for the project. Compare the project's schedule and costs to the MISP. Based on this comparison, adjustments to the project's scheduling or the MISP may be necessary.
8. Determine the allocation of costs between the USACE and the non-Federal sponsor.

After these three major groups of activities are completed, the draft PIR will be prepared for coordination with agencies and the public. After the draft PIR has been coordinated with agencies and the public, the final PIR will be prepared for review and approval in accordance with USACE regulations and policy.

1.23.4 Relationship Among PIR Tasks

Figure 1-3 shows the relationships and sequencing of major tasks which are described in these Guidance Memoranda. Plan formulation and evaluation activities to identify the tentatively selected plan (TSP) are conducted as described in Guidance Memorandum #2. After the TSP is identified, the Initial Operating Regime (IOR) can be developed and modeled, as described in this Guidance Memorandum. After the IOR modeling is completed, the Savings Clause analyses (see Guidance Memorandum #3) are conducted. That is followed by the identification of water made available and the identification of water to be reserved or allocated for the natural system, as described in Guidance Memorandum #4, as well as the development of the Draft Project Operating Manual, as described in Guidance Memorandum #5.

EXHIBIT 9

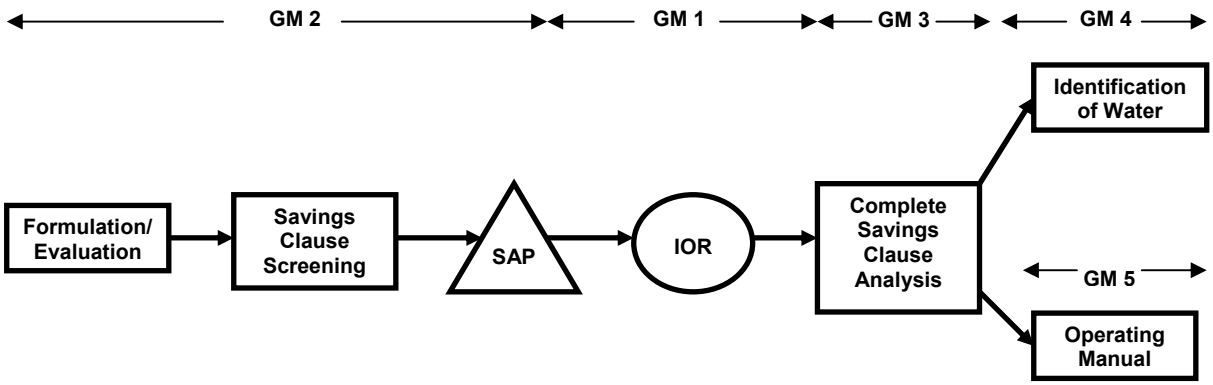

Figure 1-3: Relationship among PIR Tasks

1.24 FORMAT AND CONTENT OF PIRS

The activities conducted for the PIR and the results of those activities will be documented in the PIR. Attachment 1-C provides an outline for the content of the PIR. The PIR must contain the detail necessary to satisfy Federal statutory requirements (e.g., NEPA), USACE regulations (e.g., ER 1105-2-100 Planning Guidance Notebook), CERP specific guidance (e.g., Programmatic Regulations), and State Laws (e.g. F.S. section 373.1501). The information pertaining to these requirements should be included in the body of the main report or within the appropriate Annex. The Annexes of the PIR are considered an integral part of the main report and should always accompany the main report as the Annexes contain detailed information necessary to satisfy these requirements. The Appendices include detailed technical information that may not be required by all readers and is not considered part of the main report.

The format for a PIR is standard for all CERP projects. The format is designed to facilitate the documentation of information, processes and decisions that occur in the planning process, and includes guidelines that are specific to formulating and evaluating CERP projects (e.g., performance measures, system benefits, and NAI). Since the PIR is an integrated document, the format also provides technical information necessary to fulfill NEPA requirements.

The PIR should be prepared using the fonts, margins and spacing designated in the approved CERP Master Program Management Plan (MPMP) and USACE standards. If the MPMP is revised during development of the PIR, the MPMP standards in place at the initiation of the planning process should be used. The use of pictures, maps and graphics is encouraged throughout the document to provide visual depictions of pertinent information. In addition, to facilitate clear and concise explanation of data, information should be displayed in tabular format whenever possible.

EXHIBIT 9

ATTACHMENT 1-A
DETERMINING HYDROLOGIC CONNECTIONS AND SPATIAL EXTENT OF PROJECT EFFECTS

This attachment provides a guide for Project Delivery Teams to use in: determining whether a project is hydrologically separate from the regional water management system and; selecting the appropriate models to perform evaluations; and identifying the spatial extent of the effects of a project.

DETERMINE WHETHER THE PROJECT IS HYDROLOGICALLY SEPARATE

During plan formulation and evaluation, the PDT should determine whether the project is hydrologically connected to, or separate from, the regional water management system. Most of the components that comprise the Plan are hydrologically connected. For these projects, a hydrologic connection (i.e., surface water flow via canal discharges, sheet flow, and groundwater flow) exists between the components through the regional water management system (i.e., the C&SF Project and associated secondary and tertiary water conveyance structures). Hydrologic connections between projects and the regional water management system may also be created by seepage or groundwater flow. The synergistic effect of the components due to hydrologic connectedness was recognized during the initial formulation of Plan alternatives.

However, some components of the Plan are hydrologically separate from the regional water management system. Projects may be hydrologically separate for several reasons, including:

- The project does not have hydrologic connections to the regional water management system;
- The project, though hydrologically connected, is too small in scope to meaningfully affect the quantity of water available in the regional water management system, with the result that project effects can not be discerned with the regional modeling tools; and,
- The project does not involve substantial hydrologic alterations.

While a project may be hydrologically separate from the regional water management system, the project may have effects outside of the intended footprint or basin. Guidance for determining the spatial extent of project effects is found later in this attachment. That section also provides guidance to the PDT if the discovery is made that the project results in a change to the boundary condition in the sub-regional model. When this occurs, the project can no longer be considered to be hydrologically separate. If the PDT determines that a project is hydrologically separate, this analysis should be presented at the FSM.

SELECT THE MODEL TO USE TO PERFORM THE EVALUATIONS

The type of model used is dependent upon the expected effects of the project. For those projects that will result in system-wide effects and benefits, a regional-scale computer model, such as the South Florida Water Management Model (SFWMM), should be used. However, if the project area is not covered by a regional-scale model, or if a project component is too small to be modeled by a regional scale model or is hydrologically separate from the regional water management system, sub-regional models can be used.

Identification of potential regional system effects from projects that fall outside the domain of the current system-wide hydrologic model or from projects that use only local project-scale models is important. If the project-scale modeling predicts changes to hydrology components used as boundary conditions in the system-wide model (inflows, outflow or stages), the system-wide model should be applied with the updated boundary conditions to determine the upstream or downstream effects on the water management system and natural areas. Examples include: a project in the Kissimmee Chain of Lakes area outside the boundary of the system-wide hydrologic model that increases or decreases inflows to Lake Okeechobee, or a project in the Caloosahatchee Basin that reduces the amount of outflow that can be sent from Lake Okeechobee to the Caloosahatchee River. These changes in Lake Okeechobee flows should be analyzed with the system-wide model to determine potential system-wide effects. In the event that boundary conditions in the system-wide model are modified as a result of project-scale modeling, RECOVER should be consulted to determine the potential effects to other projects.

Typically, hydrologic data (e.g., rainfall, surface and groundwater elevations, and flow) are used in a numerical model to simulate the project's hydrologic, hydraulic, environmental and economic effects. Other statistical tools may also be used to evaluate project effects.

The PDT should use the same model, including model version, to evaluate alternative plans, calculate benefits, quantify water, and develop operating criteria that are used in the preparation of Operating Manuals. If multiple models are required such as a site-specific model and regional model, the PDT should use consistent boundary conditions and assumptions. Selected models should also meet the following criteria:

- Simulate major components of the hydrologic cycle in South Florida including rainfall, evapotranspiration, infiltration, overland and ground water flow and their interactions, canal flow, canal-ground water seepage, levee seepage, and ground water pumping.
- Incorporate current or proposed water management operational procedures, regulation schedules, and control structures, consumptive use demands, land use, and current or proposed operational rules, consistent with the existing conditions baseline.
- Simulate effects of implementing water shortage policies on urban and agricultural water uses, and natural systems.
- Utilize a spatial resolution that is appropriate for the size of the project and expected effects.

- Reflect potential hydrologic and ecologic effects resulting from the project consistent with the approved performance measures for the project.
- Utilize time steps that permit the evaluation of changes in quantity, timing, and distribution which is particularly important for analyses required in Guidance Memorandum #3 and Guidance Memorandum #4.
- Affirm the State and Federal assurance requirements pertaining to existing legal sources of water, level of service for flood protection, and existing legal users.
- Incorporate boundary conditions from the regional scale model.
- The time series of data (beginning with the date of the first data point through the date of the last data point) that comprises the full range of known conditions constitutes the period-of-record for undertaking this analysis. The longest time period of hydrologic or meteorological data that is available is recommended for this analysis. If a shorter period is used, the full range of hydrologic conditions should be represented including inter- and intra- annual variations due to droughts, periods of high and low water levels and natural fluctuations. An appropriate period-of-record will include natural fluctuations in rainfall and water levels, including droughts and periods of high water levels. Uncertainty about the adequacy of the data for compiling an appropriate climatic period-of-record should be reflected in project documents. All simulations considered should use the same period of climatic record.
- Where appropriate, a spatially explicit hydrologic simulation model should be utilized in this analysis. The grid-scale of these models should be capable of resolving the spatial variability of landscape features in the project area.

IDENTIFY AND DESCRIBE THE SPATIAL EXTENT OF THE HYDROLOGIC EFFECTS OF THE PROJECT

The PDT is responsible for identifying the spatial extent of project effects for quantifying benefits of the project, performing Savings Clause evaluations, and quantifying water made available by the project within that geographical boundary. This should be done for all projects regardless of whether the project is hydrologically separate from the regional water management system. Even though hydrologically separate projects may not affect the regional system, these projects may have effects outside the intended footprint or basin in which these projects reside.

Projects may result in changes in water availability for the natural system and other water-related needs in two general ways:

1. <u>System-wide effects</u>

   Hydrologic effects that occur outside of the watershed or basin in which the project is located through the storage, management, treatment, and delivery of water via the regional water management system.

2. <u>Project-level effects</u>

   Hydrologic effects that occur within the watershed or basin in which the project is located (e.g., natural areas, wetlands, salinity control) or within the features of project components (e.g., reservoirs, storm water treatment areas, wellfield recharge distribution canal).

Determining the spatial extent of project effects is done by first identifying the basins or watershed where the project is located and where other structural or operational changes occur. These are the basins in which the PDT should look for project-level effects. Next, the boundary conditions for those basins or watersheds are compared against the without project simulation. If the boundary conditions did not change, the PDT can assume that areas or regions outside of the basin in which the project resides are not affected and do not need to be analyzed for plan formulation purposes. However, if changes in the boundary conditions are observed, the PDT must then progressively evaluate the boundary conditions for the adjacent basins or watersheds until the team reaches a boundary where the conditions remain constant. Modeling results should be evaluated to look for project effects in each basin or watershed in which the PDT identified boundary condition changes. These are potential areas in which the CERP project may produce effects.

If the PDT uses a sub-regional model, the same boundary condition method should be employed with one additional step. If the boundary conditions change, these changes should be fed back into the regional model to determine how far the changes propagate throughout the regional system. This is also an indication that the project is hydrologically connected to the regional water management system and has system-wide effects.

EXHIBIT 9

ATTACHMENT 1-B
OVERVIEW OF MAJOR PIR ACTIVITIES

This attachment provides more detailed information about the major activities that are to be conducted and documentation that is needed to complete a PIR. The three major categories of activities are: develop base conditions and models; plan formulation and evaluation; and design selected plan. These activities will be documented within the PIR as outlined in Attachment 1-C.

I. Develop Base Conditions and Models

Each component or project of the Plan has previously been formulated to a certain level and the component or project has been developed to accomplish specific CERP goals. As such, formulation in the PIR always begins with the formulation already completed in developing the Plan. The PDT should extract the information from the Plan documents and continue the formulation and evaluation necessary to complete the PIR. In most cases, it is envisioned that this process will entail optimization of the component detailed in the Plan. However, in some cases, additional formulation may be needed.

A. Project Purpose and Need

Review the purpose, background, and contextual setting of the project as described in the Plan, and describe how this individual project is linked to the system by providing system-wide, regional and project area and benefit descriptions. This information will be found in the Plan or other previous studies and will be compiled, summarized and updated, if necessary.

1. Purpose and Background

Project Purpose-Determine the CERP goals and purposes that apply to this project and the project-specific objectives as described in the "Final Integrated Feasibility Report and Programmatic Environment Impact Statement" dated April 1, 1999, or subsequent Plan documents, incorporating changes in the project's scope since the completion of the Plan.

CERP Partnership and Cooperating Agencies-Document the USACE and non-Federal sponsor partnership for this project. Document the roles of cooperating agencies and the roles of any other agency or stakeholder involvement.

Relationship to Other USACE/Non-Federal Sponsor Efforts, Studies, Documents, and Projects-Document other ongoing and completed efforts or research that pertains to this project or the CERP component.

2. Project Need and Setting

Pre-CERP Conditions-Document the conditions in the South Florida ecosystem that existed prior to implementation of CERP. This information should be available in the Plan documents.

Project Area-Determine the location and boundaries of the project area, and the resource concerns in the project area.

Prior Studies-Document prior studies and projects in the project area, both CERP and non-CERP.

B. Identify Problems and Opportunities, Objectives and Constraints, and Evaluation Criteria

Identify the issues and concerns of the area and prepare documentation of the coordination and involvement that was included to accomplish the scoping of problems and opportunities; identify the objectives and constraints, and performance measures for the project.

Note: Problems and opportunities, as well as planning objectives and constraints, should already be defined in the Plan. PIRs should only address those objectives and constraints, plus additional issues that emerge from scoping with public, agency, and stakeholder involvement. Use of a table to depict this information is advised. Document the development of additional objectives beyond those described in the Plan.

1. Identification of Problems and Opportunities

Existing Information from the Plan-Document the problems and opportunities as described in the Plan documents.

Scoping Problems and Opportunities-Conduct a scoping process to explore problems and opportunities (at the local, regional, and system level). Document the range of problems and opportunities that were explored for the PIR including an explanation of why problems were either eliminated or retained for consideration in this PIR.

Problem and Opportunity Statements-Develop problem and opportunity statements for the PIR based on the review of information from the Plan and on information received during the scoping of problems and opportunities.

2. Identification of Planning Goals, Objectives, and Constraints

Identify the Project Goals- Determine the project goal(s) to be achieved, based on the Plan's goals and problem and opportunity statements.

Planning Objectives and Constraints-Develop the planning objectives and constraints for the project. Determine how the objectives and constraints link to resolution of a problem or achievement of an opportunity. Show how objectives lead to achievement of project goals. Show how the project planning objectives and constraints relate to approved system-wide performance measures. Explain why issues were either eliminated or retained for consideration in the PIR.

3. Development of Project Evaluation Criteria

Description of Evaluation Criteria Selection Process-Develop project performance measures, including the tools to be used to calculate the results. Differentiate between quantitative, measurable performance measures and targets, and qualitative evaluation criteria.

Relationship to Planning Objectives and Constraints-Develop a display (e.g., table or chart) that shows the relationship between each performance measure and evaluation criterion, and the planning objectives and constraints for this project. Graphics should be utilized to show progress towards meeting more natural hydrology and flow in the natural system.

Relationship to CERP System-Wide Performance Measures-Develop a display (e.g., table) that shows the relationship between system-wide performance measures developed by RECOVER and any project performance measures developed by the PDT.

4. Choosing Evaluation Methods and Models

Investigation of Evaluation Methods and Models-Research and investigate viable methods and models to evaluate alternative plan benefits.

Overview of Selected Methods/Models-Determine the evaluation methodology to be selected for the PIR, and reasons for selecting that methodology. Determine the benefits that will be measured for this PIR including how the benefits relate back to the planning objectives, and problems and opportunities.

C. Existing and Future Without Conditions of the Area

The Project Delivery Team will develop or document: 1) the Existing Conditions Baseline; 2) forecasted conditions in the future if CERP is not implemented at all (Future Without CERP Baseline); 3) the forecasted conditions in the future if all of the Plan is implemented; and 4) the forecasted conditions in the future, if no further CERP projects are approved (NAI Baseline).

Existing Conditions Baseline-Determine the general existing conditions of the project area, region, and system. Include resource usage and demands. Describe the CERP projects that have been authorized with approved Operating Manuals and the non-CERP activities with approved operating plans. Effective use of maps, tables, graphs, charts, and pictures is important.

Future Without CERP Baseline-Document the system-wide conditions at the end of the period of analysis without implementation of any of the projects of the Plan. This information is available from RECOVER.

Future With CERP Condition-Document the system-wide conditions at the end of the period of analysis assuming implementation of all of the projects of the Plan. This information is available from RECOVER.

Next-Added Increment Baseline-Determine the local, regional, and system-wide conditions at the end of the period of analysis (and several points along the way), assuming CERP projects already approved are in place, but no other CERP projects are implemented. Forecast and summarize resources. This summary should depict the general state of resource conditions, usage, and demand. Use maps and graphics to help whenever possible.

Availability of Baseline Water-Determine the availability of Pre-CERP Baseline water for the natural system.

Consideration of Existing Water Reservations or Allocations–Determine if there are any existing reservations or allocations of water made under State law either for CERP or for non-CERP activities that need to be considered.

Comparison of Significant Resources in the Existing and Future Without Conditions-Determine and quantify, as appropriate, the current and future resources without the proposed project in place. Show how the existing state of significant resources compares to the state of significant resources at several points throughout and at the end of the period of analysis. A table is recommended to compare resources (which may include hydrology; water management; physical landscape; water resources; water supply; flooding; navigation; water quality; natural environmental; threatened and endangered species; essential fish habitat (EFH); socio-economic setting; land uses; cultural/historical resources; climate/weather; air quality; noise; recreation; aesthetics; hazardous, toxic and radioactive wastes; and transportation and other infrastructure).

II. PLAN FORMULATION AND EVALUATION

A. Plan Formulation

Determine whether plan formulation should focus on continuing with optimization and detailed design of the alternative described in the Plan or if additional plans should be formulated. Formulation and evaluation procedures are discussed in Guidance Memorandum #2.

1. Optimizing the Alternative Defined in the Plan

If the project described in the Plan will still achieve the benefits of the project as described in the Plan in a cost-effective manner, then the PDT will develop design alternatives to optimize the project described in the Plan. Such optimization alternatives might include incremental changes in component size, configuration, or specific location.

2. Formulation of Additional Plans

When additional alternatives need to be formulated to meet the planning objectives, develop alternatives for achieving the planning objectives and performance measure targets that were established earlier in the planning process. Identify the screening criteria used in order to eliminate management measures and alternative plans at this point in the planning process. Describe how the screening criteria were applied and clearly describe why those screening criteria were appropriate to use at this point in the process. A flowchart may be useful.

Alternative Plan Described in Comprehensive Plan-Document how well the project that was included in the Plan does (or does not) achieve the benefits of the project as described in the Plan based on current conditions. Document any new or changed circumstances; conditions or other considerations that may affect project performance. For example: project conditions and objectives may have changed since the Plan was approved; new scientific research may have provided new information regarding project goals, objectives or feasibility; or adaptive management activities may indicate new or changed needs.

Develop Plan Formulation Strategy-Develop a strategy for formulating alternative plans. The PDT should consider questions such as: how will measures be developed and how will measures be used to develop alternative plans in developing the strategy.

Development of Management Measures-Develop operational, structural, and non-structural measures to meet the planning objectives and constraints and CERP goals and purposes. Describe the information used, and who was involved (e.g. stakeholder/team involvement, public input).

Development of Screening Criteria-Develop screening criteria based on approved performance measures and project objectives and constraints, and include what information was used, how values were set for each screening criteria and who was involved (e.g., stakeholder/team involvement, public input). Document how system-wide performance measure targets were considered in screening criteria development. Document the application of the screening criteria and provide lists of management measures or features eliminated and management measures or features retained for further consideration.

Organizing Measures into Alternative Plans-Document the process of organizing, linking, and combining management measures to create alternative plans. List the alternative plans formulated and show how each alternative plan performs with respect to the screening criteria applied at this point. Identify the screening criteria applied and explain how the PDT used the criteria to determine which alternatives would be eliminated and which would be retained for further consideration. A table format may be useful. Be sure to document the relationship of each alternative plan to the planning objectives and constraints, and consideration of CERP system-wide performance measure targets.

Screening of Alternative Plans-Screen alternative plans using the developed screening criteria. Determine the alternative plans to be eliminated from further evaluation and the alternative plans to be retained for further evaluation. Document the reasoning for elimination using screening criteria results.

B. Evaluation of Alternative Plans

Evaluate the changes each alternative plan would make when compared to the Future Without CERP Baseline. It is this difference between the Future Without CERP Baseline and the future with each alternative plan that defines the outputs or benefits of the alternative plan. Refer to Guidance Memorandum #2 for specific information about the evaluation process.

Determine how the changes in future with conditions are related to project objectives. This is not an absolute comparison. Each alternative plan will likely have differing levels of success for each objective and performance measure. It is important to reflect those differences, since that will aid the selection of the final alternative plan from the group of likely candidates.

Document the process by which alternative plans were evaluated, making sure to discuss any and all iterations. A table may be an effective way to display this information.

Overview of Future Conditions with Each Alternative Plan-Determine the general conditions of the project area, region, and system in the future with each alternative plan in place. This should depict the overall state of the resource conditions, usage and demands that are predicted and likely for the period of analysis for this project. Use of maps and pictures is encouraged to assist in describing the future with conditions for each alternative.

Comparison of Significant Resources (Alternative Plans vs. Future-Without CERP Baseline)-Quantify, as appropriate, the different future with and without conditions for significant resources. Furthermore, show how the state of significant resources in each alternative plan compares to the state of significant resources in the future without condition. Table format is recommended for reflecting this comparison across resources (e.g., hydrology; water management; physical landscape; water resources; water supply;

flooding; navigation; water quality; natural environmental; threatened and endangered species; EFH; socio-economic setting; land uses; cultural/historical resources; climate/weather; air quality; noise; recreation; aesthetics; hazardous; toxic and radioactive wastes; transportation and other infrastructure; cumulative impacts; unavoidable adverse effects; relationship between short term uses and long term productivity; irreversible or irretrievable commitments of resources; incomplete or unavailable information; and benefits associated with alternative plans). RECOVER will prepare an evaluation of the alternative's contribution towards achieving the system-wide goals and purposes of CERP, including, as appropriate, suggestions for improving the performance of he selected alternative plan. The RECOVER evaluation will be included in the PIR as required by the Programmatic Regulations.

Savings Clause Considerations-While the required Savings Clause analysis will be conducted on the selected alternative plan, the PDT should consider any major potential Savings Clause issues that have been identified for each alternative plan evaluated at this point. Guidance Memorandum #3 provides details on the Savings Clause analyses.

C. Comparison of Alternative Plans

Document the outcome of comparing all alternative plans to identify the differences among the alternative plans. Describe the relationships between outputs and the alternative plan costs. Conduct cost-effectiveness (CE) and incremental cost analysis (ICA), as appropriate.

1. Alternative Plan Comparison

Alternative Plan Achievement of Objectives-Document each alternative plan's degree of achievement of planning objectives and performance targets (table is recommended). Include sufficient detail to show differences in performance between alternative plans. If performance measures are too coarse to show differences, the PDT should document this and describe other potential performance measures or methods of determining differences between plans.

Alternative Plan Effects-Compare and evaluate benefits, both monetary and non-monetary, based on approved performance measures for alternative plans. Identify the resources (if any) that may be adversely affected. Explain how various benefits relate to the quality of the intended project outcome. Document if trade-offs occur in the attainment of one or more planning objectives. Discuss the consequences of trade-offs and relative importance of each objective affected.

Significance of Ecosystem Outputs-Determine the significance, from a planning perspective, of ecosystem outputs each alternative plan would produce. Along with other evaluation techniques, this information will help determine whether the proposed project is worth the cost, and whether a particular alternative should be recommended. Significance should be described in terms of institutional, public and/or technical importance. Basis for such significance includes: (1) acknowledgment of output

importance in laws, policies, and adopted plans; (2) volunteer or financial support or cultural veneration of a resource by a segment of the general population; (3) scarcity, limiting nature to survival/recovery of species, connectivity, recoverability, declining status or downward trend, and biodiversity of the ecosystem outputs.

Alternative Plan Comparison-Document the process for elimination of certain alternative plans (if any) from further comparison and list the alternative plans retained for further consideration. Include a discussion of the four Principles and Guidelines criteria (completeness, effectiveness, efficiency, and acceptability) and the degree to which each alternative plan satisfied them. A table may be useful for this purpose. Discuss alternative plans that were eliminated based on this analysis.

Costs of Alternative Plans-Determine the construction cost estimates of each plan feature, as well as other costs associated with implementation, operation, and maintenance of each alternative plan.

2. Cost-Effectiveness/Incremental Cost Analyses of Alternative Plans

Overview of Cost-Effectiveness Analysis-Determine which of the alternative plans are considered cost-effective, based on a comparison of the ecological outputs (or surrogates, if necessary) provided and their costs. Only cost-effective alternative plans should be retained for further analysis. Based on this analysis, document why some alternative plans were eliminated and identify the alternative plans retained.

I**ncremental Cost Analyses of Alternative Plans-**In cases where additional alternative plans other than the optimized component from the Plan have been developed, an ICA is necessary to evaluate each alternative plan. Calculate incremental costs and incremental outputs for the cost-effective alternative plans to determine which are "best buy" alternatives (e.g., greatest return of ecological outputs or surrogates if necessary for a given level of investment). The ICA will be necessary to demonstrate the efficiency (cost per each additional unit of output) for successively larger (greater output) cost-effective plans. If all of the alternative plans yield identical outputs, cost-effectiveness analysis (which identifies the least cost alternative plan) will be the critical procedure.

3. Trade-Off Analysis

Describe any trade-offs that are being evaluated among the benefits, monetary and non-monetary, associated with the planning objectives (and approved performance measures).

4. Risk and Uncertainty Analysis

Level of Risk and Uncertainty-Determine the level of risk or uncertainty that is associated with any factor of an alternative plan (e.g., structural integrity, land suitability, and ecological return). In addition, identify any uncertainties associated with assumptions made during the planning process, predictions of future conditions, models and methodologies employed, and cost estimates. The uncertainty analysis should be as quantitative as feasible. A tabular format may be helpful. Knowing where the sources of greatest uncertainty lie is important. Describe any risks foreseeable to the achievement of

project goals if assumptions or predictions are inaccurate, or if structural or operational problems arise.

Sensitivity Analysis-If the findings of the risk and uncertainty analysis indicate a significant level of risk or uncertainty associated with parameters of certain alternative plans, a sensitivity analysis should be performed. A sensitivity analysis will help to estimate the magnitude of the effect on plan performance that a change of a given parameter would make. If, for example, a slight change in ecological relationships would result in a huge difference in project performance, the PDT should document this fact.

4. Recreation Analysis

Determine effects of the selected alternative plan on existing recreation facilities and consider additional recreation opportunities in the study area. As appropriate, formulate and evaluate additional recreation features in accordance with USACE regulations and policy.

D. Plan Selection Process

> Document how the selected alternative plan was selected from the final array of alternative plans. Document the results of cost effectiveness/incremental cost analyses (CE/ICA) and other significant conclusions resulting from comparison of the final array of alternative plans. Describe selection criteria used and how the criteria reflect the planning objectives and performance measure targets. Explain how selection criteria were applied. The tentatively selected plan will be the plan that reasonably optimizes net benefits, both monetary and non-monetary, consistent with the objectives of the Plan.

Integration of Planning Objectives and Performance Measures-Establish and set values for selection criteria for selection of the plan from the final array of alternative plans. Criteria may include such things as achievement of planning objectives, the degree of risk or uncertainty that is acceptable, achievement of performance measure targets and the necessity of undesirable trade-offs. Explain how the criteria were applied and how each alternative plan was rated. Tables or charts may be helpful to display information to aid this analysis.

Other Criteria Considered for Plan Selection-Document any other criteria used to choose the selected alternative plan. Such criteria will be unique to each project but may include such things as achievement of Principles and Guidelines criteria, Environmental Operating Principles, land availability, public preference, achievement of interim goals and interim targets, incidental benefits, mitigation requirements, or compatibility with other CERP or C&SF Project system features.

Justification-In addition to USACE requirements for project justification, the PIR must demonstrate that each project is justified on a NAI basis. Document benefits if this increment were the last one implemented, in addition to those already authorized. Include

an analysis of NAI (Guidance Memorandum #2 provides additional information on the NAI), system-wide benefits, and achievement of approved system-wide performance measures and targets.

III. DESIGN SELECTED PLAN

A. Selected Alternative Plan Description

Selected Alternative Plan Features and Actions-Document in technical detail the specific features of the selected alternative plan. Develop a clearly labeled project drawing and map showing the project location and context. Develop other graphics, charts or photographs necessary to provide a clear and accurate understanding of the selected alternative plan's features.

Selected Alternative Plan's Contribution Towards Achieving CERP Goals and Purposes-Show how the selected alternative plan is an integral part of the Plan and document the selected alternative plan's contribution to achievement of the goals and purposes of the Plan.

Selected Alternative Plan's Contribution to Achievement of Interim Goals and Interim Targets-Document how the selected alternative plan contributes to the achievement of interim goals and the interim targets established according to the Programmatic Regulations.

Relationship to Problems and Opportunities Statements-Demonstrate that the selected alternative plan effectively addresses the problem and opportunity statements developed earlier in the planning process.

Relationship to Planning Objectives and Constraints-Show the relationship of selected alternative plan to the planning objectives and constraints.

Develop Initial Operating Regime (IOR)-Document the assumptions concerning the initial operating regime and how those assumptions were used in development of the Project Operating Manual.

Project Operating Manual-Provide summary information from the Draft POM that is included as an annex to the PIR. The Draft POM should be based on the Initial Operating Regime and will include conceptual discussion of the operational intent and transitioning from the Initial Operating Regime to subsequent operations as system conditions change or as constraints are removed. The Draft POM should include appropriate operating parameters, (e.g. special guidance or constraints) that are necessary to achieve the performance of the project, particularly natural system performance. Refer to Guidance Memorandum #5 for additional guidance on Operating Manuals.

Project Monitoring Plan-Determine the monitoring activities that will be conducted for the selected alternative plan.

Selected Alternative Plan Costs-Provide a general breakdown of all the costs associated with the selected alternative plan. Include costs for: construction; lands, easements, relocations, rights-of-way and disposals (LERRDs)**;** Operation, Maintenance, Repair, Rehabilitation, And Replacement (OMRR&R); and project monitoring.

Permits, Entitlements, and Certifications-Determine the necessary permits, certifications, and entitlements that are required to construct and implement the selected alternative plan. Determine any actions taken to begin the procurement or application processes for such permits and certifications. Determine actions still to be taken.

Mitigation and Environmental Commitments-Document any commitments that have been made by any agency in order to implement the selected alternative plan. Describe the specific mitigation actions that may be required to implement the selected alternative plan. Show that the mitigation is justified. The resources for which mitigation is required should also be described clearly.

Compliance with Environmental Laws, Statutes, Executive Orders-Identify how each applicable law, statute and executive order is being complied with and or the status of the compliance.

B. Project Assurances

Address Federal and State requirements unique to CERP PIRs as required by section 601 of WRDA 2000, the Programmatic Regulations, and State Statutes.

Elimination or Transfer of Existing Legal Sources of Water-Determine if implementation of the selected alternative plan would result in the elimination or transfer of an existing legal source of water (section 385.36[a] of the Programmatic Regulations). Guidance Memorandum #3 provides further guidance on how to conduct these analyses.

Project Effects on Level of Service for Flood Protection-As required by the Savings Clause of section 601(h)(5) of WRDA 2000, appropriate analyses must be conducted to demonstrate that the levels of service for flood protection that: (1) were in existence on the date of enactment of WRDA 2000; and (2) are in accordance with applicable law, will not be reduced by implementation of the project. Guidance Memorandum #3 provides details on how to conduct this evaluation.

Identification of the Water Made Available by the Project and the Water to Be Reserved or Allocated-Guidance Memorandum #4 provides a detailed discussion of: 1) the total water necessary to achieve the benefits of the project; 2) the identification of the water made available by the project; and 3) identification of the amount of water to be reserved or allocated for the natural system.

Compliance with Applicable Water Quality Standards and Permitting Requirements-The FDEP is responsible for issuing Water Quality Certification (WQC) and/or State permits for CERP Projects. The PDT should work to provide as much detail as possible about the construction and operation of the selected alternative plan to facilitate timely issuance of the WQC and/or State permits.

Compliance with Florida Statutes Section 373.026(8)(b), F.S., requires that prior to submitting a PIR to Congress for authorization or receipt of an appropriation of State funds for construction of a CERP project, the FDEP must first approve the project component. Section 373.470, F.S., requires that, prior to executing a PCA with the USACE, a PIR must contain sufficient information to receive FDEP approval under section 373.026(8)(b), F.S. In order to receive approval of the project component by the FDEP, the SFWMD must provide documentation to demonstrate compliance with the criteria set forth in section 373.1501(5), F.S.

C. Implementation of the Selected Plan

Schedule-Determine the timeline for implementing the features of the selected alternative plan, explain any relationship between the implementation of the different components (e.g., dependencies) and describe any specific time-of-year requirements associated with any features of the selected alternative plan.

Costs: Engineering and Design, Construction, LERRDS, OMRR&R-Determine all the costs associated with implementation of the selected alternative plan.

Cost-Sharing-Determine the cost allocation for the selected alternative plan over the duration of the implementation period between the USACE and non-Federal sponsor(s). If cost-sharing of water quality features is recommended, then cost-sharing should be explicitly stated here. Such statements must also show that any features to improve water quality are implemented in a manner consistent with the cost-sharing provisions in section 528 of WRDA 1996 and section 601 of WRDA 2000.

Summary of Federal/Non-Federal Implementation Responsibilities-Based on the schedule and costs reflected for the selected alternative plan, determine each party's responsibilities for implementation. This will include the Federal and non-Federal sponsors, and will sometimes also include other agencies.

Unresolved External Issues-Document the unresolved external constraints and factors, if any, that may affect project implementation (e.g., land use, land ownership and management issues) as well as other risk factors for the project. Present any issues that are outside the purview of the USACE or non-Federal sponsor's authority, including issues discussed but determined to not be relevant to the project purpose.

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ATTACHMENT 1-C
PROJECT IMPLEMENTATION REPORT OUTLINE

*COVER PAGE AND ABSTRACT

*EXECUTIVE SUMMARY
- PIR Summary
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SECTION 2: GUIDANCE MEMORANDUM #2 FORMULATION AND EVALUATION OF ALTERNATIVES FOR PROJECT IMPLEMENTATION REPORTS

2.1 PURPOSE

The Programmatic Regulations require that a Guidance Memorandum be developed to "describe the processes to be used to formulate and evaluate alternative plans and their associated monetary and non-monetary benefits and costs, determine cost-effectiveness and optimize the project's contributions towards achieving the goals and purposes of the Plan, and the basis for justifying and selecting an alternative plan to be recommended for implementation…" and "… provide a process for evaluating projects that are outside the boundary of regional computer models or projects whose effects cannot be captured in regional computer models."

In addition, the Programmatic Regulations include other provisions related to formulation and evaluation that need to be addressed in this Guidance Memorandum. These areas include:

- Describing a process for including each alternative plan with all the other components of the plan;
- Evaluating the total monetary and non-monetary benefits and costs of the resulting comprehensive plan when compared to the without CERP condition; and
- Describing the process for identifying the tentatively selected plan, as well as evaluating the tentatively selected plan as the NAI.

This Guidance Memorandum provides information about the formulation and evaluation of alternatives for PIRs.

2.2 APPLICABILITY

This Guidance Memorandum applies to PIRs for all CERP projects and provides additional information on the plan formulation and evaluation activities described in Guidance Memorandum #1. There may be differences in the level of detail included in each PIR based on specific situations. For example, the amount of detail necessary to complete the formulation and evaluation for the PIR, the extent of previous formulation, the planning research activities, and/or the design detail may differ from project to project.

2.3 UPDATING GOALS, PROBLEMS AND OPPORTUNITIES, AND PLANNING OBJECTIVES AND CONSTRAINTS

As described in Guidance Memorandum #1, the initial step in the PIR process, developing base conditions and models, involves reviewing and collecting the project information from the contextual setting of CERP. Goals, problems and opportunities, and planning objectives and constraints should be directly taken from the Plan. Upon completion of scoping with

agencies and the public on the previously developed criteria, the PDT should identify any new issues and conditions that may require additional goals, problem and opportunity statements, or planning objectives and constraints for the project. RECOVER should be consulted regarding any additional problems and opportunities that may have been identified related to the project on a system-wide basis. In developing any new evaluation criteria, it is incumbent on the PDT to ensure that the new evaluation criteria still meet the intent of the Plan.

2.4 PERFORMANCE MEASURES

The basic goal of CERP is to restore the South Florida ecosystem by providing more natural timing, flows, depths, and distribution within the natural system, while providing for other water-related needs of the region. Evaluation criteria and ecological performance measures that are used in the PIR process should promote more natural hydrology and optimize ecological benefits, consistent with the specific goals and planning objectives of the projects. To evaluate system-wide effects of projects, the system-wide performance measures developed by RECOVER should be used to the greatest extent possible.

Depending on the scale of the project and the scope of formulation, project-level evaluation criteria and performance that are consistent with the RECOVER system-wide performance measures should be identified and developed as necessary. Project-level performance measures developed by the PDT will be reviewed by RECOVER for consistency with the system-wide performance measures. Any disagreements between RECOVER and the PDT on performance measures will be elevated to appropriate agency management. The set of performance measures (system-level and project-level) that are proposed to be used will be discussed and approved at the FSM meeting.

Alternative plans will be evaluated and compared by calculating each alternative's outputs or benefits, both monetary and non-monetary, using appropriate NER outputs. A complete discussion of NER evaluation may be found in USACE guidance such as ER 1105-2-100. Benefits should be based on metrics that can be assessed as well as predicted, and that are consistent with RECOVER performance measures used in evaluation, assessment and development of the interim goals and interim targets. Performance measures are a subset of the broader set of evaluation criteria. Those performance measures can be used to formulate and evaluate alternative plans and are quantifiable measures of how well a project meets defined hydrological or ecological targets. Performance measures are used in both the planning phase and in post-construction monitoring and assessment of a project. Displays of alternative plans showing the key performance measures and evaluation criteria that are used in the plan formulation and evaluation process should be included in the Plan Formulation and Evaluation Appendix of the PIR.

Because CERP projects are required to be selected and justified based on their system-wide benefits, the evaluation process should be based on the system-wide performance measures developed by RECOVER. In addition to system-wide performance measures, the PDT may develop project-specific performance measures, if necessary, to capture localized alternative effects.

Performance measures should be linked to project goals and planning objectives and to the overall goals and purposes of CERP. A good set of performance measures will have the following attributes:

- For the natural system, they should be based on the conceptual ecological models
- For other water-related needs, they should be related to defined project objectives;
- Should include effects of hydrology and flow;
- Cover the full range of potential effects of a plan on the project's planning objectives;
- Include only measures that are necessary;
- Be supported by best-available scientific and technical information; and
- Be specific and sensitive enough to differentiate between alternative plans.

If project-level performance measures are developed, RECOVER will conduct a review of the project-level performance measures for consistency with the system-wide performance measures. The PDT and RECOVER need to ensure that the targets are generally supported by the scientific literature or legal requirements.

Further, information from the U.S. Fish and Wildlife Service's Planning Aid Letters (PALs) and Fish and Wildlife Coordination Act reports (CARs), the scientific literature, and scientific peer review will be used to assist in defining project benefits. Collaboration with appropriate agency partners will also be maintained in the process of developing such metrics.

2.4.1 Performance Measures for the Natural System

Performance measures for the natural system should be based on restoring more natural timing, flows, depths, and distribution as described in the conceptual ecological models that have been developed for the south Florida ecosystem. The use of conceptual ecological models is a key element of the Applied Science Strategy, as described in Guidance Memorandum #6, and a primary foundation for the development of CERP performance measures. Conceptual ecological models illustrate the links among societal actions, environmental stressors and ecological responses; describe the major causal hypotheses that explain why the natural systems in south Florida have been altered; and document the scientific rationale for the management actions undertaken to restore these systems (Gentile et al., 2001). Conceptual ecological models have guided the development of RECOVER's system-wide performance measures, the interim goals for the natural system, and the CERP MAP. The MAP provides documentation for the conceptual ecological models developed to date as well as additional information about their application in CERP.

The Plan was formulated to improve the quantity, quality, timing, and distribution of water to the natural system – in short, "getting the water right." Performance measures for the natural system should be linked to hydrologic changes that are necessary to "get the water right." The set of performance measures for the natural system should include such measures as monthly, seasonal, and inter-annual changes in flow. Consistent with conceptual ecological models and best available science, durations and frequencies of extreme events (too much or too little water) should also be included in the set of performance measures. It is particularly

important to have performance measures that show the frequency and duration of too much water in natural areas since the Savings Clause analyses concerning reductions in the level of service for flood protection are not applicable to natural areas. Graphic displays, such as Figure 5-D-9, should be developed to show progress toward meeting a more natural hydrology and flow, on a monthly, seasonally and interannual basis.[1]. Additionally, other project specific graphics may be necessary for some projects to fully evaluate whether the project is redistributing water as intended.

In addition to the system-wide performance measures, additional ecological and hydrologic performance measures for the natural system may be developed and applied as needed. All performance measures should be reviewed by RECOVER prior to use in the formulation and evaluation process. To support project assessment and adaptive management, a single integrated set of performance measures with both predictive (evaluation) and assessment elements should be used for system-wide tasks including project alternative evaluation, assessments, and interim goals and interim targets.

2.4.2 Performance Measures for Urban and Agricultural Water Supply and Flood Protection

The CERP system-wide performance measures integrate multiple performance measures to evaluate the effects of projects on urban and agricultural water supply, flood protection, and resource protection. The PDT should use these performance measures as appropriate or develop additional measures to gauge the effects of the project on the ability to supply water for urban and agricultural users or continue providing flood protection. If project performance measures are developed, then those performance measures should be linked to State and Federal laws and policies (e.g. the State level of certainty planning goal for water supply is based on meeting needs in a 1 in 10 drought event) and be consistent with the natural system performance measures developed for the project. All performance measures should be reviewed by RECOVER prior to use in the formulation and evaluation process.

2.5 PERIOD OF ANALYSIS

The Plan was based on a 50-year period of analysis and a planning horizon to the year 2050. The period of analysis for calculating the benefits and associated costs for a project will begin the year in which the project will be functional (base year). The end-point for the period of analysis used in a PIR will coincide with the period of analysis end-point used in the most current version of the Plan (i.e., the April 1999 “Final Integrated Feasibility Report and Programmatic Environmental Impact Statement” used 2050). This end-point consistency is necessary for the proper calculation of system-wide benefits. The PDT should note that this could result in a period of analysis shorter than 50 years. As periodic CERP updates are completed in accordance with section 385.31(c) of the Programmatic Regulations, the end-point for the period of analysis will be revised to reflect the new condition.

[1] At the time this Guidance Memoranda was being developed, RECOVER was in the process of formulating performance measures for flow. Until such time as flow performance measures are approved, the PDT should develop graphic displays showing flow performance as represented in Figure 5-D-9.

2.6 CONSIDERATION OF AVAILABILITY OF PRE-CERP BASELINE WATER AND EXISTING WATER RESERVATIONS OR ALLOCATIONS

Section 385.35(b)(2) of the Programmatic Regulations requires that:

> "Each PIR shall take into account the availability of Pre-CERP Baseline water and previously reserved water as well as the estimated total quantity of water that is necessary for restoration for the natural system and the quantity of water anticipated to be made available from future projects in identifying the appropriate quantity, timing, and distribution of water dedicated and managed for the natural system, determining whether improvements in water quality are necessary to ensure that water delivered to the natural system meets applicable water quality standards; and identifying the amount of water for the natural system necessary to implement, under State law, the provisions of section 601(h)(4)(A)(iii)(V) of WRDA 2000."

The Pre-CERP Baseline is a description of assumed hydrologic conditions on the date of enactment of WRDA 2000 (December 11, 2000). The PDT will compare the Existing Conditions Baseline to the Pre-CERP Baseline to determine if there are changes in baseline water availability. The results of this comparison will be used in project formulation and evaluation. If the Pre-CERP Baseline water is no longer available for the natural system, then the PDT may consider such things as:

- Developing alternatives that capture additional water; or
- Changes in system operations to increase the amount of water made available to the natural system.

More detailed information regarding the Pre-CERP Baseline is contained in Guidance Memorandum #3 and in the Pre-CERP Baseline document.

During the initial phase of plan formulation, the PDT must identify if any existing reservations or allocations of water made under State law need to be considered. The PDT must use the information related to the approved performance measures and associated targets from modeling for the existing reservations or allocations made by the State to aid in the identification of water made available for the natural system by the project (See Guidance Memorandum #4).

2.7 SCREEN ALTERNATIVE PLANS FOR EFFECTS ON EXISTING LEGAL SOURCES OF WATER AND LEVELS OF SERVICE FOR FLOOD PROTECTION

The PDT should perform a preliminary screening analysis for the final array of alternatives to determine potential effects on existing legal sources of water and levels of service for flood protection. The PDT should identify a subset of evaluation criteria correlated to existing legal sources of water and flood protection considerations; however, alternative plans should be primarily evaluated and compared based on the benefits produced by each plan. If there are

trade-offs in performance for natural areas that need to be considered, those trade-offs should be evaluated and justified as part of the formulation and evaluation process. Any disagreements on trade-offs will be elevated to appropriate agency management. A Savings Clause analysis for existing legal sources of water and flood protection will be conducted on the selected alternative plan (see Guidance Memorandum #3).

2.8 CONSIDERING CHANGES TO OPERATIONS OUTSIDE OF THE PROJECT AREA

The PDT should consider including, as appropriate, changes to operations in other areas of the system in order to optimize the delivery of system benefits. For example, changes to the WCA regulation schedules should be considered for projects, such as the Everglades Agricultural Area Storage Project, which are designed to improve the natural hydrology in the Water Conservation Areas and Everglades National Park. Changes to operations should be considered if there would be a direct beneficial impact to the project. Whenever possible, the PDT should incorporate Everglades Rainfall Driven Operations (ERDO) in the project being formulated to the greatest extent possible without creating harm elsewhere. The PIR should contain a discussion of the incorporation of ERDO into the project.

2.9 TRADE-OFF ANALYSIS

Trade-off analysis is the procedure to identify the potential gains and/or losses associated with producing a larger or lesser amount of a given output or outputs. The PDT will identify and analyze potential trade-offs as part of the formulation and evaluation process. The results of trade-off analysis are to be displayed in the PIR.

2.10 RISK AND UNCERTAINTY ANALYSIS

The PDT will identify areas of risk and uncertainty in the team's analysis and describe those risks and uncertainties clearly, so that decisions can be made with the knowledge of the degree of reliability of the estimated benefits and costs and of the effectiveness of the selected alternative plan. When the costs and outputs of alternate plans are uncertain and/or there are risks that outcomes will not be achieved, the identification of a selected alternative plan becomes more complex. Documentation of the assumptions made and uncertainties encountered during the course of planning analysis is essential. Some activities may have relatively low risk while other activities may have higher risks. When identifying the selected alternative plan, the associated risk and uncertainty of achieving the proposed level of outputs must be considered. For uncertainties that may significantly affect project performance, the PDT should conduct sensitivity analyses or scenario modeling. Adaptive management (Guidance Memorandum #6) provides a means for addressing uncertainty in ecosystem responses.

2.11 FORMULATION AND EVALUATION FOR THE PIR

While the PIR has many aspects of a USACE Feasibility Study, the primary difference with the PIR is the steps taken to complete plan formulation and evaluation of the project. Unlike

a feasibility study, the PIR is based on a component or components that have previously been formulated to a certain level in developing the Plan and are expected to accomplish specific Plan goals. As such, formulation in the PIR always begins with the formulation already documented in the Plan. The formulation and evaluation process and its relation to other major tasks for the PIR is depicted in Figure 2-2.

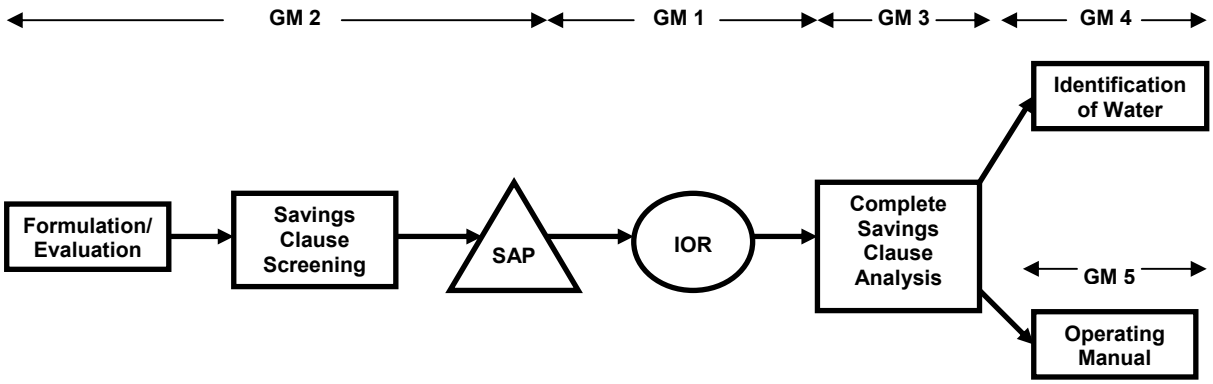

Figure 2-2: Relationship between Formulation and Evaluation and Other PIR Tasks

During the development of the base conditions and models (Guidance Memorandum #1) for the PIR, the PDT should extract the relevant information from the Plan documents. In addition, the project described in the Plan should be reviewed and cost information updated based on available information. The PDT should conduct an initial screening effort to determine if the project as described in the Plan will still achieve the benefits of the project as described in the Plan in a cost-effective manner. The results of this initial screening effort will be presented at the FSM with the USACE vertical team and the Office of the Assistant Secretary of the Army for Civil Works (OASA(CW)) to determine if the project plan formulation process will entail optimization of the project described in the Plan or if formulation of additional alternatives will be necessary.

If the project as described in the Plan will still achieve the benefits of the project as described in the Plan in a cost-effective manner, then the PDT's efforts will focus on development of design alternatives and optimization of the project features, cost-effectiveness, satisfaction of Programmatic Regulations requirements for PIRs, M-CACES cost estimates, and the integrated NEPA documentation to supplement the information contained in the Programmatic Environmental Impact Statement (PEIS) for the Plan, in accordance with the concept of tiering under NEPA.

If the project described in the Plan no longer achieves the benefits of the project as described in the Plan, additional formulation will be required to develop a justifiable alternative. However, the formulation completed and described in the Plan will provide the foundation for the PDT to formulate additional alternatives. The new or changed circumstances requiring additional formulation should be documented. As noted previously, for those

projects where the non-Federal sponsor has already acquired lands, the PIR will use the actual cost of the land bought for the project instead of the estimated value of the land. Additional management measures to address the new circumstances should be developed and screening should occur based on the project's evaluation criteria and approved performance measures. From the screening process additional alternatives will be formulated.

If formulation of additional alternatives is necessary, then the PDT will formulate additional alternatives by developing management measures at different scales or sites to meet the project's goals and purposes.

In both cases, either when a project is further optimized in a PIR or when additional formulation is needed, evaluations should be conducted on a system-wide basis in the context of the rest of the Plan using regional modeling tools such as the SFWMM when possible. Evaluation of system-wide effects of alternative plans conducted using regional models will be supported by RECOVER. The PDT should involve RECOVER as early as possible in the plan formulation process, including at the FSM, so that a system-wide perspective is maintained throughout the process.

In some cases, a project is hydrologically separate from the C&SF Project (see Attachment 1-A of Guidance Memorandum #1) or the regional model cannot capture the project's effects. In those cases, any necessary formulation and evaluation will utilize sub-regional or site-specific models that focus on more localized project outputs. Project performance measures will provide the link to describing system-wide benefits of the project.

2.11.1 Acceler8 Projects

The State of Florida has approved a SFWMD plan called "Acceler8" for the purpose of accelerating design and construction of a number of important restoration projects consistent with the Comprehensive Everglades Restoration Plan (CERP) but prior to one or more of the following: Administration approval, congressional committee resolution, congressional authorization, or federal construction funding. The State anticipates the Acceler8 program will provide immediate environmental, social, and economic benefits in the South Florida region.

For each PIR that includes an Acceler8 project, the Acceler8 project will be analyzed as one of the alternative plans considered or the Acceler8 project should be encompassed within at least one of the alternatives considered in the PIR. If the selected alternative plan for the PIR includes the features proposed to be constructed by the SFWMD under the Acceler8 program, then those Acceler8 features should be identified to be implemented as the first phase of construction of the selected alternative plan.

2.11.2 Plan Formulation and Evaluation Procedure

The formulation and evaluation approach for CERP considers the system-wide interdependencies of CERP projects. The formulation and evaluation procedure includes four steps: 1) system formulation and evaluation; 2) cost-effectiveness and ICA; 3) identification

of the tentatively selected plan; and 4) next-added increment analysis. These steps are described in more detail in the following paragraphs.

2.11.2.1 Step 1: System Formulation and Evaluation

Once the level of formulation necessary for the PIR has been determined, the PDT will initiate the formulation and evaluation process for the PIR. The PDT will formulate and evaluate alternatives to achieve the goals and purposes of the project, to optimize net benefits, both monetary and non-monetary, on a system-wide basis, and to achieve the benefits of the Plan. The Plan was formulated to improve the quantity, quality, timing, and distribution of water to the natural system, while providing for other water-related needs of the region – in short, "getting the water right." Performance measures for the natural system should be based on the conceptual ecological models that have been developed for the south Florida ecosystem. A key sub-set of the performance measures should be identified. This key sub-set of the performance measures will be the primary means to ensure that the goals and purposes of the project are achieved. To evaluate system-wide effects of projects, the system-wide performance measures developed by RECOVER should be used to the greatest extent possible. Depending on the scale of the project and the scope of formulation, project-level evaluation criteria and performance that are consistent with the RECOVER system-wide performance measures should be identified and developed.

The PDT is responsible for development of the set of alternative plans to be considered. For those projects where the formulation effort is to focus on optimization of the project described in the Plan, the PDT will develop various configurations. For those projects where formulation of additional alternatives is necessary, the PDT will consider different measures, components, features, and project scales within the study area to achieve the planning objectives and to achieve the benefits of the project described in the Plan. In accordance with the Programmatic Regulations, the initial alternative to be considered by the PDT will be the project as defined in the Plan. While new information and implementation of other CERP components may show that this is an unrealistic alternative for consideration, evaluation of this alternative is required to demonstrate the differences between the approved Plan and the alternatives being considered. For each PIR that encompasses an Acceler8 project, the proposed Acceler8 project will be analyzed as one of the alternative plans considered or encompassed within the alternatives considered in the PIR.

Although the PDT will be formulating and evaluating projects individually to achieve the benefits of the Plan as part of the planning process, the selected plan should optimize net benefits, both monetary and non-monetary, on a system-wide basis. The PDT, in coordination with RECOVER, will evaluate system-wide effects of alternatives. The PDT will use these system-wide benefits as the basis for project justification.

In accordance with the Programmatic Regulations, the evaluation of alternatives involves the comparison of the Future With Project Condition to the Future Without CERP Baseline. For this purpose, the Future With Project Condition for an alternative plan will be built from the Future Without CERP Baseline and include all of the other projects of the Plan (authorized and not yet authorized) along with the alternative plan being evaluated. This will result in a

system-wide "comprehensive plan" that can be compared to the Future Without CERP Baseline.

2.11.2.2 Step 2. Cost-Effectiveness and Incremental Cost Analysis (CE/ICA)

The second step in the formulation and evaluation process is to perform cost-effectiveness and incremental cost analyses (CE/ICA). A discussion of the metric that is used to conduct cost-effectiveness and ICA should be provided. This will include a summary of the ecological outputs and benefits as well as benefits to other water-related needs based on performance measures and a description of improvements to significant resources, including progress towards meeting more natural hydrology and flow. A discussion of the system-wide benefits of the alternatives should be included. In some cases, the PDT may not have tools available that adequately capture differences in outputs between alternative plans, particularly when considering design optimization alternative plans. In this case, the cost-effectiveness analysis is the critical analysis in selecting an alternative plan. Incremental cost analysis (ICA) would not be necessary, or would be limited to demonstrating the efficiency (cost per unit of output) of each alternative plan. If available tools are able to capture differences in outputs between alternative plans, an ICA should be conducted. The ICA demonstrates the increase in cost required for each additional unit of output. Only cost-effective alternative plans that demonstrate viable benefits should be retained for further analysis.

2.11.2.3 Step 3: Identification of Tentatively Selected Plan

The third step of the formulation and evaluation process is the identification of the tentatively selected plan. This step is performed after consideration of the various alternative plans, alternative plan effects, public comments, and success in meeting Federal, State, and other requirements. In this final iteration of the planning process, the final array of alternatives is presented. This group will also include the no-action plan. These alternatives are representative of those alternatives that have made it through all previous iterations of formulation, screening, and evaluation. In addition, the alternatives have been assessed to comply with the Principles and Guidelines (complete, effective, efficient, and acceptable) as well as with NEPA requirements. Any of the alternatives in this final array provide a feasible option for implementation, meeting the intended goals and planning objectives of the PIR. The tentatively selected plan will be the plan that reasonably optimizes net benefits, both monetary and non-monetary, consistent with the objectives of the Plan. Once a tentatively selected plan is identified, the next-added increment (NAI) analysis described in the next section must be conducted.

2.11.2.4 Step 4: Next-Added Increment Analysis

The Programmatic Regulations require evaluation of the tentatively selected plan as the "next-added increment" (NAI). The NAI analysis evaluates the effects, or outputs, of the tentatively selected plan as the next project to be added to the group of already approved CERP projects. This analysis helps illuminate the beneficial effects the selected alternative plan contributes without regard to future CERP projects as well as the importance of the

project in the sequence of implementing CERP and dependence of other CERP projects on the project under evaluation. The analysis also helps to ascertain whether sufficient benefits would be attributable to the tentatively selected plan to justify the cost, if no additional CERP projects (other than those already existing or authorized) were implemented.

The PDT will conduct the NAI analysis on the tentatively selected plan and display the results so that the justification of the tentatively selected plan may be demonstrated. The NAI analysis will use a comparison of the with project condition to the without project condition. For this analysis, the with project condition is the NAI Condition and the without project condition is the NAI Baseline. The comparisons should be made at appropriate time-points (e.g., implementation base year, period of analysis end-point) to determine average annual benefits or their equivalent. The tentatively selected plan must be justified on a NAI basis. The PDT should note that the NAI Baseline, which only includes those CERP projects that have already been approved, is synonymous with the no-action alternative for the PIR, which is different than the Future Without CERP Baseline. The model runs used for the NAI analysis should be operationally optimized.

The spatial extent of system-wide and project-level effects must be identified to quantify beneficial effects of a project. One of the underlying principles of CERP is to capture and store excess flows and discharges currently made to tide to restore some of the historic regional water storage function that has been lost through the implementation of drainage and flood control infrastructure and development in the region. Since the projects that comprise CERP are designed to work together to achieve the system-wide (i.e., pertaining to the C&SF Project or the South Florida ecosystem, as a whole) goals and purposes of CERP, in most cases, non-monetary benefits for the natural system or other water-related needs should be conducted on a system-wide basis in addition to a project-level basis.

The PDT may demonstrate NAI justification by:

- quantifying environmental and economic benefits attributable to the tentatively selected plan in the absence of other not-yet-approved CERP projects;
- demonstrating the dependency of environmental and economic benefits of CERP on the tentatively selected plan;
- describing the project's role to enable already approved CERP projects to function and provide benefits;
- demonstrating the relationship of other CERP projects and planning constraints (such as the Savings Clause) to the tentatively selected plan; or
- considering the application of adaptive management principles on the tentatively selected plan.

If the tentatively selected plan cannot be justified on a NAI basis, the PDT should consider combining the tentatively selected plan with other CERP components to identify an alternative that can be justified on a NAI basis or to consider delaying the implementation of the tentatively selected plan in order for the tentatively selected plan to be justified on a NAI basis.

EXHIBIT 9

SECTION 3: GUIDANCE MEMORANDUM #3
SAVINGS CLAUSE REQUIREMENTS

3.1 PURPOSE

This Guidance Memorandum provides guidance in determining whether or not the selected alternative plan and its operations meet the requirements of the Savings Clause of section 601(h)(5) of WRDA 2000. The Guidance Memorandum discusses procedures to determine if existing legal sources of water have been eliminated or transferred and whether levels of service for flood protection would be reduced.

3.2 APPLICABILITY

This Guidance Memorandum applies to all CERP projects. Identifying if an elimination or transfer of existing legal sources of water will occur as a result of implementation of CERP and whether levels of service for flood protection will be reduced by implementation of CERP is required by section 601(h)(5) of WRDA 2000. The PDT will conduct these analyses on the selected alternative plan. It is important for the PDT to note that the analyses described in this Guidance Memorandum pertain specifically to the analyses required for compliance with the Savings Clause of section 601(h)(5) of WRDA 2000. In addition to the analyses conducted under the Savings Clause, the PDT should conduct other appropriate analyses, such as those described in section 1.11 of Guidance Memorandum #1, to determine if the selected alternative plan will affect other rights provided under Federal or State law. It is also important for the PDT to recognize that a preliminary screening analysis of potential Savings Clause issues should be conducted as part of the formulation and evaluation process conducted for the PIR; however, alternative plans should be primarily evaluated and compared based on the benefits produced by each plan (see Guidance Memorandum #1 and Guidance Memorandum #2). If there are trade-offs in performance for natural areas that need to be considered, those trade-offs should be evaluated and justified as part of the formulation and evaluation process. The relationship between the Savings Clause analysis and other PIR tasks is shown in Figure 3-1.

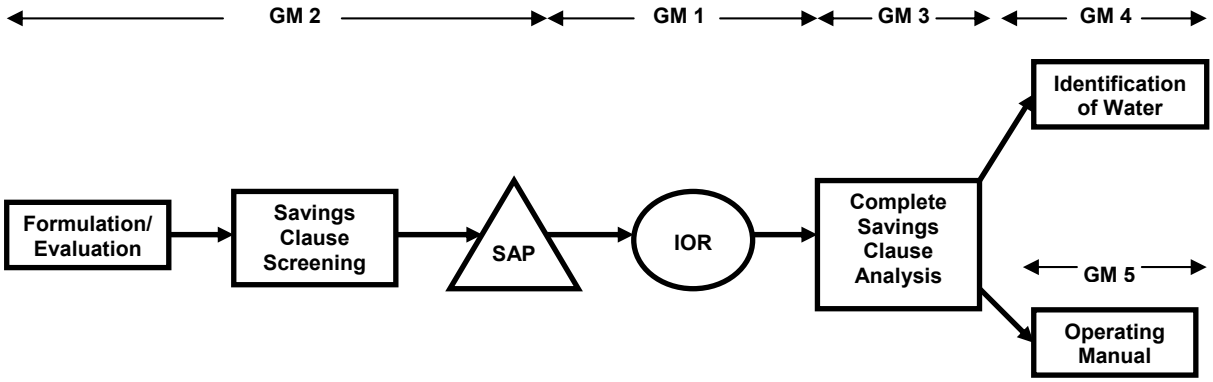

Figure 3-1: Relationship between Savings Clause and Other PIR Tasks

The Savings Clause analyses of this Guidance Memorandum also apply to proposed changes to Project Operating Manuals (POM) and the System Operating Manual (SOM) (see Guidance Memorandum #5). As modifications to POMs and the SOM are evaluated, identifying if an elimination or transfer of existing legal sources of water will occur as a result of implementation of a CERP operational change and whether levels of service for flood protection will be reduced by a CERP operational change will be necessary.

3.3 SAVINGS CLAUSE

For the components of CERP, the original purpose and intent was to improve quantity, quality, timing, and distribution of water for the natural system and for other water-related needs of the region. It is anticipated that if more water is made available for the natural system in South Florida through implementation of the Plan, more water should also be available for other existing and future uses. Under some circumstances, depending on the project components, the hydrologic changes inherent in the design of those components, and the sequence for implementation of CERP projects, existing legal sources of water may be partially or entirely eliminated or transferred to new sources as a result of project implementation. The PDT must determine whether a project will cause an elimination or transfer of an existing legal source that was in existence on the date of enactment of WRDA 2000 (i.e. December 11, 2000). The specific requirement in section 601(h)(5) of WRDA 2000 is:

> "Until a new source of water supply of comparable quantity and quality as that available on the date of enactment of this Act is available to replace the water to be lost as a result of implementation of the Plan, the Secretary and the non-Federal sponsor shall not eliminate or transfer existing legal sources of water, including those for:
>
> (i) an agricultural or urban water supply;
> (ii) allocation or entitlement to the Seminole Indian Tribe of Florida under section 7 of the Seminole Indian Land Claims Settlement Act of 1987 (25 U.S.C. 1772e);
> (iii) the Miccosukee Tribe of Indians of Florida;
> (iv) water supply for Everglades National Park; or
> (v) water supply for fish and wildlife."

In addition to the provision regarding elimination or transfer of existing legal sources of water, the Savings Clause requires that:

> "Implementation of the Plan shall not reduce levels of service for flood protection that are:
>
> (i) in existence on the date of enactment of this Act; and
> (ii) in accordance with applicable law."

To help meet this statutory obligation, the Programmatic Regulations require that the operational conditions included in the Pre-CERP Baseline be considered in the appropriate analyses in each PIR.

Lastly, the Savings Clause of section 601(h)(5) of WRDA 2000 has specific protections regarding the Seminole Tribe's compact:

> "Nothing in this section amends, alters, prevents, or otherwise abrogates rights of the Seminole Indian Tribe of Florida under the compact among the Seminole Tribe of Florida, the State, and the SFWMD, defining the scope and use of water rights of the Seminole Tribe of Florida, as codified by section 7 of the Seminole Indian Land Claims Settlement Act of 1987 (25 U.S.C. 1772e)."

Projects are allowed to eliminate or transfer an existing legal source; however a replacement source that is of comparable quantity and quality needs to be identified and be available prior to the elimination or transfer. Projects may not reduce levels of service for flood protection. Evaluation criteria for existing legal sources of water and for flood protection should not be used as performance measures to compare or rank alternative plans, to select a preferred alternative, or to measure project benefits. However, the PDT should conduct preliminary screening analyses on the final array of alternative plans to determine potential effects on existing legal sources of water and levels of service for flood protection.

3.4 DEFINITION OF EXISTING LEGAL SOURCE

The term "existing legal source" is unique to section 601 of WRDA 2000 and is not defined in State or Federal law. The Programmatic Regulations require that a definition be developed in this Guidance Memorandum. Accordingly, the following definition for existing legal source is adopted for CERP:

> "Existing legal source means the quantity and quality of water available within a water basin (including seepage, surface water, direct rainfall, and groundwater) used for a water supply, which is legally protected by Federal or State law, including the quantity and quality necessary for protection of the source of supply, consistent with State and Federal law, as of December 11, 2000, for:
>
> (i) An agricultural or urban water supply;
> (ii) Allocation or entitlement to the Seminole Indian Tribe of Florida under section 7 of the Seminole Indian Land Claims Settlement Act of 1987 (25 U.S.C. 1772e);
> (iii) the Miccosukee Tribe of Florida;
> (iv) water supply for Everglades National Park; or
> (v) water supply for fish and wildlife."

This Guidance Memorandum provides analytical procedures for evaluating existing legal sources of water as defined above.

3.5 RELATIONSHIP OF SAVINGS CLAUSE TO OTHER REQUIRED ANALYSES

The Savings Clause has a very specific purpose: to protect existing legal sources of water from elimination or transfer until a new source of comparable quantity and quality is available and to protect levels of service for flood protection, existing and in accordance with applicable law, from reduction by CERP projects. It is important for the PDT to understand

that just because implementation of the selected alternative plan would not cause a Savings Clause impact, there are other analyses that the team needs to conduct to evaluate whether there are impacts to the natural system or to other water users (See Attachments 3-A, 3-B, and 3-C). Other analyses required by State law are discussed in section 1.11 of Guidance Memorandum #1.

3.6 LEGAL ENTITLEMENTS

There are two entitlements existing in law outside of the Savings Clause that must be considered in the Savings Clause analysis. The following sections describe these entitlements and how they should be considered.

3.6.1 Seminole Tribe of Florida

The Seminole Tribe of Florida has a distinct set of water rights governed by Federal and State law and various Agreements. In 1987, the United States Congress passed the Seminole Indian Land Claims Settlement Act, P.L. 100-228, which incorporates the Water Rights Compact among the Seminole Tribe of Florida, the State of Florida and the SFWMD. The Florida Legislation enacted Chapter 87-292 and codified section 285.165, F.S., as the companion State legislation regarding the Water Rights Compact. The intent of the Compact, the Act, and the legislation was to create specifically defined water rights for the Tribe.

Section VI.A. of the Compact addresses agreements with landowners who may be affected by operations of the Tribe under a tribal Work Plan. This Work Plan must be submitted to the SFWMD for approval by the SFWMD Governing Board and amendment and is typically approved on an annual basis. Under section VI.A., the SFWMD Governing Board may approve private agreements between landowners and the Tribe, and if they are approved in that manner, the agreements will have the force and effect of the Compact as between the parties to the agreement. Section VI.B. addresses specific surface water entitlements for the Brighton Reservation, the Hollywood Reservation, and the Big Cypress Reservation.

The Compact describes an Evaluation Criteria Manual to further define and explain the conditions, criteria, and objectives of the Compact. The Compact also describes a Tribal Water Code to ensure compliance with the Compact.

In 1989, an Agreement was approved between the SFWMD and the Tribe on an "Emergency Plan for Implementation of Technical Report on Water Availability Estimates for the Brighton Seminole Reservation–Water Shortage Conditions." The Agreement stated that when Lake Istokpoga can no longer release water, but while canals are still at or near optimum levels, the District will deliver the Tribe fifteen percent (15%) of the available water in the canals.

In 1992, under section VI.A. of the Compact, an Agreement was signed between the SFWMD and the Seminole Tribe of Florida entitled "Providing for Water Quality, Water Supply and Flood Control Plans for the Big Cypress Seminole Indian Reservation and the Brighton Seminole Indian Reservation Implementing Section V.C. and VI.D. of the Water

Rights Compact." This Agreement has the full force and effect of the 1987 Water Rights Compact. This 1992 Agreement provided for cooperation between the SFWMD and the Tribe to ensure that water quality criteria are addressed in the C-139 Basin and in waters entering the Big Cypress Seminole Indian Reservation. This 1992 Agreement also addresses the Tribe's Compact rights to surface waters for the Brighton Reservation.

The Compact, Evaluation Criteria Manual, Tribal Water Code, various Agreements and applicable Federal and State laws constitute the sources of regulation of consumptive water use, the management and storage of surface water and groundwater on Reservation and Tribal Trust lands.

The PDT will evaluate potential effects on water allocations to the Seminole Brighton Reservation. The PDT should use the estimated Tribal Work Plan Allocation for the Brighton Reservation of 2,561.74 million gallons per maximum month (MGMM) which is composed of 360 MGMM groundwater, 546.1 MGMM Lakeshore Perimeter surface water, and 1655.64 MGMM Indian Prairie Basin Surface Water to determine the Tribe's existing legal source for the Brighton Reservation. Allocations for the Tribe's other reservations are captured in the Pre-CERP Baseline.

3.6.2 Minimum Deliveries for Everglades National Park

In 1970, Congress passed the Minimum Deliveries Act, Public Law 91-282. The Act mandated that deliveries to Everglades National Park (ENP) will not be less than 315,000 acre-feet annually or 16.5 per cent of the total deliveries from the C&SF Project System for all purposes, including ENP, whichever is less. The accompanying Senate Report divided this quantity of water between Shark Slough, Taylor Slough, and the Eastern Panhandle of the Park, and provided monthly schedules for each of the delivery points.

In 1983, the Experimental Water Deliveries Program was authorized to develop a better hydrologic regime (PL 98-181). The 1983 Act authorized the USACE, with the concurrence of the National Park Service and the SFWMD, to modify the schedule for delivery of water to ENP as required by the Minimum Deliveries Act for two years to conduct an experimental program of water deliveries from the C&SF Project to ENP. Then in 1991, PL 102-104 amended PL 98-181 to allow the Experimental Program to continue until the modifications to the C&SF Project authorized in the Everglades National Park Protection and Expansion Act of 1989 are completed and implemented.

It is important to note, however, that while the experimental program modified the minimum deliveries schedule, it had not been superseded or repealed by a subsequent Federal law on the date of enactment of WRDA 2000. It is the intent of the Modified Water Deliveries to Everglades National Park Project and CERP to change the distribution of water set forth in the Minimum Deliveries Act and provide a more natural hydrologic regime to Everglades National Park. Since it has been recognized that the distribution of water in the Minimum Deliveries Act does not constitute a natural hydrologic regime, the Minimum Deliveries Act will not be utilized for purposes of the Savings Clause. Although it is not a plan formulation objective, it is desirable to compare the C&SF Project delivery quantities to Everglades

National Park with the quantities of water in the Minimum Deliveries Act. The PDT will follow the procedure set forth in Attachment 3-D to provide an accounting of the amount of water delivered to Everglades National Park.

3.7 THE PRE-CERP BASELINE

The Pre-CERP Baseline is a description of assumed hydrologic conditions on the date of enactment of WRDA 2000 (i.e. December 11, 2000), including a simulation of these conditions, which has been developed to satisfy the requirements of the Programmatic Regulations as a tool in the implementation of the Savings Clause (section 601(h)(5) of WRDA 2000). The Programmatic Regulations define the Pre-CERP Baseline as:

> "…the hydrologic conditions in the South Florida ecosystem on the date of enactment of WRDA 2000, as modeled by using a multi-year period of record based on assumptions such as land use, population, water demand, water quality, and assumed operations of the C&SF Project."

The Pre-CERP Baseline document (U.S. Army Corps of Engineers and South Florida Water Management District, 2005) provides a description of the model assumptions necessary to simulate the pre-CERP hydrologic conditions. Although regional models and model versions may change over time, the assumptions that define the Pre-CERP Baseline will not be changed.

3.7.1 Miccosukee Tribe of Indians of Florida

The Miccosukee Tribe of Indians of Florida has lived in the Everglades for generations and their culture and way of life is dependent on a healthy Everglades. The Miccosukee Tribe is generally recognized to be successor to any existing rights of the Seminole Indians under the Everglades National Park Enabling Act, 16 U.S.C. 410 (b), which are not in conflict with the purposes for which the Everglades National Park (ENP) is created. On October 30, 1998, Congress clarified the rights of the Miccosukee Tribe, which became Federally recognized in 1962, to live and govern its own affairs in perpetuity in manners consistent with the Miccosukee Reserved Act Area (MRAA) for purposes of the administration, education, housing, and cultural activities of the Tribe within a 666.6 acre Miccosukee Reserved Area (MRA) within the boundary of ENP (See MRAA, 16 U.S.C. 410). The MRA also contains provisions to protect the ENP outside the boundaries of the MRA from adverse effects of structures or activities within that area, and to support restoration of the South Florida ecosystem, including restoration of the environment of the ENP. The Tribe's interests also include a 75,000-acre Federal Indian Reservation that is held in trust by the Federal government. The Tribe has established water quality standards under the Clean Water Act for the Federal Reservation. The Tribe also has a perpetual lease from the State of Florida to a Leased Area in WCA 3 in accordance with The Florida Indian Claims Settlement Act. The Leased Area has for many years comprised part of WCA 3 as part of the Federally authorized project of flood control and water management for Central and Southern Florida. As stated in the Lease Agreement appended as Exhibit A to the Settlement Agreement in Miccosukee Tribe of Indians of Florida v. State of Florida, Case No. 79-253-Civ-JWK, in the United States District Court for the Southern District of Florida, Miami Division, the Tribe is subject

to and shall not interfere with rights, duties and obligations of the SFWMD or the USACE, pursuant to the requirements of the Central and Southern Florida Project, the requirements of the Federally authorized project conveyances, easements, grants, rules, statutes, or any other present or future lawful authority to manage, regulate, raise or lower the water levels within the Leased Area in WCA 3. Additionally, the Tribe is permitted under Public Law 93-440 to continue their usual and customary use and occupancy of Federal or Federally acquired lands and waters within the Big Cypress Preserve and the Addition Lands, including hunting and fishing on a subsistence basis, gathering of native plants, and conducting tribal ceremonies. In addition, there are Indian communities consisting of several Indian camps along Tamiami Trail.

3.7.2 Agricultural and Urban Water Supply

The existing legal sources of water for agricultural and urban water supplies in the Pre-CERP Baseline were determined using model assumptions based on the actual levels of consumptive use in existence as of the date of enactment of WRDA 2000. This methodology is consistent with the basic underlying principle used to choose assumptions for other existing legal sources of water, which is to represent as closely as possible the actual conditions in place in the system as of the date of enactment of WRDA 2000 (December 11, 2000). Permitted allocations in existence as of the date of enactment of WRDA 2000 which were not utilized would have incorporated projected demands over the life of the permit that may not have been in existence at that date.

Non-irrigation urban demands were calculated based on the actual pumpage and distribution in the year 2000. Urban irrigation and agricultural demands, including diversion and impoundment uses to supply these demands, were calculated based on the land use and crop acreage that existed as of 2000.

In addition, there are water deliveries made to the Lower East Coast in order to prevent salt water intrusion into water supply sources for urban and agricultural uses. Operations of the C&SF Project for these purposes are identified in the "USACE Water Control Plan for the Lower East Coast Canals" and are incorporated into assumptions in the Pre-CERP Baseline.

3.7.3 Water Supply for Everglades National Park and for Fish and Wildlife

Water supply for ENP is primarily provided through regulated environmental releases through the S-12 structures and other operations of the C&SF Project. In December 2000, the C&SF Project in south Miami-Dade County operated according to the Interim Structural and Operational Plan (ISOP) in an attempt to meet the Reasonable and Prudent Alternative to avoid jeopardizing the Cape Sable Seaside Sparrow. This version of ISOP failed to meet the Reasonable and Prudent Alternative and was later replaced by the Interim Operating Plan (IOP), which is anticipated to remain in place until the Combined Structural and Operating Plan (CSOP) is implemented. For purposes of the Pre-CERP Baseline, the model assumptions for ISOP model run 9dr (also known as ISOP 2001), the operational regime actually in place on the date of enactment of WRDA 2000, are used in the Pre-CERP Baseline.

Due to the highly managed nature of South Florida's hydrology, much of the water on which fish and wildlife depend is affected, directly, or indirectly, by deliveries made through the C&SF Project system for regulatory releases and other activities not explicitly intended to benefit fish and wildlife. Fish and wildlife habitat occurs in uplands, wetlands, and estuaries throughout the region in vegetation communities that depend on appropriate sources of groundwater, surface water, and flows to tide.

3.8 INTERVENING NON-CERP ACTIVITIES

The Savings Clause only applies to changes from the date of enactment of WRDA 2000 that result from "implementation of the Plan." In some cases, the existing legal sources of water and the level of service for flood protection that existed at that time may be altered or changed before a CERP project is implemented. These changes may result from actions by Federal, Tribal. State, and local governments–actions that are wholly outside the CERP process. These "intervening" conditions, brought about by the implementation of non-CERP activities after the date of enactment of WRDA 2000, but before a CERP project component becomes operational, may change the hydrologic conditions from those reflected in the Pre-CERP Baseline. Examples include construction of government public works projects that impact the configuration of the C&SF Project system (e.g., Modified Water Deliveries to ENP, C-111, and C-51 projects); construction of projects that impact the use of water from the C&SF Project system (e.g., stormwater treatment areas); changes to operations of the C&SF Project system (e.g., IOP, CSOP, Lake Okeechobee Regulation Schedule) and the issuance of consumptive use permits under State law. When the Pre-CERP Baseline conditions have already been altered by this kind of intervening non-CERP activity, a different analysis is required for the purpose of applying the Savings Clause.

This Guidance Memorandum provides guidance to PDTs in their analyses when dealing with intervening non-CERP activities. In general, the following principles will apply:

- The Savings Clause does not require CERP to make up for reductions in quantity and quality of existing legal sources of water or levels of service for flood protection caused by intervening non-CERP activities, but it does prohibit CERP projects from further reductions.
- The Savings Clause does not prohibit CERP from reducing quantity and quality of existing legal sources of water or levels of service for flood protection that were increased by intervening non-CERP activities, but it does prohibit CERP projects from reducing those increases below those in place on the date of enactment of WRDA 2000.

As an example, there have already been intervening non-CERP activities that have altered the hydrology affecting ENP. There have been operational changes since the ISOP, which is the operating schedule used in the Pre-CERP Baseline modeling. These operational changes, including the IOP, have had as their primary purpose avoiding jeopardy to the Cape Sable Seaside Sparrow until completion of construction of the Modified Water Deliveries Project and the 1994 C-111 General Reevaluation Report (GRR) modifications and the implementation of the CSOP, at which point in time these projects will become intervening

non-CERP activities. The IOP is considered an intervening non-CERP activity. The future construction of the Modified Water Deliveries to ENP Project and the 1994 C-111 GRR features, together with the implementation of CSOP, will also be intervening non-CERP activities.

Additional examples and further guidance are provided in Attachments 3-E and 3-F. It is important for the PDT to note that although the Savings Clause does not prohibit CERP projects from reducing benefits increased by intervening non-CERP activities, other analyses, such as those required by Florida law, may prohibit the project from reducing benefits increased by intervening non-CERP activities as discussed elsewhere; also see Attachments 3-A, 3-B, and 3-C. Notwithstanding the Savings Clause analysis described above, projects will be formulated to achieve the optimum benefits consistent with the goals and purposes of each CERP project.

3.9 MODEL SELECTION FOR SAVINGS CLAUSE ANALYSES

In general, the PDT should use the same models that are used for plan formulation. However, should the PDT determine that additional models are necessary, the PDT must present its recommendations for management approval. Modeling for the Saving Clause analyses of both existing legal sources of water and levels of service for flood protection should use the same assumptions and project operations.

- Evaluations should be done across a full range of hydrologic conditions, including wet, average, and dry years.
- The method used to quantify existing legal sources of water should be sensitive to conditions during which users of a source are most likely to be affected by changes in water quantity or quality.

The major regions of the South Florida ecosystem have been separated into water basins to determine existing legal sources of water. These water basins are shown as Figure 3-G-1 and listed in Table 3-G-1 in Attachment 3-G. These designated basins should be used for most existing legal source determinations. However, there may be project specific circumstances which indicate that a smaller scale approach for determination of existing legal sources is needed. Any proposed exception to the designated basins must be elevated through the DCT to the QRB for discussion.

The model chosen for the evaluation should incorporate the full range of available meteorological conditions since the determination of elimination or transfer and levels of service for flood protection are based on the performance of the system as modeled against a range of weather conditions. However, it is recognized that the PDT may determine that modeling the full period of record is impractical and that, in their professional judgment, modeling a subset of the full period of record is an adequate substitute. If a subset of years is chosen, the PDT should use a consistent subset for all Savings Clause analyses and the subset should be a representative sample of the range of conditions in the historical period of record including intra- and inter-annual variations. The PDT should document the selection of period of record used in the model.

As many CERP components are regional in scale, the Pre-CERP Baseline currently uses the SFWMM as the regional modeling tool for the area within the geographical limit of the model. Since regional models typically consist of large grid cells, only a general indication of flood protection can be determined through regional analysis. For that reason, smaller-scale integrated ground and surface water models may also be necessary for specific analysis of levels of service for flood protection.

3.10 IDENTIFYING IF THERE IS AN ELIMINATION OR TRANSFER OF EXISTING LEGAL SOURCES OF WATER

3.10.1 Identifying Existing Legal Sources of Water to be Evaluated

The PDT should identify all existing legal sources of water that could be affected by the project. The procedures in Attachment 1-A of Guidance Memorandum #1 should be used to determine the spatial extent of project effects. Once this geographical boundary is identified, the PDT should identify all existing legal sources of water within the boundary. Several sources of information are available to assist the PDT:

- Defined project purposes
- Information developed in the last completed PIR
- Maps of existing legal source basins within the regions affected by the project
- The Existing Conditions Baseline and the Pre-CERP Baseline

Some projects are intended to transfer users to different sources and clearly will require evaluation. Other cases of elimination or transfer of a source may be an incidental or unanticipated effect of a project. The analysis will need to address both types of elimination or transfer of sources.

3.10.2 Consider Project-level and System-wide Effects on All Existing Legal Sources of Water

Generally, the evaluation of existing legal sources of water should be conducted at a system-wide level for projects that show system-wide effects, using available regional and sub-regional hydrologic and water quality models and other information. Some projects are hydrologically separate from the regional water management system. Projects that do not affect regional water deliveries are exempt from the system-wide evaluations described in this Guidance Memorandum; however, the PDT should use an approach consistent with the procedures in this Guidance Memorandum. For both types of evaluations, the geographical evaluation area should be large enough to consider all potential effects on existing legal sources of water. Existing legal sources of water that are not affected should be identified and documented. Attachment 1-A of Guidance Memorandum #1 provides a procedure for determining whether a project has system-wide or project-level effects and for determining the spatial extent of project effects.

3.10.3 Identifying an Elimination or Transfer of Water

3.10.3.1 Analysis for PIRs

The PDT should follow the steps described in this section and depicted in Attachment 3-H to identify if the project creates an elimination or transfer of water. Additional guidance as to the effect of intervening non-CERP activities on determining if implementation of the selected alternative plan would result in an elimination or transfer is provided in Attachment 3-E.

Step 1

In Step 1, the inflow volume-probability curve for the Initial Operating Regime (IOR) will be compared to the inflow volume-probability curve for the Existing Conditions Baseline for each of the water basins in Attachment 3-G. Figure 3-2 shows an example of a volume-probability curve. The IOR and Existing Conditions Baseline inflow volume-probability curves should be displayed on the same graphic.

The results of the Step 1 analysis should reveal if the Initial Operating Regime reduces the overall quantity of water to one or more of the basins. If the comparison of the Initial Operating Regime with the Existing Conditions Baseline shows no significant reduction, then implementation of the selected alternative plan will not cause an elimination or transfer of existing legal sources of water, and the requirements of the Savings Clause have been met.

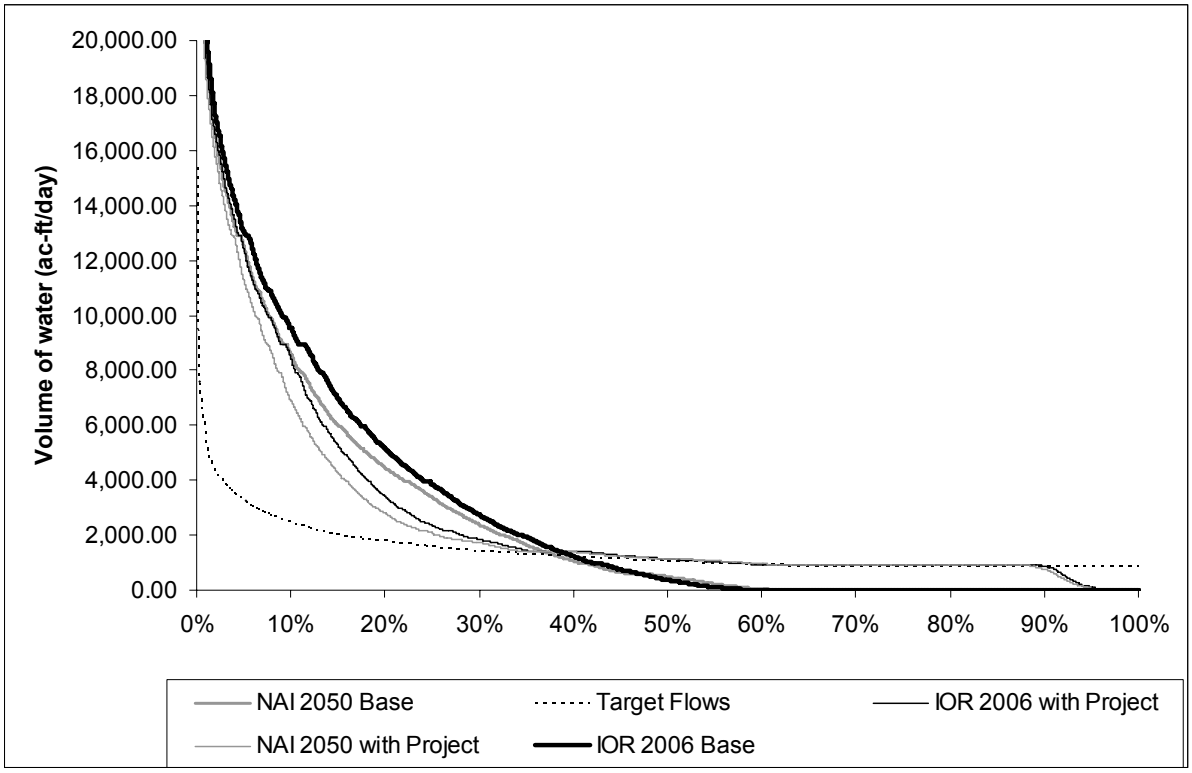

Figure 3-2: Example of a Volume-Probability Curve

If the IOR shows a significant reduction in volume from the Existing Conditions Baseline for one or more basins, then further analysis is needed. If the analysis shows that the reduction is necessary to achieve natural system performance, then implementation of the selected alternative plan will not cause an elimination or transfer of existing legal sources of water, and the requirements of the Savings Clause have been met. If the reduction is not necessary to achieve natural system performance, then the PDT must proceed to Step 2.

Step 2

In Step 2, the inflow volume-probability curve for the Initial Operating Regime will be compared to the inflow volume-probability curve for the Pre-CERP Baseline for each of the water basins in Attachment 3-G. The IOR and Pre-CERP Baseline inflow volume-probability curves should be displayed on the same graphic.

The results of the Step 2 analysis should reveal if the Initial Operating Regime reduces the overall quantity of water to one or more of the basins. If the comparison of the Initial Operating Regime with the Pre-CERP Baseline shows no significant reduction, then implementation of the selected alternative plan will not cause an elimination or transfer of existing legal sources of water, and the requirements of the Savings Clause have been met.

If the IOR shows a significant reduction in volume from the Pre-CERP Baseline in one or more basins, then further analysis may be needed. If the analysis shows that the reduction in a basin is necessary to achieve natural system performance, then implementation of the selected alternative plan will not cause an elimination or transfer of existing legal sources of water, and the requirements of the Savings Clause have been met. If the reduction is not necessary to achieve natural system performance, then the PDT must proceed to Step 3.

Step 3

In Step 3, the PDT will need to determine if the reduction in volume is due to changes in demands or other assumptions rather than implementation of the CERP project. This will be accomplished by modeling the IOR without the selected alternative plan. The inflow volume-probability curves for the IOR without the selected alternative plan will be compared to the IOR for each of the water basins in Attachment 3-G. The IOR without the selected alternative plan and the IOR should be displayed on the same graphic. If the IOR does not show any significant reduction in volume from the IOR without the selected alternative plan, then the Savings Clause requirements have been met because the reduction in volume found in the previous two steps is due to changes in demands, operations, or other assumptions rather than implementation of the CERP project. If the IOR shows a significant reduction in volume from the IOR without the selected alternative plan, then the PDT will need to develop a replacement source (see sections 3.10.6 and 3.10.7).

3.10.3.2 Analysis for Revisions to Operating Manuals

The Savings Clause analyses of this Guidance Memorandum also apply to revisions to Project Operating Manuals (POM) and the System Operating Manual (SOM). As modifications to POMs and the SOM are evaluated, identifying if an elimination or transfer

of existing legal sources of water will occur as a result of implementation of a CERP operational change will be necessary. The PDT should follow the same steps described in the above section for PIRs, except that the IOR should be updated for current conditions at the time that the analysis is conducted to identify if the project creates an elimination or transfer of water.

3.10.4 How Much of a Difference Between the Conditions Does it Take to Have an Elimination or Transfer?

It requires more than a simple volume change or change in water quality to have an elimination or transfer of existing legal sources of water under the Savings Clause. Changes between the Initial Operating Regime and the Existing Conditions Baseline should be significant. In the case of intervening non-CERP activities, differences between the Initial Operating Regime and the Pre-CERP Baseline should be significant. The determination of whether a volume change or a change in water quality is significant must be done on a case-by-case basis. The reason that there are no required criteria for evaluation is that this evaluation is fact specific–what is significant in one case may not be significant in another case. In consultation with affected entities, the PDT should consider and document all technical, factual, and other relevant information used in this determination.

3.10.5 How to Determine if a Replacement Source is a Comparable Source?

Implementation of a CERP project cannot result in the elimination or transfer of an existing legal source of water unless that source will be replaced with a source of comparable quantity and quality as that available on the date of enactment of WRDA 2000.

If the PDT determines that an elimination or transfer will occur, the team must then ensure that the replacement source is a comparable source in terms of water quality and quantity. The PDT will make this determination utilizing specific technical information available to the team. The following determinations must be included in the evaluation of whether a replacement source is a comparable source:

1. Determine whether the replacement source is sufficient to meet the demands from the existing legal source.

2. Determine whether the replacement source is sufficiently similar to that of the existing legal source in terms of its legal feasibility. In order to make this determination, the PDT, along with appropriate legal staff from USACE and the non-Federal sponsor, will need to identify that the necessary legal authorization to implement and use the sources of supply for the intended purpose can be obtained.

3. Determine whether the replacement source is sufficiently similar to that of the existing legal source in terms of its technical and economic feasibility. To make this determination, the quality of the replacement source shall be compared to the quality of the existing legal source. If these are comparable, no further analysis is necessary.

If the replacement source is not comparable and no other sources of comparable quality are available, see section 3.10.7.

3.10.6 What to Do if a Comparable Source Cannot Be Identified

The following are examples of actions that the PDT may evaluate if analyses show that implementation of the selected alternative plan would result in an elimination or transfer of an existing legal source and a comparable replacement source cannot be identified:

- Modify the operations of the selected alternative plan to avoid an elimination or transfer (Note: this requires additional formulation. See Guidance Memorandum #2).
- Redesign the selected alternative plan to avoid an elimination or transfer (Note: this requires additional formulation. See Guidance Memorandum #2).
- Determine if there are other CERP projects scheduled concurrently with the subject project that will solve the elimination or transfer issue. If so, the elimination or transfer by the subject project is no longer an issue.
- Consider rescheduling the project concurrently with other components to avoid an elimination or transfer or to ensure that a comparable replacement source is available.
- Formulate additional alternative plans or modifications to the selected alternative plan. (Note: this requires additional formulation. See Guidance Memorandum #2).

If the above actions are not feasible and the elimination or transfer can not be remedied, the PDT may recommend that the project be discontinued. A recommendation to discontinue a project will be reviewed by the appropriate decision-makers for the USACE and the non-Federal sponsor. Consultation in accordance with the provisions of the Programmatic Regulations will occur before a decision to discontinue a project is finalized.

3.11 DETERMINING IF LEVELS OF SERVICE FOR FLOOD PROTECTION HAVE BEEN REDUCED

3.11.1 Levels of Service for Flood Protection to be Evaluated

The Programmatic Regulations define levels of service for flood protection as "the expected performance of the Central and Southern Project and other water management systems in the South Florida ecosystem, consistent with applicable law, for a specific area or region." Section 601(h)(5) of WRDA 2000 did not limit levels of service for flood protection only to Federal law, but includes Federal and State law. State law includes levels of service for flood protection provided by subdivisions of the State, including water management districts, special taxing districts, and local governments. As such, in order to meet the second requirement, operational conditions associated with approved Federal, Tribal, State, and local public works projects were included as assumptions in the Pre-CERP Baseline model run. These operational conditions incorporate regulation schedules for the natural system and the secondary and tertiary canal systems in south Florida to ensure that levels of service for flood protection are maintained in urban and agricultural areas. Generally, it should not be necessary to conduct Savings Clause analyses below this level. Depending upon site-specific conditions, it may be necessary to do more detailed analyses. The level of evaluation performed must be consistent for urban and agricultural areas.

The PDT should identify all urban and agricultural areas within the study area where levels of service for flood protection could be affected by a project. The procedures in Attachment 1-A of Guidance Memorandum #1 should be used to determine the spatial extent of project effects. Several sources of information are available to assist the PDT:

- Defined project purposes
- Information developed in the last completed PIR
- The Existing Conditions Baseline and the Pre-CERP Baseline

The PDT must evaluate if levels of service for flood protection have been reduced on a project-by-project basis.

3.11.2 Levels of Service for Flood Protection are Based on Performance Modeled Against a Range of Conditions, Not a Design Level

The purpose of the Savings Clause is not to allow implementation of CERP projects that would reduce levels of service for flood protection existing as of December 2000. In the definition of "levels of service for flood protection" in the Programmatic Regulations, the term "expected performance" refers to the performance of the system actually in place when modeled against the period of record. It does not refer to specific design flood targets such as the 10-year or 100-year flood event.

Standard project flood and project design flood are not the same as Savings Clause "levels of service of flood protection…in existence on date of enactment." Standard project flood and similar terms are shorthand statements of design goals. They do not reflect the levels of service in existence in December 2000. There are several reasons for this:

- The project may not have been authorized as designed.
- Congress may not have funded the complete project as it was designed.
- Separate reaches of a project may have different levels of protection because of variance in the scope of project response to the flood threat.
- The level of protection may change over time because of new land uses or upstream development or because of other changed conditions, such as additional projects.
- Other projects may have been built which affected the original design level of flood protection; subsequent projects may have modified or superseded the original design plan.
- Operations of connected projects may have been changed and affected the feasibility of the originally projected level.
- Other circumstances may have affected the design level originally projected.

Finally, the Pre-CERP Baseline is defined by the Programmatic Regulations to mean the hydrological response of the system and operations in existence in December 2000 based upon the climatic conditions for a specific period of record rather than to a design flood level.

3.11.3 Analyze the Selected Alternative Plan for Reductions in Levels of Service for Flood Protection

3.11.3.1 Analysis for PIRs

The PDT should follow the steps described in this section to identify if the project reduces levels of service for flood protection. Additional guidance as to the effect of intervening non-CERP activities on determining if implementation of the selected alternative plan would reduce levels of service for flood protection is provided in Attachment 3-F. Attachment 3-C provides a list of other analyses of flood protection to be performed in addition to that required by the Savings Clause. Attachment 3-I provides a checklist for the levels of service for flood protection analysis for the selected alternative plan.

Step 1

In Step 1, the stage-duration curve for the Initial Operating Regime (IOR) will be compared to the stage-duration curve for the Existing Conditions Baseline for each of the water basins in Attachment 3-G. The stage-duration curves for the IOR and Existing Conditions Baseline should be displayed on the same graphic.

The results of the Step 1 analysis should reveal if the Initial Operating Regime reduces the levels of service for flood protection to one or more of the basins. If the comparison of the Initial Operating Regime with the Existing Conditions Baseline shows no significant and adverse reduction, then implementation of the selected alternative plan will not cause a reduction in levels of service for flood protection, and the requirements of the Savings Clause have been met.

If the IOR shows a significant and adverse reduction in levels of service for flood protection from the Existing Conditions Baseline in one or more basins, then the PDT must proceed to Step 2.

Step 2

In Step 2, the stage-duration curve for the Initial Operating Regime will be compared to the stage-duration curve for the Pre-CERP Baseline for each of the water basins in Attachment 3-G. The stage-duration curves for IOR and Existing Conditions Baseline should be displayed on the same graphic.

The results of the Step 2 analysis should reveal if the Initial Operating Regime reduces the levels of service for flood protection to one or more of the basins. If the comparison of the Initial Operating Regime with the Existing Conditions Baseline shows no significant and adverse reduction, then implementation of the selected alternative plan will not cause a reduction in levels of service for flood protection, and the requirements of the Savings Clause have been met.

If the IOR shows a significant and adverse reduction in levels of service for flood protection from the Pre-CERP Baseline in one or more basins, then the PDT must proceed to Step 3.

Step 3

In Step 3, the PDT will need to determine if the reduction in levels of service for flood protection is due to changes in demands or other assumptions rather than implementation of

the CERP project. This will be accomplished by modeling the IOR without the selected alternative plan. The IOR without the selected alternative plan will be compared to the IOR for each of the water basins in Attachment 3-G. The IOR without the selected alternative plan and the IOR should be displayed on the same graphic. If the IOR does not show any significant reduction in levels of service for flood protection from the IOR without the selected alternative plan, then the Savings Clause requirements have been met because the reduction in levels of service found in the previous two steps is due to changes in demands, operations, or other assumptions rather than implementation of the CERP project. If the IOR shows a significant reduction in levels of service for flood protection from the IOR without the selected alternative plan, then the PDT will need to consider actions to solve the reduction (see section 3.11.5).

3.11.3.2 Analysis for Revisions to Operating Manuals

The Savings Clause analyses of this Guidance Memorandum also apply to revisions to Project Operating Manuals (POM) and the System Operating Manual (SOM). As modifications to POMs and the SOM are evaluated, identifying whether levels of service for flood protection will be reduced by a CERP operational change will be necessary. The PDT should follow the same steps described in the above section for PIRs, except that the IOR should be updated for current conditions at the time that the analysis is conducted to identify if the project reduces levels of service for flood protection.

3.11.4 How Much of a Difference Between the Conditions Does it Take to Have a Reduction in Levels of Service for Flood Protection?

It requires more than a simple change in hydrological response to "reduce levels of service for flood protection" under the Savings Clause. Differences between the Initial Operating Regime and the Existing Conditions Baseline should be significant and adverse. In the case of intervening non-CERP activities, differences between the Initial Operating Regime and the Pre-CERP Baseline should be significant and adverse. The PDT should consider all technical information, including approved performance measures in determining if the reduction in levels of service for flood protection is significant and adverse, and thus prohibited. The intent of the Savings Clause is to avoid harm to existing levels of service for flood protection, and not to avoid harmless differences in project operations.

3.11.5 What to do if a Selected Alternative Plan Reduces the Levels of Service for Flood Protection

The following are examples of actions that the PDT may evaluate if analyses show that implementation of the selected alternative plan would result in a reduction in levels of service for flood protection:

- Modify the operations of the selected alternative plan to avoid a reduction in levels of service for flood protection (Note: this requires additional formulation. See Guidance Memorandum #2).

- Redesign the selected alternative plan to avoid a reduction in levels of service for flood protection (Note: this requires additional formulation. See Guidance Memorandum #2).
- To the extent consistent with Federal and State law, consider acquisition (fee or easement) of affected property if redesign of the selected alternative plan would not be cost-effective. Cost-effectiveness is required by the Programmatic Regulations, and the PDT should carefully evaluate whether acquisition of a flowage or conservation easement is more cost-effective than fee acquisition. (Note: this requires additional formulation. See Guidance Memorandum #2).
- If a redesign or property acquisition is not justified and cost-effective for the project alone, consider whether combining the project with other components would be justified and cost-effective.
- Formulate additional alternative plans or modifications to the selected alternative plan. (Note: this requires additional formulation. See Guidance Memorandum #2).

If the above actions are not feasible and the reduction of levels of service for flood protection can not be remedied, the PDT may recommend that the project be discontinued. A recommendation to discontinue a project will be reviewed by the appropriate decision-makers for the USACE and the non-Federal sponsor. Consultation in accordance with the provisions of the Programmatic Regulations will occur before a decision to discontinue a project is finalized.

3.12 DOCUMENTATION OF GUIDANCE MEMORANDUM #3 ANALYSES

The analyses conducted to determine whether or not existing legal sources of water have been eliminated or transferred and whether levels of service for flood protection will be reduced under the Savings Clause of section 601(h)(5) of WRDA 2000 will be documented.

For PIRs, a summary of the analysis of whether existing legal sources of water have been eliminated or transferred should be included in the Plan Implementation section of the PIR in the sub-section entitled “Effects on Existing Legal Sources of Water” (See Guidance Memorandum #1, Attachment 1-C “PIR Outline”). More detailed information about the analysis should be placed in Annex C - Analyses Required by Federal and State Law in the section entitled “Savings Clause Analyses.”

A summary of the analysis of whether existing levels of service for flood protection have been reduced should be included in the Plan Implementation section of the PIR in the sub-section entitled “Effects on Level of Service for Flood Protection.” More detailed information about the analyses should be placed in Annex C - Analyses Required by Federal and State Law in the section entitled “Savings Clause Analyses.”

For to the preliminary and Final Project Operating Manuals and the System Operating Manual, the Savings Clause analyses of whether existing legal sources of water have been eliminated or transferred and the analysis of whether existing levels of service for flood

protection have been reduced should be documented in an appropriate section of the Operating Manual.

EXHIBIT 9

ATTACHMENT 3-A
OTHER ANALYSES AND PROTECTIONS FOR THE NATURAL SYSTEM

The protection provided by the Savings Clause in section 601(h)(5) of WRDA 2000 is limited to protecting sources of water identified as of the date of enactment of WRDA 2000, such as those for the natural system, from elimination or transfer by CERP projects. Projects that will provide beneficial water for the natural system–Modified Water Deliveries to ENP and the 1994 C-111 GRR modifications to the C&SF Project–were not included in the assumptions for quantifying the natural system's existing legal sources of water because the CSOP process, which will determine the operations of these features, was not completed as of the date of enactment of WRDA 2000. For the purpose of the Savings Clause evaluation, these projects are considered intervening non-CERP activities.

The purpose of this attachment is to make the PDT aware that there are other analyses besides the Savings Clause which provide protection for the natural system for intervening non-CERP activities such as the Modified Water Deliveries to ENP Project and the C-111 Project,. PDTs will consider these intervening non-CERP activities that benefit the natural system in the following ways:

- **Evaluation of non-CERP activity benefits by WRDA 2000 Section 601(f):** Section 601(f)(2) of WRDA 2000 requires that the proposed activity be justified by the environmental benefits derived by the South Florida ecosystem. This will require consistency of the project with the benefits provided by existing non-CERP activities and the Future Without CERP Baseline identified in the Plan.

- **Evaluation of non-CERP activity benefits by "optimizing" process in the Programmatic Regulations:** The Programmatic Regulations (33 CFR 385.26(b)) require that, in preparing a PIR, the USACE and the non-Federal sponsor follow a formulation and evaluation process for alternative plans. Section 601 of WRDA 2000 mandates that this process will optimize the project's contributions towards achieving the benefits of the Plan. Achieving the benefits of the Plan assumes that the benefits provided by non-CERP activities, like the Modified Water Deliveries, C-111, Critical Restoration Projects (pursuant to WRDA 1996), and the Everglades Construction projects, and other elements of the Future Without CERP Baseline described in the Plan are necessary to achieve the benefits of the Plan.

- **Evaluation of non-CERP activity benefits by NEPA analysis:** The environmental effects of proposed CERP projects will be evaluated under NEPA. NEPA requires a comparison of a range of alternative plans with conditions that will exist if no action is taken.

- **Evaluation of non-CERP activity benefits by the Fish and Wildlife Coordination Act, the Endangered Species Act, the Coastal Zone Management Act, and other Federal laws:** The environmental effects of proposed CERP projects on fish and

wildlife resources available at the time of the PIR will be evaluated under the Fish and Wildlife Coordination Act, the Endangered Species Act, the Coastal Zone Management Act, and other Federal laws. This evaluation will consider any loss of benefits to fish and wildlife, any impacts on endangered or threatened species, and any impacts on resources of Florida's coastal zone, including benefits provided by non-CERP activities, even though they did not exist on date of enactment.

- **Evaluation of non-CERP activities benefits by Florida law:** The environmental effects of proposed CERP projects will be evaluated under applicable Florida laws, including minimum flows and levels, and F.S. section 373.1501. For example, the Modified Water Delivery Project to ENP and the 1994 GRR modifications to the C-111 Canal projects both were included in the Future Without CERP Baseline and were assumed by Congress to be constructed and operational before related Plan projects become operational. They are part of the framework Plan, as well as the benefits provided by Florida's Everglades Construction Project, and the water treatment requirements of the 1994 Everglades Forever Act.

EXHIBIT 9

ATTACHMENT 3-B
OTHER ANALYSES AND PROTECTIONS FOR OTHER WATER-RELATED NEEDS

The protection provided by the Savings Clause in section 601(h)(5) of WRDA 2000 is limited to protecting existing legal sources of water identified as of the date of enactment of WRDA 2000 for the specified user classifications. In addition, the primary State authority regarding the implementation of CERP is Chapter 373, F.S., provides assurances that implementation of CERP will not have adverse affects. These provisions provide responsibility to the State, including the SFWMD and the FDEP, to ensure restoration of the Everglades and the protection of existing legal uses of water and existing levels of flood protection when designing and implementing CERP project components.

Assurances are provided under State law requiring that CERP be used as a "guide and framework ... to:… 2. ensure that the project components will be implemented to achieve the purposes of the Federal Water Resources Development Act of 1996 that include restoring, preserving and protecting the South Florida ecosystem, …and providing such features as are necessary to meet the other water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the project" (section 373.470(3)(b)2., F.S).

Section 373.1501(2), F.S., in part, provides that CERP components must be implemented through appropriate processes under Chapter 373 and consistent with the balanced policies and purposes of Chapter 373, F.S. Specifically, section 373.1501(5) provides assurances to natural systems, existing legal users and for flood protection, including requirements that SFWMD has for each project component:

a. Analyze and evaluate all needs to be met in a comprehensive manner and consider all applicable water resource issues, including water supply, water quality, flood protection, threatened and endangered species, and other natural system and habitat needs.
b. Consistent with Chapter 373, the purposes for the Restudy provided in the Water Resources Development Act of 1996, and other applicable Federal law, provide reasonable assurances that the quantity of water available to existing legal users shall not be diminished by implementation of project components so as to adversely impact existing legal users, that existing levels of service for flood protection will not be diminished outside the geographic area of the project component, and that water management practices will continue to adapt to meet the needs of the restored natural environment.

Prior to executing a PCA, the SFWMD must develop a PIR with the USACE to address the requirements in section 373.1501, F.S., and to obtain approval under section 373.026, F.S., from the FDEP. This ensures that the PIR will be sufficient to meet both State, as well as Federal, law requirements for implementing a CERP project.

Definition of Existing Legal Uses Pursuant to Chapter 373, F.S.

As explained above, State law protects existing legal uses of water when implementing CERP. Permitted consumptive uses and domestic water uses (which are exempt from requirements to obtain a permit) have the legal status of an "existing legal use." The existing legal use is defined by the consumptive use permit authorizing the use of a specified source to meet an identified reasonable-beneficial demand for water for a limited duration. They receive the permits pursuant to the statutes and rules set forth in Part II of Chapter 373, F.S. The existing legal use is conditioned to ensure that the consumptive use activities under the permit continue to be conducted in accordance with Chapter 373, F.S. Unauthorized, including unpermitted, consumptive uses do not constitute an "existing legal use" and are not protected by the statute.

Other Chapter 373 Tools for Protecting Existing Legal Uses of Water

Chapter 373, F.S., addresses the protection of existing legal uses in several places. Section 373.171, F.S., provides that no rule or order of the water management district shall require modification of an exiting legal use unless such use is detrimental to other water users or to the water resources of the state. In addition, there are limited grounds upon which revocation of consumptive use permits can occur, as set forth in section 373.243, F.S., including willful violation of permit conditions and submission of false material information required under law.

Existing legal uses of water are also protected when adopting water reservations pursuant to section 373.223(4), F.S. Specifically, existing legal uses are protected so long as they are "not contrary to the public interest." This public interest balancing is conducted by the Governing Board of the water management district when establishing a reservation. For CERP project reservations, section 373.1501 provides additional direction for protection of existing legal uses.

Furthermore, existing legal use rights are considered when implementing water shortage declarations under section 373.246, F.S. Specifically, under this section, water supplies are to be equitably distributed during droughts so as to protect water resources from serious harm and to reasonably meet the continued demands of the permitted users. This is commonly referred to as the "shared adversity" standard, in which both existing legal uses and water resources share in the adversity that occurs during water shortages. These provisions are implemented through water management district rules, including the SFWMD water shortage plan set forth in Chapter 40E-21, F.A.C.

EXHIBIT 9

ATTACHMENT 3-C
OTHER ANALYSES OF FLOOD PROTECTION TO BE CONDUCTED IN ADDITION TO THE SAVINGS CLAUSE

Analysis of flood protection under the Savings Clause compares the proposed CERP project with conditions existing at a specific point in time, the date of enactment of WRDA 2000. The Savings Clause analysis is separate from, and different than, each of the following. All of these analyses may require additional analysis of flood protection in the PIR:

- NEPA analysis of impact of alternative plans on the Next-Added Increment Baseline ("no action plan"). This analysis compares the impact of the proposed CERP project to conditions existing at a different point in time than the Savings Clause. Under NEPA, alternative plans are compared to the no-action alternative.
- Takings analysis. This compares the impact of the proposed component to constitutional property rights, which may or may not be related to levels of service for flood protection at the time of enactment of WRDA 2000.

Section 373.1501 analysis: The Programmatic Regulations, 33 CFR section 385.15, requires that "PIRs will include such information and analyses, consistent with this part, as are necessary to facilitate review and approval of projects by the SFWMD and the State pursuant to the requirements of Florida law." The State requirements are different in several ways from the Federal law. The current Florida law (F.S. 373.1501[d]), in part, requires the non-Federal sponsor to provide "reasonable assurances" that "the existing levels of service for flood protection will not be diminished outside the geographic area of the Plan project component."

Consideration of additional flood protection under 33 CFR Section 385.37(c): This section of the Programmatic Regulations provides that "As appropriate, the USACE and the non-Federal sponsor shall consider opportunities to provide additional flood protection, consistent with restoration of the natural system, and the provisions of section 601(f)(2)(B) of WRDA 2000 and other applicable laws." This comparison is different than, and in addition to, the Savings Clause analysis.

EXHIBIT 9

ATTACHMENT 3-D
PROCEDURE FOR MINIMUM DELIVERIES TO EVERGLADES NATIONAL PARK WATER ACCOUNTING

The 1970 Minimum Deliveries to Everglades National Park Act (PL 91-282) "requires that the [C&SF] project deliver to the park annually not less than 315,000 acre-feet, or 16.5 percent of total water deliveries from the project, whichever is less." Monthly minimum deliveries to three parts of the park totaling the 315,000 acre-feet were specified.

It is the intent of the Modified Water Deliveries to Everglades National Park Project and the CERP to change the distribution of water set forth in the Minimum Deliveries Act and provide a more natural hydrologic regime to Everglades National Park. Since it has been recognized that the distribution of water in the Minimum Deliveries Act does not constitute a natural hydrologic regime, the Minimum Deliveries Act will not be utilized for purposes of the Savings Clause. Although it is not a plan formulation objective, it is desirable to compare the C&SF Project delivery quantities to Everglades National Park with the quantities of water in the Minimum Deliveries Act by undertaking the following accounting procedure for each project that could affect water deliveries to Everglades National Park:

> For each month, the sum of deliveries through the S-12 A, B, C, and D structures into Shark River Slough, into Taylor Slough, and into the Eastern Panhandle should be compared to the quantities shown in Table 3-D-1 for total water deliveries to Everglades National Park.

Table 3-D-1: Minimum Monthly Deliveries to Everglades National Park

Month	Quantity (Acre-Feet)			
	S-12 (A-D)	Taylor Slough	Eastern Panhandle	Total
January	22,000	740	1,540	24,280
February	9,000	370	630	10,000
March	4,000	185	290	4,475
April	1,700	185	110	1,995
May	1,700	370	110	2,180
June	5,000	6,660	340	12,000
July	7,400	7,400	510	15,310
August	12,200	2,960	860	16,020
September	39,000	5,920	2,690	47,610
October	67,000	7,770	4,630	79,400
November	59,000	3,700	4,060	66,760
December	32,000	740	2,230	34,970
TOTAL	260,000	37,000	18,000	315,000

EXHIBIT 9

ATTACHMENT 3-E
EFFECT OF INTERVENING NON-CERP ACTIVITIES ON EXISTING LEGAL SOURCES OF WATER

As described in section 3.8 of this Guidance Memorandum, when the Pre-CERP Baseline conditions have already been altered by an intervening non-CERP activity, the PDT applies a different analysis. In general, CERP will deal with intervening non-CERP activities as follows:

- The Savings Clause does not require CERP to make up for reductions in quantity and quality of existing legal sources of water or levels of service for flood protection caused by intervening non-CERP activities, but it does prohibit CERP projects from further reductions.
- The Savings Clause does not prohibit CERP from reducing quantity and quality of existing legal sources of water or levels of service for flood protection that were increased by intervening non-CERP activities, but it does prohibit CERP projects from reducing those increases below those in place at the date of enactment of WRDA 2000.

The PDT must make a determination in the PIR as to this elimination or transfer by the intervening non-CERP activities. The following examples are provided as guidance to the PDT for analyzing whether the project will eliminate or transfer quantities of existing legal source water in cases where the Pre-CERP Baseline hydrology has been altered by an intervening non-CERP activity:

Example (1):

After date of enactment of WRDA 2000, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity eliminates or transfers the water quantity or quality of an existing legal source that existed on the date of enactment. The proposed CERP project does not change the elimination or transfer caused by the intervening non-CERP activity.

Q. Is this an "elimination or transfer of an existing legal source" under the Savings Clause?

A. No. The existing legal source quantity or quality was eliminated or transferred by the non-CERP activity, not by implementation of CERP. The statute does not require the proposed CERP project to restore the quantity or quality that existed on date of enactment after that quantity or quality had been changed by an intervening project.

Example (2):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity eliminates or transfers the existing legal source quantity or quality that existed on the date of enactment. A proposed CERP project would increase the

quantity or quality above that of the non-CERP activity, but it would not restore the existing legal source quantity or quality existing on date of enactment.

Q. Is this an "elimination or transfer" under the Savings Clause?

A. No. The elimination or transfer of quantity or quality was caused by the non-CERP activity, not by implementation of CERP. The statute does not require the CERP project to restore the existing legal source quantity or quality that existed on date of enactment after it had been changed by an intervening non-CERP activity.

Example (3):

After date of enactment, a non-CERP activity is implemented. The non-CERP activity provides an improved quantity or quality of water than existed on the date of enactment. A proposed CERP project would eliminate or transfer the existing legal source quantity or quality below that provided by the non-CERP activity but still provide a higher existing legal source quantity or quality than on the date of enactment.

Q. Is this an "elimination or transfer" under the Savings Clause?

A. No. There is no elimination or transfer of an existing legal source quantity or quality from the date of enactment. The Savings Clause does not prohibit a reduction in the non-CERP improvement in existing legal source water quantity or quality provided by the intervening non-CERP activity because the increased quantity or quality was not in existence on the date of enactment. However, the PDT should be aware that there might be other reasons why the proposed CERP project cannot reduce the increased water quantity or quality (see Attachments 3-A and 3-B).

Example (4):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity eliminates or transfers an existing legal source quantity or quality that existed on the date of enactment. A proposed CERP project would eliminate or transfer that existing legal source quantity or quality that existed on date of enactment even more than the non-CERP activity.

Q. Is the additional elimination or transfer of the existing legal source quantity or quality an "elimination or transfer" under the Savings Clause?

A. Yes. The initial elimination or transfer was not due to implementation of the CERP project; the Savings Clause does not require the proposed CERP project to restore that existing legal source quantity or quality. However, the additional elimination or transfer was due to implementation of the CERP project. The intent of the Savings Clause prohibits the proposed CERP project from eliminating or transferring the existing legal source quantity or quality more than it had been already eliminated or transferred by the non-CERP activity.

Example (5):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity provides a greater quantity or quality than existed on the date of enactment. A proposed CERP project would eliminate the increased quantity or quality provided by the non-CERP activity, but would not reduce the benefit from that which existed on the date of enactment.

Q. Is this an "elimination or transfer" under the Savings Clause?

A. No. The Savings Clause prohibits the implementation of CERP from eliminating or transferring the existing legal source quantity or quality existing on the date of enactment. The Savings Clause does not prohibit elimination or transfer of the non-CERP activity increased quantity or quality because it was not in existence on the date of enactment. The proposed CERP project is not required to restore the increased quantity or quality provided by the non-CERP activity. However, the PDT should be aware that there might be other reasons why the proposed CERP project cannot reduce the increased water quantity or quality (see Attachments 3-A and 3-B).

Example (6):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity provides an increased water quantity or quality than existed on the date of enactment. A proposed CERP project not only would eliminate and transfer the greater water quantity or quality provided by the non-CERP activity, but also would eliminate or transfer the existing legal source water quantity or quality existing on the date of enactment.

Q. Is this an "elimination or transfer" under the Savings Clause?

A. Yes. The elimination or transfer of the existing legal source quantity or quality in existence on date of enactment is due solely to implementation of the CERP project. The Savings Clause prohibits implementation of the CERP project from eliminating a legal source quantity or quality in existence on date of enactment. The Savings Clause does not prohibit an elimination or transfer of the non-CERP quantity or quality because it was not in existence on the date of enactment. The proposed CERP project is not required to restore the quantity or quality provided by the non-CERP activity. However, the PDT should be aware that there might be other reasons why the proposed CERP project cannot reduce the increased water quantity or quality (see Attachments 3-A and 3-B).

Note: It is important for the PDT to note that the Savings Clause analyses described in this Guidance Memorandum pertain specifically to the analyses required for compliance with the Savings Clause of section 601(h)(5) of WRDA 2000. The PDT should conduct other

1 appropriate analyses to determine if the selected alternative plan will affect other rights
2 provided under Federal or State law.

EXHIBIT 9

ATTACHMENT 3-F
EFFECT OF INTERVENING NON-CERP ACTIVITIES ON REDUCTION IN LEVELS OF SERVICE FOR FLOOD PROTECTION

The Savings Clause applies to reduction in levels of service for flood protection only caused by "implementation of the Plan." The PDT should not assume that differences between the Initial Operating Regime and the Existing Conditions Baseline are due to implementation of the Plan. The PDT must use some appropriate method to identify any reduction in levels of service caused by implementation of non-CERP activities since December 2000.

After the PDT has determined the reduction in levels of service caused by the intervening non-CERP activity, the PDT must then determine if the CERP project will further reduce the levels of service from that reduction caused by the intervening non-CERP activity. If the CERP project will significantly impact levels of service beyond those caused by the non-CERP activity, guidance is provided in Attachment 3-I as to next steps for the PDT.

The following examples for the effect of intervening non-CERP activities on the Savings Clause analysis for levels of service for flood protection are provided:

Example (1):

After date of enactment of WRDA 2000, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity reduces the level of service that existed on the date of enactment. The proposed CERP project does not change the level of service provided by the intervening non-CERP activity.

Q. Is this a "reduction in levels of service for flood protection" under the Savings Clause?

A. No. The level of service was reduced by the non-CERP activity, not by implementation of CERP. The statute does not require the proposed CERP project to restore the level of service that existed on date of enactment after that level of service had been changed by an intervening project.

Example (2):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity reduces the level of service that existed on the date of enactment. A proposed CERP project would increase the level of service above that of the non-CERP activity, but it would not restore the levels of service existing on date of enactment.

Q. Is this a "reduction in levels of service for flood protection" under the Savings Clause?

A. No. The level of service was reduced by the non-CERP activity, not by implementation of the Plan. The statute does not require the CERP project to restore the level of service that

existed on date of enactment after it had been changed by an intervening non-CERP activity.

Example (3):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity provides a greater flood protection level of service than existed on the date of enactment. A proposed CERP project would reduce the level of service below the non-CERP activity but still provide a higher level of service than on the date of enactment.

Q. Is this a "reduction in levels of service for flood protection" under the Savings Clause?

A. No. There is no reduction in level of service from the date of enactment. The Savings Clause does not prohibit a reduction in the non-CERP level of service because it was not in existence on the date of enactment. However, the PDT should be aware that there may be other reasons why the proposed CERP project cannot reduce the increased level of service.

Example (4):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity reduces the flood protection level of service that existed on the date of enactment. A proposed CERP project would further reduce the level of service that existed on date of enactment even more than the non-CERP activity.

Q. Is the additional reduction in the level of service a "reduction in levels of service for flood protection" under the Savings Clause?

A. Yes. The initial reduction in level of service was not due to implementation of the CERP project; the Savings Clause does not require the proposed CERP project to restore that level of service. However, the additional reduction in level of service was due to implementation of the CERP project. The intent of the Savings Clause prohibits the proposed CERP project from reducing the level of service more than it had been reduced by the non-CERP activity.

Example (5):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity provides a greater flood protection level of service than existed on the date of enactment. A proposed CERP project would eliminate the increased level of service provided by the non-CERP activity, but would not reduce the level of service from that which existed on the date of enactment.

Q. Is this a "reduction in levels of service for flood protection" under the Savings Clause?

A. No. The Savings Clause prohibits the implementation of CERP from reducing the level of service existing on the date of enactment. The Savings Clause does not prohibit a reduction in the non-CERP level of service because it was not in existence on the date of enactment. The proposed CERP project is not required to restore the level of service provided by the non-CERP activity. However, the PDT should be aware that there may be other reasons why the proposed CERP project cannot reduce the increased level of service.

Example (6):

After date of enactment, a non-CERP activity is implemented in accordance with applicable law. The non-CERP activity provides a greater flood protection level of service than existed on the date of enactment. A proposed CERP project not only would eliminate the greater level of service provided by the non-CERP activity, but also would reduce the level of service existing on date of enactment.

Q. Is this a "reduction in levels of service for flood protection" under the Savings Clause?

A. Yes. The reduction in the level of service in existence on date of enactment is due solely to implementation of the CERP project. The Savings Clause prohibits implementation of the CERP project from reducing the level of service in existence on date of enactment. The Savings Clause does not prohibit a reduction in the non-CERP level of service because it was not in existence on the date of enactment. The proposed CERP project is not required to restore the level of service provided by the non-CERP activity. However, the PDT should be aware that there may be other reasons why the proposed CERP project cannot reduce the increased level of service.

Note: It is important for the PDT to note that the Savings Clause analyses described in this Guidance Memorandum pertain specifically to the analyses required for compliance with the Savings Clause of section 601(h)(5) of WRDA 2000. The PDT should conduct other appropriate analyses to determine if the selected alternative plan will affect other rights provided under Federal or State law.

EXHIBIT 9

ATTACHMENT 3-G
WATER BASINS

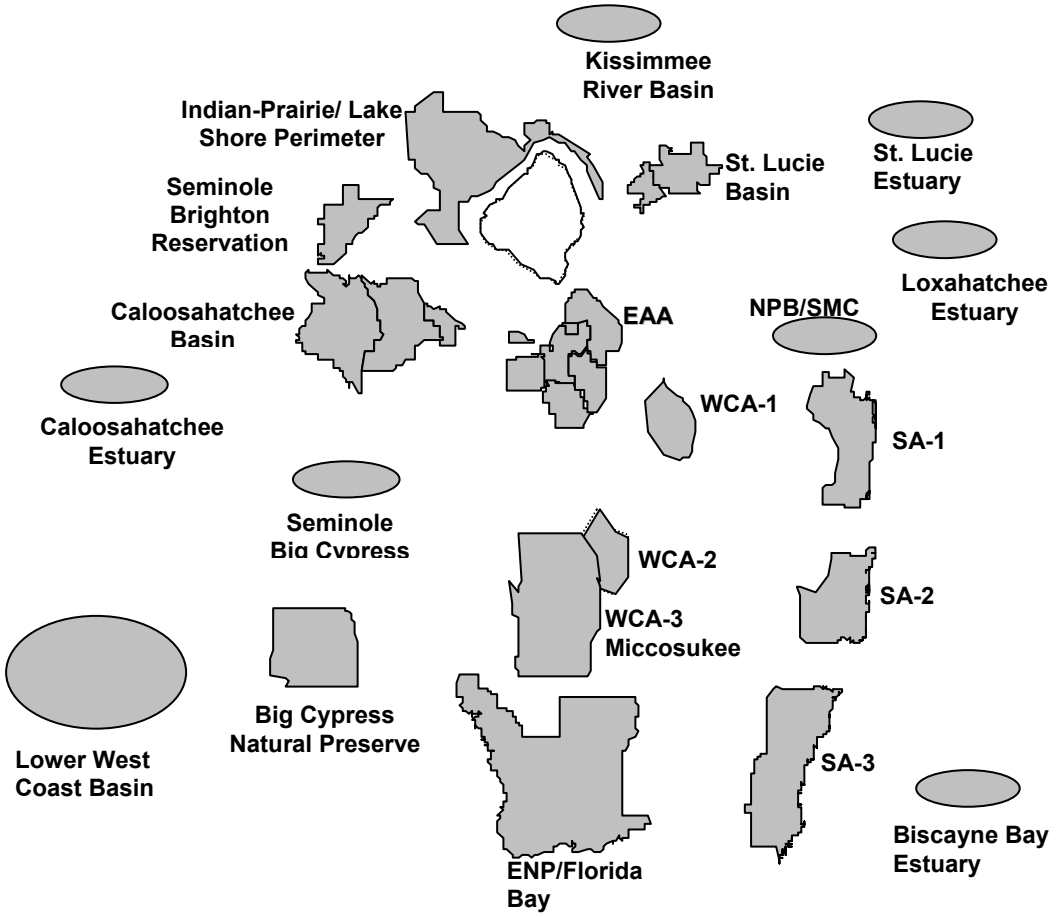

Figure 3-G-1: Water Basins

<u>Legend</u>

NPB	North Palm Beach
SMC	Southern Martin County
SA-1	Service Area 1
SA-2	Service Area 2
SA-3	Service Area 3
WCA-1	Water Conservation Area 1
WCA-2	Water Conservation Area 2
WCA-3	Water Conservation Area 3

Table 3-G-1: List of Water Basins

Water Basin
Kissimmee River Basin
Indian Prairie/Lake Shore Perimeter
St. Lucie Basin
St. Lucie Estuary
Seminole Brighton Reservation
Caloosahatchee Basin
Caloosahatchee Estuary
North Palm Beach and Southern Martin County (NPB/SMC)
Loxahatchee Estuary
Everglades Agricultural Area (EAA)
Seminole Big Cypress Reservation
Big Cypress Natural Preserve
Lower West Coast Basin
Lower East Coast Service Area 1 (SA-1)
Lower East Coast Service Area 2 (SA-2)
Lower East Coast Service Area 3 (SA-3)
Water Conservation Area 1 (WCA 1)
Water Conservation Area 2 (WCA 2), Water Conservation Area 3 (WCA 3), and Miccosukee Tribe
Biscayne Bay Estuary
Everglades National Park and Florida Bay (ENP/Florida Bay)

EXHIBIT 9

ATTACHMENT 3-H
FLOW CHART FOR ELIMINATION OR TRANSFER TEST

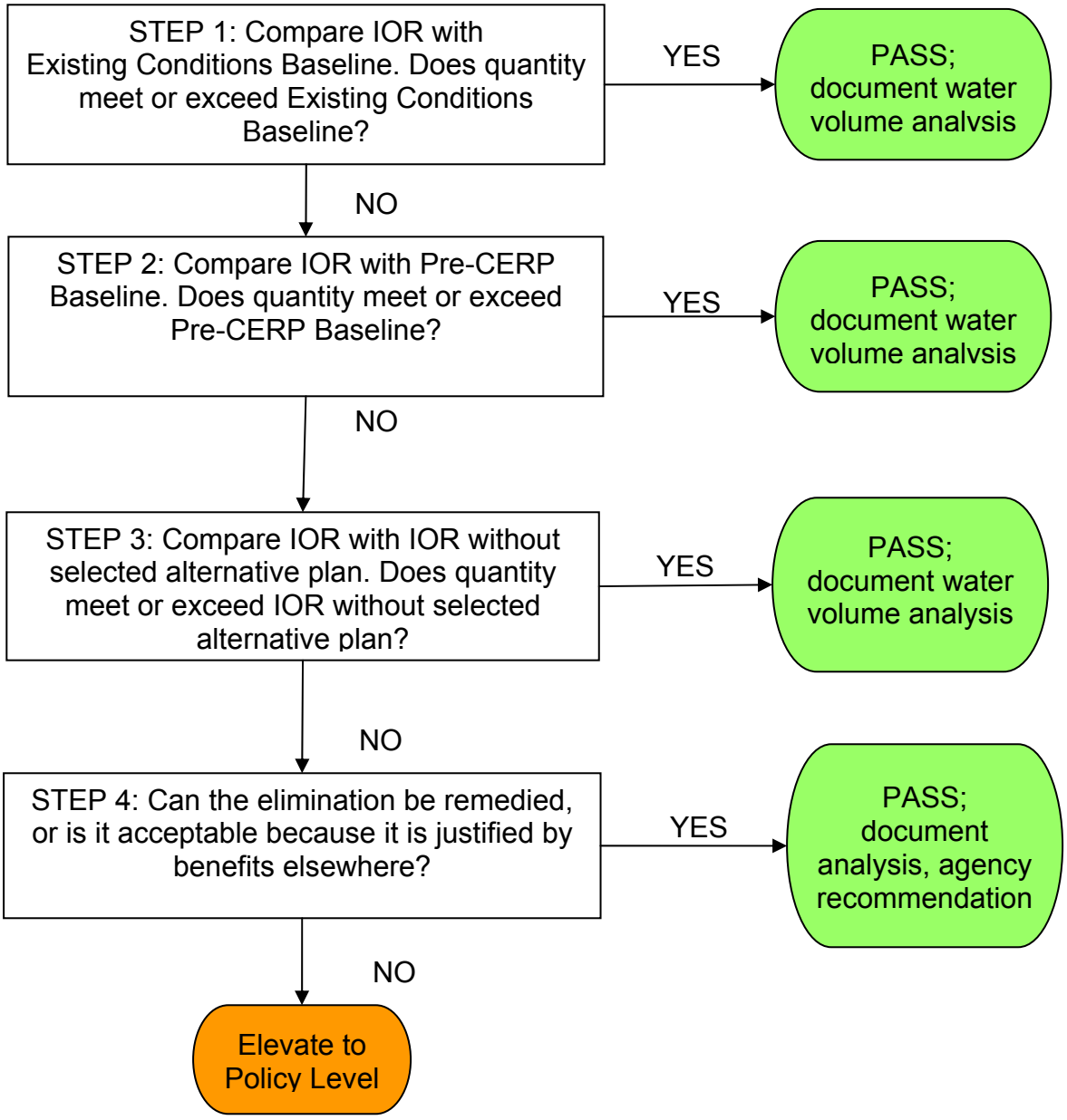

EXHIBIT 9

ATTACHMENT 3-I
CHECKLIST FOR LEVELS OF SERVICE FOR FLOOD PROTECTION

Step (1). Was there a Water Management District, Chapter 298 District, county or municipal flood protection project or stormwater management system constructed and operating in the proposed CERP project area on the date of enactment of WRDA 2000 (i.e. December 11, 2000)?

If the answer is "no," stop. Go to step (2).

If "yes," determine all the facts and circumstances, and determine if this qualifies as a level of service for flood protection "in accordance with applicable law" under this Guidance Memorandum. Then go to steps (2) and (3)

Step (2). On the date of enactment of WRDA 2000, was there a Federal or State flood protection project in the area affected by the proposed CERP project component?

If there was no Federal, State or local level of service for flood protection, stop. There is no "level of service for flood protection" issue. Go to step (12).

If "yes," go to step (3).

Step (3). Determine the actual stage-duration curve(s) for the flood protection or stormwater management project as it was constructed and operating on the date of enactment of WRDA 2000. As required by the Programmatic Regulations, consider the operational conditions included in the Pre-CERP Baseline, and other appropriate analysis, in determining the actual stage-duration curve. Go to step (4).

Step (4). Determine the stage-duration curve(s) for the "with CERP project" alternative being considered. Go to step (5).

Step (5). Is there a difference between (3) and (4)?

If "no," stop. Go to step (11)

If "yes," go to step (6).

Step (6). Is the difference both significant and adverse to current land uses in the proposed CERP project component area?

If "no," stop. Go to step (11).

If "yes," go to step (7).

Step (7). Is the difference both significant and adverse to land uses that were in existence in the proposed CERP project component area on the date of enactment of WRDA 2000?

If "no," stop. Go to step (11).

If "yes," go to step (8).

Step (8). Are significant and adverse changes in the levels of service for flood protection due to changes in land use or to implementation of a non-CERP activity?

If there are no significant and adverse changes caused solely by the proposed CERP project component, stop. Go to step (11)

If there are significant and adverse differences caused by the proposed CERP project component, go to step (9).

Step (9). (a) Can the proposed alternative be changed to avoid either significant or adverse effects, or (b) can a mitigation feature (e.g. pumps, retention areas, and levees) be added to prevent either significant or adverse effects on the "levels of service for flood protection"?

If you determined the answer to either (a) or (b) as "yes," determine if the proposed alternative is still justified and cost-effective. CERP and the Programmatic Regulations require projects to be justified and cost-effective (WRDA 2000 section 601(f)(2)).

If the redesigned alternative is still justified and cost-effective, stop. Change or mitigate the proposed alternative for the CERP component accordingly. Then go to step (11).

If the redesigned alternative is not justified and/or cost-effective, then go to step (10).

If both (a) and (b) answers are "no," stop. Eliminate this alternative.

Step (10). If redesign would not be cost-effective, consider acquisition of affected property.

If affected property cannot be acquired or if the alternative would no longer be justified or cost-effective if property were acquired, stop. Eliminate this alternative.

If the alternative is still justified or cost-effective, go to step (11)

Step (11). Determine if smaller scale modeling must be done to determine flood impacts on a site-specific basis.

Regional models such as the SFWMM may be used for the initial screening. Many CERP components are regional in scale. The PDT may use their best professional judgment to determine when smaller scale site-specific modeling is needed to determine whether there is a reduction in "levels of service for flood protection." Smaller sub-regional projects may be a likely candidate for smaller scale modeling.

If regional modeling of a proposed alternative shows a negative direction in those performance measures, that's an indication that more site specific modeling is needed.

If you determine that no further modeling is necessary, stop. There is no level of service for flood protection issue. Go to step (12).

If you determine that modeling on a smaller scale/more site-specific basis must be done in addition to the regional modeling, repeat steps (3)-(10), then go to step (12).

Step (12). Level of service for flood protection analysis complete.

EXHIBIT 9

SECTION 4: GUIDANCE MEMORANDUM #4 IDENTIFYING WATER MADE AVAILABLE FOR THE NATURAL SYSTEM AND FOR OTHER WATER-RELATED NEEDS

4.1 PURPOSE

This Guidance Memorandum provides instructions on how to identify the water made available for the natural system and for other water-related needs. This Guidance Memorandum also provides instructions on how to identify water to be reserved or allocated for the natural system. It is important to note that this Guidance Memorandum is to be used by the PDT after the identification of a selected alternative plan, as described in Guidance Memorandum #2. The procedures described in this Guidance Memorandum are not intended to be used to optimize the performance of the project nor to document all the types of benefits associated with the project.

4.2 APPLICABILITY

This Guidance Memorandum applies to PIRs for all CERP projects. Identifying water made available by the project and identifying water to be reserved or allocated for the natural system is required by section 601 of WRDA 2000 and the Programmatic Regulations. The PDT will identify the water necessary to achieve the benefits of the project – both water existing in the natural system and for other water-related needs prior to implementation of CERP and water made available to the natural system and for other water-related needs by the CERP project. These analyses will be conducted on the selected alternative plan.

4.3 LEGAL FRAMEWORK FOR IDENTIFYING WATER

The legal framework for identifying water made available by each project for the natural system and for other water-related needs is provided by section 601 of WRDA 2000, the Programmatic Regulations, and the CERP Assurance of Project Benefits Agreement of January 9, 2002 (also known as the President-Governor Agreement). After water made available from each project is identified, section 601 of WRDA 2000 and the Programmatic Regulations contain specific assurances for the water for the natural system. Specifically, section 601 of WRDA 2000 requires that the State reserve or allocate this water from availability for consumptive use. While the reservation or allocation of water is a process solely undertaken by the State, section 601 of WRDA 2000 and the Programmatic Regulations require that this reservation or allocation be based on the identification of water made available for the natural system. Furthermore, the State has elected to use its legal authority to protect water existing in the natural system that is identified in each PIR that is necessary to achieve the benefits of the project. See Attachment 4-B for a description of the tools available under State law for providing assurances.

4.4 PROJECT IMPROVEMENTS IN WATER QUALITY

In general, water quality must be considered for all CERP projects during project plan formulation and evaluation. As a result, the requirements of this Guidance Memorandum to address improvements in water quality necessary to ensure that water delivered by the Plan meets applicable water quality standards have been addressed in the application of the plan formulation and evaluation procedures of Guidance Memorandum #1 and Guidance Memorandum #2, which resulted in the selected alternative plan to which the technical methodologies in this Guidance Memorandum then apply. The requirement of section 385.35(b)(3)(i) of the Programmatic Regulations that the procedures in this Guidance Memorandum ensure that any features to improve water quality are implemented in a manner consistent with the WRDAs of 1996 and 2000 are included in Guidance Memorandum #2.

4.5 KEY CONCEPTS FOR IDENTIFYING WATER

4.5.1 Achieving the Benefits of the Plan

Both section 601 of WRDA 2000 and the Programmatic Regulations require that the identification of water needed to achieve the benefits of the Plan be undertaken as part of developing the Project Implementation Report. The process of identifying water is integral to the specific assurances of section 601 of WRDA 2000 and ultimately to ensuring that the overarching objective of the Plan – restoration, preservation, and protection of the south Florida ecosystem while providing for other water-related needs of the region, including flood protection and water supply – is met. This Guidance Memorandum specifies how the identification of water will take place.

The assurances section of section 601 of WRDA 2000 and the Programmatic Regulations require that all the water necessary to achieve the benefits of each project, and ultimately, the Plan, be identified as each PIR is developed. The Programmatic Regulations (section 385.31[c]) further require that the total quantity of water that is expected to be generated by implementation of the Plan be periodically updated.

In order to achieve the benefits of the Plan for the natural system, all the water necessary to achieve the natural system benefits of each project will be identified in the PIR. This includes both water available to the natural system prior to the implementation of the project which is needed to achieve project benefits and the water made available for the natural system as a result of the project. These two categories of water are both necessary to achieve the benefits of the Plan, but are to be protected by the State of Florida using separate authorities. The State has elected to use its authority to protect the existing water in the system that is identified by each PIR as necessary to achieve the natural system benefits of each project. The second category, water made available for the natural system that is identified by each PIR, includes any changes the project makes in the quantity, timing, or distribution of water which provides the benefits of the project. This is the water that will be reserved or allocated by the State pursuant to section 601(h)(4)(A)(iii)(V) of WRDA 2000.

This Guidance Memorandum also sets forth the methodology for each PIR to identify the water made available for other water-related needs. The State will then determine the use or allocation thereof as appropriate.

4.5.1.1 The Relationship between Plan Formulation and the Identification of Water

This Guidance Memorandum specifies how the identification of water made available by the project and the identification of water to be reserved or allocated for the natural system will take place. Figure 4-1 illustrates the framework for assuring that the benefits of the CERP project are achieved.

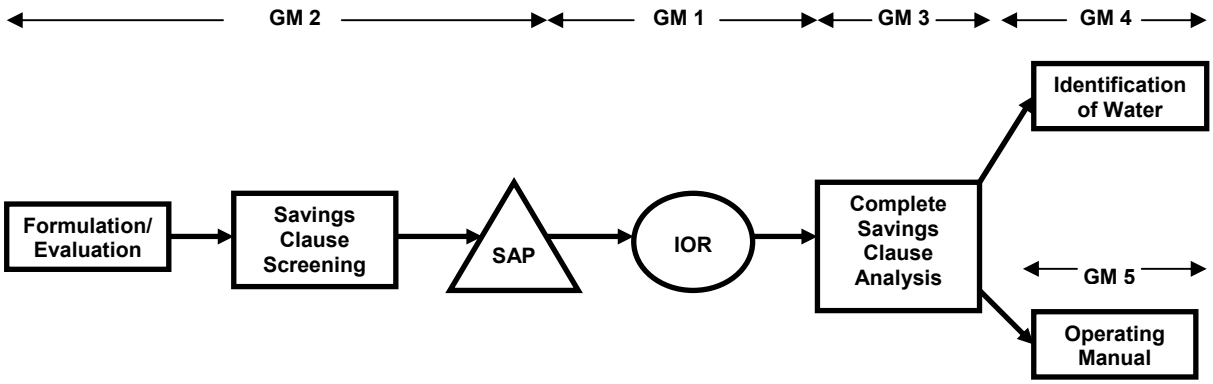

Figure 4-1: Relationship between Identification of Water and Other PIR Tasks

The quantification of water made available by a project occurs after the selected alternative plan has been identified from an array of alternative plans and the Initial Operating Regime has been developed for this plan. Once the selected alternative plan has been identified and the Initial Operating Regime developed, the procedures described in this Guidance Memorandum will be used to quantify the amount of water that is made available by the project for the natural system and for other water-related needs.

4.5.2 Water for Estuaries

Identification of water for estuaries is based on a determination of water that contributes to meeting hydrologic, water quality, and ecologic targets for restoration of the estuary, including salinity targets. These restoration targets should be based on ensuring a healthy, sustainable population of fish and wildlife that can remain healthy and viable through natural cycles of drought, flood, and population variation, and can continue on into the future as a healthy, sustainable population. As measured by the restoration targets, fish and wildlife are the native communities of fish and wildlife that use the habitat in its healthy state, not exotic, invasive, or other species that have moved into an area because the habitat has become degraded. Approved hydrologic, water quality, and ecologic performance measures for each estuary should be utilized to measure fresh water quantities needed for the protection of fish

and wildlife in the estuary, versus that which may be harmful to it or otherwise not contributing to the restoration targets for the estuary. Figure 4-2 illustrates the concept of water meeting restoration targets for estuaries.

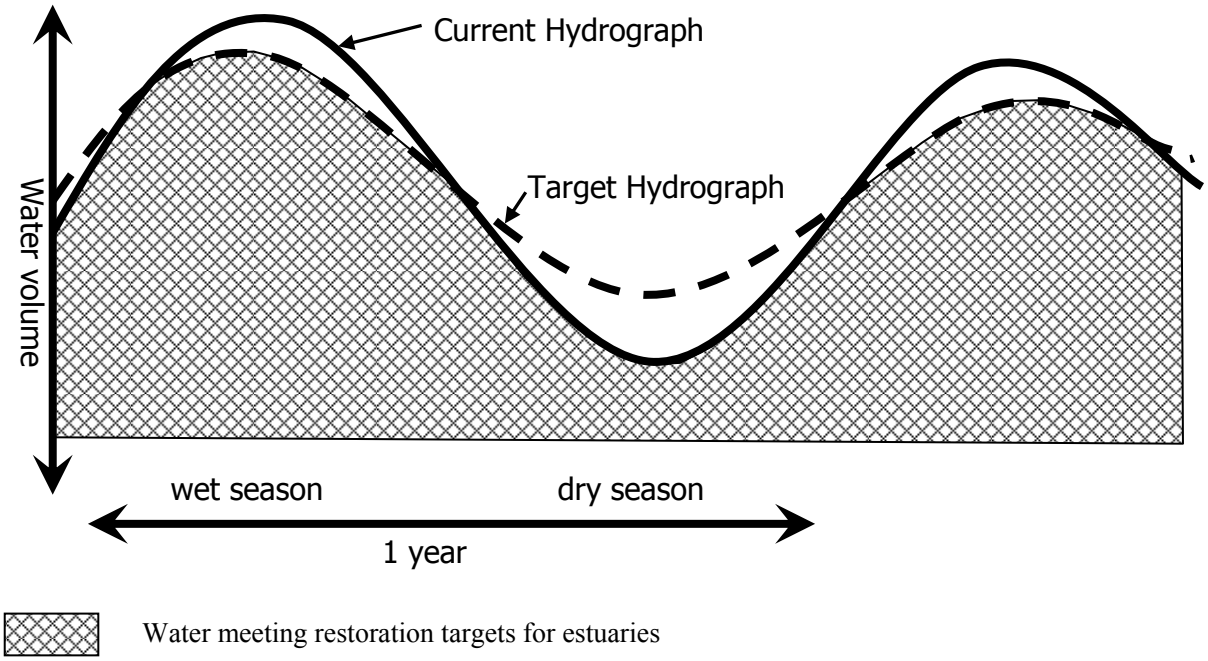

Figure 4-2: Concept for Quantifying Restoration Flows to the Estuaries

4.5.3 Hydrologically Separate Basins

Generally, the identification of water made available for the natural system and for other water-related needs should be conducted at a system-wide level using available regional and sub-regional hydrologic models. Some projects, such as Picayune Strand Restoration Project, are hydrologically separate from the regional water management system. Projects that do not affect regional water deliveries are exempt from the system-wide evaluations described in this Guidance Memorandum. While these areas are too small to be quantified for identifying water using current modeling tools, the benefits and performance improvements should be described in the PIR using qualitative methods or quantitative methods, if possible. Attachment 1-A of Guidance Memorandum #1 provides a procedure for determining whether a project has system-wide or project-level effects and for determining the spatial extent of project effects.

4.5.4 Significant Natural System Areas located within Other Water-Related Needs Basins

Significant natural system areas located within basins identified as other water-related needs basins (e.g., Pennsuco) that are affected by the selected alternative plan should be identified.

While these areas are too small to be quantified for identifying water using current modeling tools, the benefits and performance improvements should be described in the PIR.

4.6 IDENTIFYING WATER

This section describes the analyses that the PDT is to use in identifying the total water necessary to achieve the benefits of the project and the water made available by a project.

4.6.1 Volume-Probability Analysis of IOR and NAI Condition

For the purposes of this Guidance Memorandum, there are two concepts that need to be addressed – the identification of the total water necessary to achieve the benefits of the project and the water made available by the project. The Programmatic Regulations define water made available as the "water expected to be generated pursuant to the implementation of a Project of the Plan in accordance with the Project Implementation Report for that Project."

The identification of the total water necessary to achieve the benefits of the project will be determined from the inflow volume-probability curves for two separate conditions – the Initial Operating Regime (IOR) and the Next-Added Increment (NAI) Condition.

The identification of the water made available by the project will be determined from the difference between the inflow volume-probability curves for two separate conditions – the Initial Operating Regime (IOR) with the Existing Conditions Baseline and the Next-Added Increment (NAI) Condition with the Next-Added Increment Baseline. The difference between the Initial Operating Regime and the Existing Conditions Baseline is used to quantify the volume of water that will be immediately available when the project becomes operational and is the water that will be reserved or allocated by the State as identified in the PIR. This comparison is necessary because physical and operational constraints may exist temporarily in the system that prevents the attainment of all of the project's projected benefits immediately upon operation. Once these constraints are removed as modeled in the Next-Added Increment simulations, the quantity of water made available is expected to change. Furthermore, project operations would be expected to change due to a variety of reasons, including adjustments to operations and the construction of other CERP and non-CERP projects.

The total water necessary to achieve the benefits of the project and the water made available by the project will be computed for each of the following basins of interest:

<u>Everglades</u>

- Water Conservation Area 1
- Water Conservation Area 2 (2A and 2B)
- Water Conservation Area 3 (3A and 3B)
- Big Cypress National Preserve
- Everglades National Park

Estuaries

- Caloosahatchee Estuary
- St Lucie Estuary
- Loxahatchee River
- Biscayne Bay
- Florida Bay

Other Water-Related Needs

- Lake Okeechobee
- Caloosahatchee River Basin
- St Lucie River Basin
- Everglades Agricultural Area
- Indian Prairie/Lake Shore Perimeter
- North Palm Beach and Southern Martin Counties (NPB/SMC)
- Lower East Coast Service Area 1
- Lower East Coast Service Area 2
- Lower East Coast Service Area 3

The volumes of inflow to each basin are to be calculated as the sum of all simulated structural (e.g., pump stations, weirs, culverts, etc) and passive (e.g., bridges, overland flow, etc) means of water conveyance or transfer from one basin to another basin. For the estuary basins, the calculations must be based on determining water that contributes to meeting hydrologic, water quality, and ecologic targets for restoration of the estuary, including salinity targets (see section 4.5.2). Once water flows into a basin, it becomes part of that basin. The inflow volumes into a particular basin should include structural flow, overland flow, groundwater flow, and seepage. Figure 4-3 shows the basins of interest for which inflows are to be calculated. A map similar to Figure 4-3 should be prepared for each condition – Existing Conditions Baseline, Initial Operating Regime, Next-Added Increment Baseline, and Next-Added Increment Condition.

The inflow volumes for each basin will be displayed as volume-probability curves for the simulation period of record. The volume-probability curves rank the total annual cumulative inflow into a basin from the lowest to the highest value for the period of simulation. Figure 4-4 is an example of a volume-probability curve. For each volume probability curve, the 10%, 50% and 90% exceedence probability volumes will be identified.

Two sets of difference curves will then be developed from the volume-probability curves. The two sets of difference curves will be derived from comparison of the annual values for the two conditions - Existing Conditions Baseline and IOR and NAI Baseline vs. NAI. The results will then be sorted, ranked (from greatest to least), and plotted as difference curves. The 10%, 50%, and 90% exceedance points on the difference curve will be identified for each comparison and the water year for each of these points will be determined. The volumes associated with that water year will then be identified for each of the two conditions from which the difference curve was developed. Figure 4-5 is an example of difference curves.

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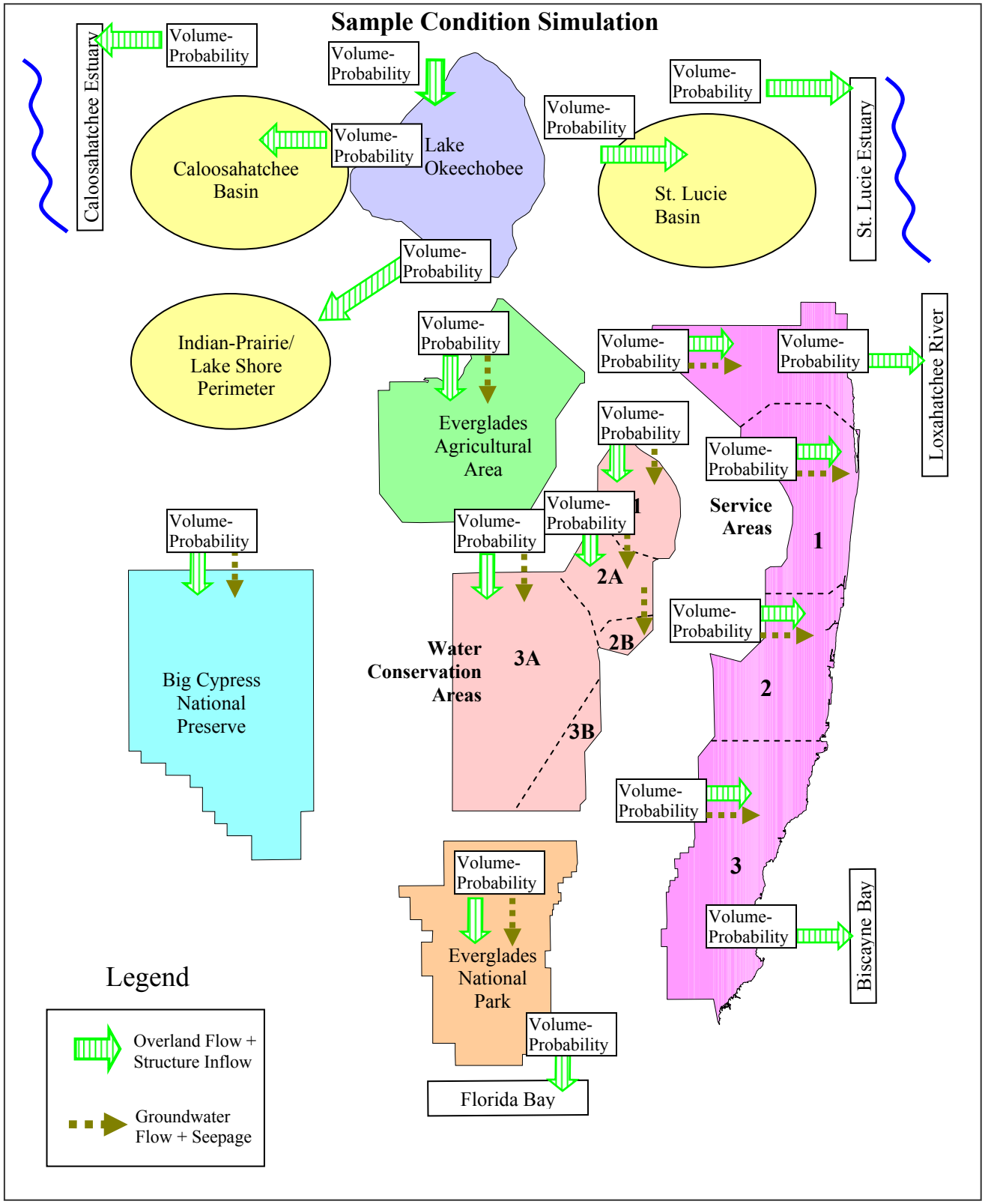
Figure 4-3: Inflow Volumes for Basins of Interest



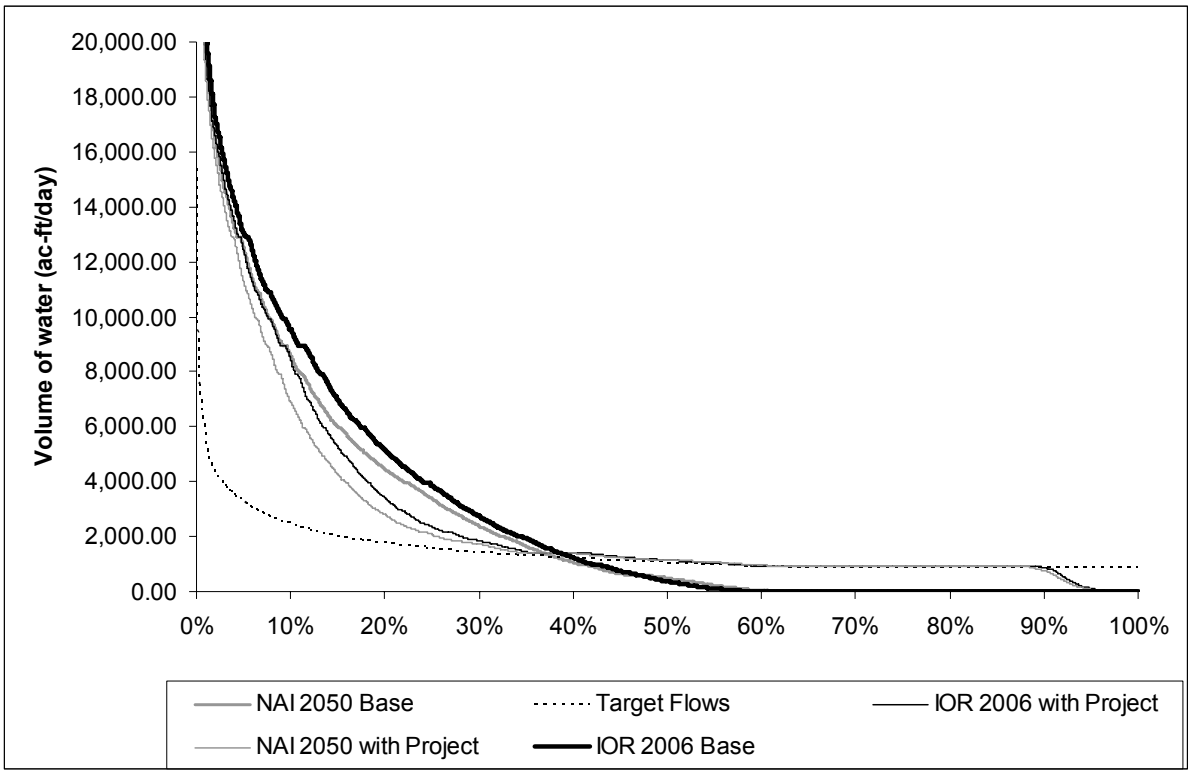


Figure 4-4: Example of a Volume-Probability Curve (Note: this example is for an estuary see section 4.5.2)

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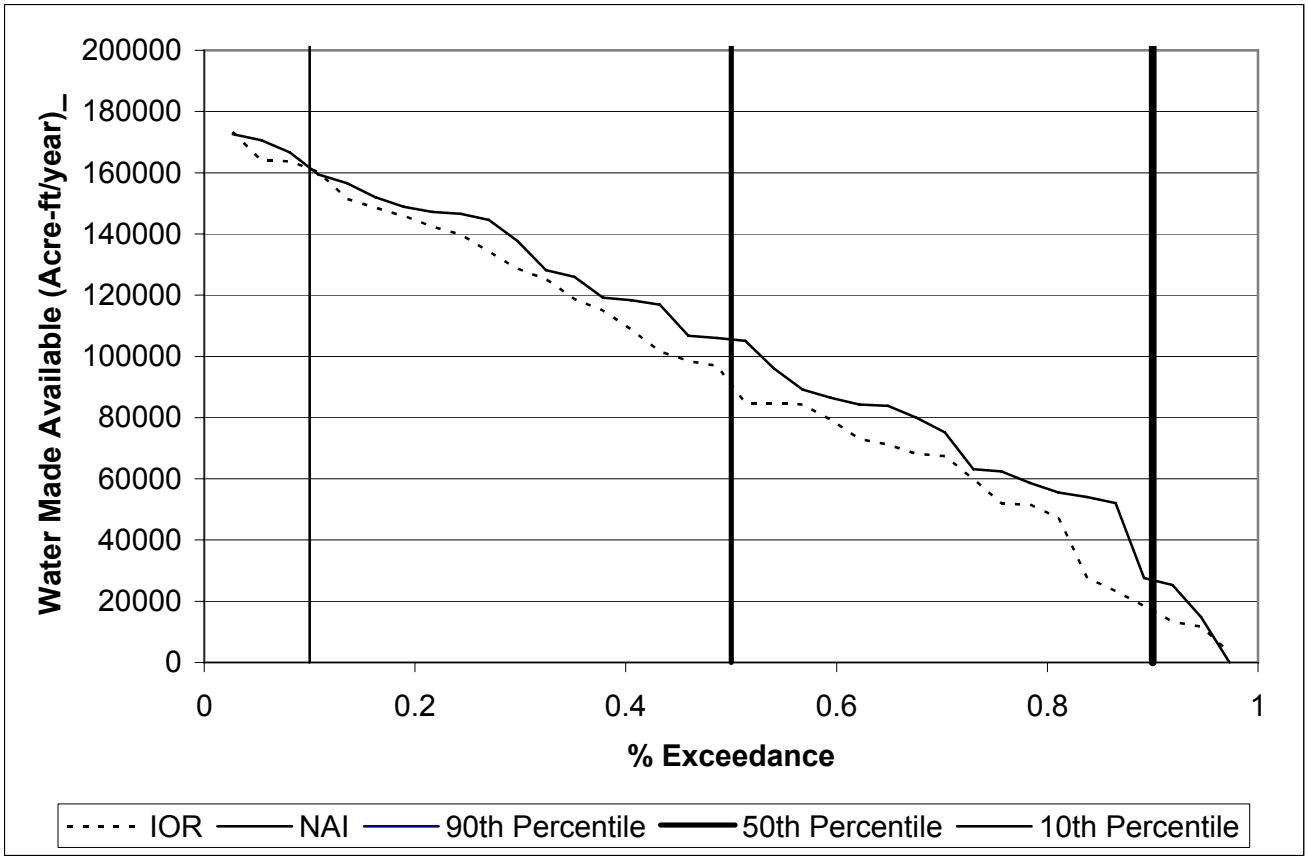

Figure 4-5: Example of Difference Curves for IOR and NAI to the Base (Note: this example is for an estuary)

4.6.2 Identifying Total Water and Water Made Available for the Natural System

The identification of the total water necessary to achieve the benefits of the project and the identification of water made available for the natural system is to be based on quantifying surface water and groundwater inflow to each affected natural system basin. For analysis purposes, these natural system basins are divided into two categories, Everglades and Estuaries. Natural system basins are listed below:

<u>Everglades</u>

- Water Conservation Area 1
- Water Conservation Area 2 (2A and 2B)
- Water Conservation Area 3 (3A and 3B)
- Big Cypress National Preserve
- Everglades National Park

<u>Estuaries</u>

- Caloosahatchee Estuary
- St Lucie Estuary
- Loxahatchee River
- Biscayne Bay
- Florida Bay

Together, the water identified for the Everglades and the Estuaries represent all the water that is made available by the project for the natural system. The modeling comparison and analysis for each category is explained in the following two sections.

4.6.2.1 Everglades

The total water necessary to achieve the benefits of the project and water made available for the basins in the Everglades category (i.e., Water Conservation Area 1, Water Conservation Area 2, Water Conservation Area 3, Big Cypress National Preserve, and Everglades National Park) is to be identified. Inflow volumes for the Existing Conditions Baseline, the Initial Operating Regime, the Next-Added Increment Baseline, and the Next-Added Increment Condition will be computed and displayed as described in section 4.6.1.

From analysis of the inflows, volume-probability curves, and difference curves that are generated, a summary table can be prepared displaying the locations as rows and the differences between the IOR and Existing Conditions Baseline and the differences between the Next-Added Increment Baseline and the Next-Added Increment Condition as columns for the 10% exceedence probability, 50% exceedence probability, and 90% exceedence probability. Example tables are shown in Figures 4-6 and 4-7.

4.6.2.2 Estuaries

Identification of water for estuaries is based on a determination of water that contributes to meeting hydrologic, water quality, and ecologic targets for restoration of the estuary, including salinity targets. These restoration targets should be based on ensuring a healthy, sustainable population of fish and wildlife that can remain healthy and viable through natural cycles of drought, flood, and population variation, and can continue on into the future as a healthy, sustainable population. Consequently, the identification of water for estuary basins is computed differently than Everglades basins. The total water necessary to achieve the benefits of the project and the water made available for the natural system for estuary basins (i.e., Caloosahatchee Estuary, St. Lucie Estuary, Loxahatchee River, Biscayne Bay, and Florida Bay) should be identified. Inflow volumes for the Existing Conditions Baseline, the Initial Operating Regime, the Next-Added Increment Baseline, and the Next-Added Increment Condition will be computed and displayed as described in section 4.6.1. For the Initial Operating Regime computation, the portion of the Existing Conditions Baseline required to meet restoration targets and the portion of the Initial Operating Regime required to meet restoration targets should be used. The portion required for restoration targets will be quantified by using salinity envelopes or other appropriate estuarine targets.

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From analysis of the inflows, volume-probability curves and difference curves that are generated, a summary table can be prepared displaying the locations as rows and the differences between the IOR and Existing Conditions Baseline and the differences between the Next-Added Increment Baseline and the Next-Added Increment Condition as columns for the 10% exceedence probability, 50% exceedence probability, and 90% exceedence probability. Example tables are shown in Figures 4-6 and 4-7.

Figure 4-6 – Summary Table for Total Water and Water Made Available for the Natural System by the IOR

	Initial Operating Regime								
	10% Exceedence Probability			50% Exceedence Probability			90% Exceedence Probability		
	IOR	Existing Conditions Baseline	Diff	IOR	Existing Conditions Baseline	Diff	IOR	Existing Conditions Baseline	Diff
Caloosahatchee Estuary									
St. Lucie Estuary									
Loxahatchee River									
WCA 1									
WCA 2 (2A and 2B)									
WCA 3 (3A and 3B)									
Big Cypress National Preserve									
Everglades National Park									
Biscayne Bay									
Florida Bay									

Figure 4-7 – Summary Table for Total Water and Water Made Available for the Natural System by the NAI

	Next-Added Increment								
	10% Exceedence Probability			50% Exceedence Probability			90% Exceedence Probability		
	NAI Condition	NAI Baseline	Diff	NAI Condition	NAI Baseline	Diff	NAI Condition	NAI Baseline	Diff
Caloosahatchee Estuary									
St. Lucie Estuary									
Loxahatchee River									
WCA 1									
WCA 2 (2A and 2B)									
WCA 3 (3A and 3B)									
Big Cypress National Preserve									
Everglades National Park									
Biscayne Bay									
Florida Bay									

4.6.3 Identifying Total Water and Water Made Available for Other Water-Related Needs

The identification of the total water necessary to achieve the benefits of the project and the identification water made available for other water-related needs is to be based on quantifying surface water and groundwater inflow to each affected other water-related needs basin listed below:

- Lake Okeechobee
- Caloosahatchee River Basin
- St Lucie River Basin
- Everglades Agricultural Area
- Indian Prairie/Lake Shore Perimeter
- North Palm Beach and Southern Martin Counties
- Lower East Coast Service Area 1
- Lower East Coast Service Area 2
- Lower East Coast Service Area 3

Inflow volumes for the Existing Conditions Baseline, the Initial Operating Regime, the Next-Added Increment Baseline, and the Next-Added Increment Condition will be computed and displayed as described in section 4.6.1.

From analysis of the inflows, volume-probability curves and difference curves that are generated, a summary table can be prepared displaying the locations as rows and the differences between the IOR and Existing Conditions Baseline and the differences between the Next-Added Increment Baseline and the Next-Added Increment Condition as columns for the 10% exceedence probability, 50% exceedence probability, and 90% exceedence probability. Example tables are shown in Figures 4-8 and 4-9.

Figure 4-8 – Summary Table for Total Water and Water Made Available for Other Water-Related Needs by the IOR

	Initial Operating Regime								
	10% Exceedence Probability			50% Exceedence Probability			90% Exceedence Probability		
	IOR	Existing Conditions Baseline	Diff	IOR	Existing Conditions Baseline	Diff	IOR	Existing Conditions Baseline	Diff
Lake Okeechobee									
Caloosahatchee River Basin									
St. Lucie River Basin									
EAA									
Indian Prairie/Indian Shore Perimeter									
North Palm Beach and Southern martin Counties									
LECSA1									
LECSA2									
LECSA3									

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Figure 4-9 – Summary Table for Total Water and Water Made Available for Other Water-Related Needs by the NAI

	Next-Added Increment								
	10% Exceedence Probability			50% Exceedence Probability			90% Exceedence Probability		
	NAI Condition	NAI Baseline	Diff	NAI Condition	NAI Baseline	Diff	NAI Condition	NAI Baseline	Diff
Lake Okeechobee									
Caloosahatchee River Basin									
St. Lucie River Basin									
EAA									
Indian Prairie/Indian Shore Perimeter									
North Palm Beach and Southern martin Counties									
LECSA1									
LECSA2									
LECSA3									

4.7 IDENTIFYING WATER TO BE RESERVED OR ALLOCATED FOR THE NATURAL SYSTEM

The water to be reserved or allocated for the natural system will be identified using the appropriate difference between the volume-probability curve for the Initial Operating Regime and the Existing Conditions Baseline for both the Everglades (using the methodology of section 4.6.2.1) and the estuaries (using the methodology of section 4.6.2.2). Identification of water to be reserved or allocated for the natural system is to be based on quantifying surface water and groundwater inflow to each affected natural system basin listed below:

<u>Everglades</u>

- Water Conservation Area 1

- Water Conservation Area 2 (2A and 2B)
- Water Conservation Area 3 (3A and 3B)
- Big Cypress National Preserve
- Everglades National Park

Estuaries

- Caloosahatchee Estuary
- St Lucie Estuary
- Loxahatchee River
- Biscayne Bay
- Florida Bay

4.8 ASSURANCE LANGUAGE FOR THE PIR

The overarching objective of the Plan is the restoration, preservation, and protection of the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. The Federal Government and the State of Florida are committed to the protection of the appropriate quantity, quality, timing, and distribution of water to achieve and maintain the benefits to the natural system described in the Plan. Attachment 4-B summarizes State tools available to achieve and maintain the benefits to the natural system.

The State will protect the water for the natural system by taking the following actions: 1) the State will use its water reservation or allocation authority to protect the water made available for the natural system from each project as required by section 601 of WRDA 2000; and 2) the State has elected to protect the existing water in the natural system that the Project Implementation Report identifies is necessary to achieve the restoration benefits of the project, using resource protection authority under Florida law. Language setting forth these commitments will be included in the Plan Implementation section of each PIR in the sub-section entitled "Identification of Water Made Available" (See Guidance Memorandum #1, Attachment 1-C "PIR Outline"). Model language memorializing this concept is contained in Attachment 4-C.

4.9 FUTURE CHANGES TO WATER TO BE RESERVED OR ALLOCATED

Implementation of the Plan will take place over a number of years; however section 601 of WRDA 2000 and the Programmatic Regulations require project-specific analyses that include the identification of the water made available and the water to be reserved or allocated for individual projects.

The difference between the Initial Operating Regime volume-probability curve and the Existing Conditions Baseline volume-probability curve will be used to quantify the volume of water that needs to be reserved or allocated when the project becomes operational. This is necessary because physical and operational constraints may exist temporarily in the system

and prevent the attainment of all of project's projected benefits immediately upon operation. Once these constraints are removed, the quantity of water made available for the natural system is expected to change. Subsequent PIRs will contain the information necessary for the State to make updated reservations or allocations of water to show progress towards and ultimately to achieve this quantification.

4.10 DOCUMENTATION OF GUIDANCE MEMORANDUM #4 ANALYSES IN THE PIR

The analyses conducted to identify the water made available and to identify the water to be reserved or allocated for the natural system will be documented in the PIR.

A summary of the identification of water made available for both the natural system and for other water-related needs should be included in the Plan Implementation section of the PIR in the sub-section entitled "Identification of Water Made Available" (See Guidance Memorandum #1, Attachment 1-C "PIR Outline"). More detailed information about the analyses should be placed in Annex C - Analyses Required by Federal and State Law in the section entitled "Identification of Water Made Available."

A summary of the identification of water to be reserved or allocated for the natural system should be included in the Plan Implementation section of the PIR in the sub-section entitled "Identification of Water to be Reserved or Allocated for the Natural System." More detailed information about the analyses should be placed in Annex C - Analyses Required by Federal and State Law in the section entitled "Identification of Water to be Reserved or Allocated for the Natural System."

ATTACHMENT 4-A
CERP ASSURANCE OF PROJECT BENEFITS AGREEMENT
(PRESIDENT-GOVERNOR AGREEMENT)

COMPREHENSIVE EVERGLADES RESTORATION PLAN
ASSURANCE OF PROJECT BENEFITS AGREEMENT

WHEREAS, the Everglades ecological system is unique in the world and one of the Nation's great treasures;

WHEREAS, the Central and Southern Florida Project as originally authorized in 1948 has had unintended consequences on the Everglades and the South Florida Ecosystem;

WHEREAS, the Water Resources Development Act of 1992 authorized a Comprehensive Review Study (Restudy) of the Central and Southern Florida Project;

WHEREAS, as required by the Water Resources Development Act of 1996, the Restudy was submitted to the Congress of the United States on July 1, 1999;

WHEREAS, the Restudy, renamed the Comprehensive Everglades Restoration Plan, was authorized by the Congress in the Water Resources Development Act of 2000;

WHEREAS, the Comprehensive Everglades Restoration Plan (the "Plan") will restore, preserve, and protect the more than 2.4 million acres of the Everglades and the South Florida Ecosystem;

WHEREAS, implementation of the Plan will require a collaborative effort among Federal and State partners, and the Seminole Tribe of Florida and the Miccosukee Tribe of Indians of Florida, acting under Federal and State law, to achieve the shared goal of restoration of the Everglades and the South Florida Ecosystem;

WHEREAS, as the ecosystem is restored, all interests seek a level of assurance that they will receive the anticipated benefits from the Plan;

WHEREAS, the Federal interest in restoration flows largely from the substantial Federal resources in the ecosystem, including Everglades National Park and other National Parks, National Wildlife Refuges, and National Marine Sanctuaries, which comprise a significant portion of the natural system;

WHEREAS, in recognition of this interest, the Congress established that the overarching objective of the Plan is the restoration, preservation, and protection of the South Florida Ecosystem, while providing for other water-related needs of the region, including water supply and flood protection;

WHEREAS, section 601(h)(2) of the Water Resources Development Act of 2000 (the "Act"), requires that the President of the United States and the Governor of Florida enter into a binding agreement that ensures that water from the Comprehensive Everglades Restoration Plan will be made available for the restoration of the natural system;

WHEREAS, section 601(h)(3) of the Act further requires that the Secretary of the Army, with the concurrence of the Governor and the Secretary of the Interior, and in consultation with the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, the Administrator of the Environmental Protection Agency, the Secretary of Commerce, and other Federal, State, and local agencies, promulgate programmatic regulations to ensure that the goals and the purposes of the Plan are achieved;

WHEREAS, section 601(h)(4)(A)(iii) of the Act requires that a Project Implementation Report (PIR) identify the amount of water to be reserved or allocated for the natural system under State law;

WHEREAS, section 601(h)(4)(B)(ii) of the Act requires that the Secretary of the Army shall not execute a Project Cooperation Agreement until any reservation or allocation of water for the natural system identified in the PIR is executed under State law;

WHEREAS, the State of Florida has the authority to reserve water for the natural system pursuant to Chapter 373, Florida Statutes;

The signatories to this agreement hereby affirm that:

As required by the Water Resources Development Act of 2000, water made available by each project in the Comprehensive Everglades Restoration Plan will not be permitted for a consumptive use or otherwise made unavailable by the State of Florida until such time as sufficient reservations of water for the restoration of the natural system are made by regulation or other appropriate means pursuant to Chapter 373, Florida Statutes, and in accordance with the project implementation report for the project and consistent with the Comprehensive Everglades Restoration Plan.

To effectuate this agreement, the Federal party agrees:

- To include within the President's budget submissions to the Congress requests for Federal appropriations in the amount the President deems necessary to implement the Federal share of the Plan's implementation;

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- To initiate authorized project planning and design;
- To work with the State of Florida on developing information jointly to support the adaptive assessment component of the Plan;
- To use the planning process to supply information for both Federal and State legislative oversight requirements;

To effectuate this agreement, the State party agrees:

- To include within the Governor's budget submissions to the Legislature requests for State appropriations in the amount the Governor deems necessary to implement the State share of the Plan's implementation.
- To undertake reservations of water for the natural system upon completion of each PIR, and to ensure that reservations of water for the natural system will be consistent with information developed in the PIR, indicating appropriate timing, distribution, and flow requirements sufficient for the restoration of the natural system.
- To manage its water resource allocation process to ensure that water made available by each project in the Comprehensive Everglades Restoration Plan will not be permitted for a consumptive use or otherwise made unavailable for restoration of the natural system, consistent with the PIR and the provisions of the Water Resources Development Act of 2000.
- To monitor and assess the continuing effectiveness of reservations as long as the project is authorized,to achieve the goals and objectives of the Plan.

PRESIDENT OF
THE UNITED STATES

GOVERNOR OF THE
STATE OF FLORIDA

Dated: January 9, 2002

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EXHIBIT 9

ATTACHMENT 4-B
STATE TOOLS FOR PROVIDING ASSURANCES

State law includes provisions that were specifically enacted to implement the Plan by the State as a partner with the Federal government. State law also contains provisions that will be utilized to reserve and allocate water to the natural system and for other water-related needs, sometimes referred to as "State water law." These legal tools provided under State water laws include water reservations, consumptive use permitting, water shortage management, and minimum flows and levels.

State and Federal law specifically provide that State water law controls the procedures and implementation of water reservations and allocation of water for natural systems and other water-related needs and that nothing in the Federal law should be interpreted as prescribing the process for implementing State water law. A description of the key provisions in State water law are provided in the following paragraphs solely to provide background for the guidance memoranda, as they will play a key role in assuring that the goals and purposes of the Plan will be achieved.

STATE LAWS REGARDING CERP IMPLEMENTATION

The primary State authority regarding the implementation of the Plan is Chapter 373, F.S. These provisions provide responsibility to the State, including the SFWMD and the Florida Department of Environmental Protection (FDEP), to ensure restoration of the Everglades and the protection of existing legal uses of water and existing levels of flood protection when designing and implementing CERP project components.

Assurances are provided under State law requiring the Plan be used as a "guide and framework…to ensure that the project components will be implemented to achieve the purposes of the WRDA 1996 that include restoring, preserving and protecting the South Florida ecosystem, …and providing such features as are necessary to meet the other water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the project." Section 373.470(3)(b)2, F.S.

To meet these assurances, State law provides specific provisions that apply to implementing, funding, and permitting of CERP projects. These include sections 373.026(8), 373.1501, 373.1502, and 373.470, F.S. They are summarized in the following paragraphs.

Prior to any project component being submitted to Congress for authorization or receipt of an appropriation of State funds for construction, the FDEP must approve each project component, pursuant to section 373.026(8), F.S., upon a finding that the SFWMD has complied with the requirements set forth in section 373.1501, F.S.

Section 373.1501(2), F.S., in part, provides that CERP components must be implemented through appropriate processes under Chapter 373 and consistent with the balanced policies and purposes of Chapter 373, F.S. Specifically, section 373.1501(5) provides assurances to

natural systems, existing legal users and for flood protection, including requirements that SFWMD for each project component:

> Section 5. Analyze and evaluate all needs to be met in a comprehensive manner and consider all applicable water resource issues, including water supply, water quality, flood protection, threatened and endangered species, and other natural system and habitat needs.

i) Consistent with [Chapter 373], the purposes for the Restudy provided in the WRDA of 1996, and other applicable Federal law, provide reasonable assurances that the quantity of water available to existing legal users shall not be diminished by implementation of project components so as to adversely impact existing legal users, that existing levels of service for flood protection will not be diminished outside the geographic area of the project component, and that water management practices will continue to adapt to meet the needs of the restored natural environment.

Prior to executing a PCA, the SFWMD must develop a PIR with the USACE to address the requirements in section 373.1501, F.S., and to obtain approval under section 373.026, F.S., from the FDEP. This ensures that the PIR will be sufficient to meet both State, as well as Federal, law requirements for implementing a CERP project.

STATE LAWS FOR RESERVING, ALLOCATING, AND MANAGING WATER RESOURCES

As mentioned above, in addition to laws specifically enacted to implement the Plan, State law also includes a framework of several tools for reserving, allocating and managing water for the natural system and other water-related needs. These tools will play a key part in providing assurances that the goals and purposes of the Plan will be achieved as required by both State and Federal law. They are briefly summarized in the following paragraphs.

Reservations of Water for the Natural System

Section 373.470(3)(c), F.S., requires that each PIR identify the increase in water supplies resulting from a project component. These increased water supplies for the natural system must be allocated or reserved by the SFWMD under Chapter 373, F.S. section 373.470(3)(c), F.S.

State law on water reservations, in section 373.223(4), F.S., provides:

> "The governing board or the department, by regulation, may reserve from use by permit applicants, water in such locations and quantities, and for such seasons of the year, as in its judgment may be required for the protection of fish and wildlife or the public health and safety. Such reservations shall be subject to periodic review and revision in the light of changed conditions.

> However, all presently existing legal uses of water shall be protected so long as such use is not contrary to the public interest."

When water is reserved under this statute, it is not available to be allocated for use under a consumptive use permit and is protected for the natural system. The SFWMD anticipates that both CERP and non-CERP related reservations will be adopted for Everglades protection. For Plan reservations, the amount of water to be reserved is the water made available for the protection of fish and wildlife by a Plan project.

Protection of fish and wildlife may include ensuring a healthy, sustainable population of fish and wildlife that can remain healthy and viable through natural cycles of drought, flood, and population variation, and can continue on into the future as a healthy, sustainable population. Fish and wildlife to be protected are the native communities of fish and wildlife that use the habitat in its healthy state, not exotic, invasive, or other species that have moved into an area because the habitat has become degraded.

The CERP project reservation or allocation will identify water made available by the project, which is in part based on project operations in concert with other existing CERP and non-CERP projects and conditions. For this reason, the project reservation or allocation will be appropriately conditioned to account for circumstances when such related projects and conditions are not realized as anticipated. This may result in the need to revise the project reservation or allocation based on unanticipated circumstances.

Pursuant to section 601 of WRDA 2000, CERP reservations or allocations for a specific project must be executed prior to entering into the PCA for the project. However, reservations or allocations are subject to periodic review based on changed conditions, such as the changes that will occur in the C&SF Project as Plan projects become operational. This provides flexibility to account for changes in implementation strategies, restoration objectives, and contingency plans during the life of the project.

Presently existing legal uses of water are protected so long as they are "not contrary to the public interest." Under Florida law, permitted uses and domestic water uses (which are exempt from requirements to obtain a permit) have the legal status of an "existing legal use." Unauthorized, including unpermitted, existing uses do not constitute an "existing legal use" and are not protected by the statute.

Consumptive Use Permitting

In order to obtain a consumptive use permit, the permit applicant must provide reasonable assurances that the use is "reasonable-beneficial", will not interfere with any presently existing legal use of water, and is consistent with the public interest, pursuant to section 373.223, F.S. The SFWMD implements this three-prong test pursuant to SFWMD rules, including Chapters 40E-2 and 40E-20, Florida Administrative Code (F.A.C.). Permits are conditioned to assure that uses are consistent with the overall objectives of Chapter 373, F.S. and are not harmful to the water resources of the area.

Protection of water supplies for restoration of the Everglades natural system under CERP is recognized as a legitimate and essential component of consumptive use permitting pursuant to Chapter 373, Florida Statutes. Under the "public interest" test the SFWMD is authorized to consider whether the project impacts fish and wildlife, among several other potential impacts and benefits of authorizing a given consumptive use of water. These "public interest" considerations are outlined in Chapter 373, F.S., including section 373.016, F.S., which identifies the protection of fish and wildlife and development of water resources for meeting existing and future reasonable-beneficial uses of water. Section 373.1501(2), F.S, specifically requires that CERP implementation be consistent with the balanced policies and purposes of section 373.016, F.S. section 373.1502(2)(a) provides that implementation of CERP is in the public interest.

In exercising this authority allocation authority under Chapter 373, the SFWMD intends to limit additional demands on the Everglades system from consumptive use withdrawals through a restricted allocation rule covering Dade, Broward and Palm Beach county urban service areas. This rule would have the similar effect as a water reservation for the Everglades in that additional impacts on existing levels of water available in the Everglades would not be permitted.

Permit durations under Florida law are tied to the time period for which the applicant can provide reasonable assurances that the use will not be harmful to the water resources of the area and are consistent with the overall objectives of the SFWMD. Under current district rules, duration of permits for water from the Central and Southern Florida Project are limited to allow renewal of existing levels of use for up to 20 years and to allow increased allocations over existing levels of use for a five year interval.

In implementing this authority the SFWMD has agreed to include in its rules the following, as appropriate:

1. Supplemental information identifying the expected water to be made available for the natural system and for other water-related needs based on the system formulation analysis to reflect the projected performance of the project through time up to the end of the period of analysis (currently 2050) ensuring that the benefits of the Plan will be achieved. The rule will include language that it will be updated in the future as necessary to meet the actual changed conditions as quantified in future PIRs. The rule will be reviewed and revised appropriately, at least every five years.

2. Include a limiting condition in consumptive use permits stating that upon renewal a permit shall be modified as necessary to comply with consumptive use permit rules that ensure such use is consistent with the CERP goals and purposes, including adopted reservations and allocation rules.

Minimum Flows and Levels

Minimum flows are established to identify where further withdrawals would cause significant harm to the water resources, or to the ecology of the area. Minimum levels are

established to identify where further withdrawals would cause significant harm to the water resources of the area. Specific minimum flows and levels (MFLs) are established by rule for specified priority water bodies that have been designated pursuant to section 373.042(2), F.S.

Minimum flows and level rules have been adopted for several areas within the C&SF Project, including Everglades National Park and the Water Conservation Areas, which are contained in Chapter 40E-8, F.A.C. The recovery strategy for meeting these MFLs includes implementation of CERP and the SFWMD's Lower East Coast Regional Water Supply Plan (2000), which includes Plan components. This recovery strategy will be updated through SFWMD rulemaking and updates of the regional water supply plan. Under SFWMD MFL rules for these areas consumptive use permit applicants must demonstrate that their use is consistent with this recovery strategy. As such, MFLs are a key component in assuring that the goals and purposes of CERP will be achieved.

Water Shortage Implementation

Pursuant to section 373.246, F.S., water shortage declarations are designed to prevent serious harm from occurring to water resources during drought conditions, when shortfalls of water occur. Declarations of water shortages by the SFWMD Governing Board are used to equitably distribute the water resources for consumptive and non-consumptive uses during droughts, including fish and wildlife, as provided in Chapter 40E-21, F.A.C. Water shortage declarations are imposed in phases, with increasing water use cutbacks with increasing drought conditions. CERP Project Operating Manuals include drought contingency plans, which incorporate these water shortage rules for information purposes.

EXHIBIT 9

ATTACHMENT 4-C
MODEL LANGUAGE FOR ASSURANCES SECTION OF THE PIR

The overarching objective of the Plan is the restoration, preservation, and protection of the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. The Federal Government and the State of Florida are committed to the protection of the appropriate quantity, quality, timing, and distribution of water to achieve and maintain the benefits to the natural system described in the Plan. As envisioned in section 601 of WRDA 2000 and the Programmatic Regulations, each Project Implementation Report will identify this appropriate quantity, quality, timing, and distribution of water for the natural system.

The following language setting forth these commitments will be included in the "Project Assurances Section" of each PIR (See Guidance Memorandum #1, Attachment 1-C "PIR Outline"):

> "The overarching objective of the Plan is the restoration, preservation, and protection of the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. The Federal Government and the non-Federal sponsor are committed to the protection of the appropriate quantity, quality, timing, and distribution of water to ensure the restoration, preservation, and protection of the natural system as defined in section 601 of WRDA 2000, for so long as the project remains authorized. This quantity, quality, timing, and distribution of water shall meet applicable water quality standards and be consistent with the natural system restoration goals and purposes of CERP, as the Plan is defined in the Programmatic Regulations. The non-Federal sponsor will protect the water for the natural system by taking the following actions to achieve the overarching natural system objectives of the Plan:
>
> 1. Ensure, through appropriate and legally enforceable means under Florida law, that the quantity, quality, timing, and distribution of existing water that the Federal Government and the non-Federal sponsor have determined in this Project Implementation Report is available to the natural system, will be available at the time the Project Cooperation Agreement for the project is executed and will remain available for so long as the Project remains authorized.
>
> 2a. Prior to the execution of the Project Cooperation Agreement, reserve or allocate for the natural system the necessary amount of water that will be made available by the project that the Federal Government and the non-Federal sponsor have determined in this Project Implementation Report.
>
> 2b. After the Project Cooperation Agreement is signed and the project becomes operational, make such revisions under Florida law to this

reservation or allocation of water that the Federal Government and the non-Federal sponsor determines, as a result of changed circumstances or new information, is necessary for the natural system.

3. For so long as the Project remains authorized, notify and consult with the Secretary of the Army should any revision in the reservation of water or other legally enforceable means of protecting water be proposed by the non-Federal sponsor, so that the Federal Government can assure itself that the changed reservation or legally enforceable means of protecting water conform with the non-Federal sponsor's commitments under paragraphs 1 and 2. Any change to a reservation or allocation of water made available by the project shall require an amendment to the Project Cooperation Agreement."

EXHIBIT 9

SECTION 5: GUIDANCE MEMORANDUM #5
OPERATING MANUALS

5.1 PURPOSE

This Guidance Memorandum provides specific guidance for the preparation of Operating Manuals. Operating Manuals describe how CERP projects will be operated and are part of the framework for assuring that the benefits of the Plan are achieved. In general, project operations in natural areas are intended to mimic natural hydrologic events in the basin. In built areas, the operations are intended to provide water supply and flood control benefits as described in the PIR.

Section 385.28(a)(1) of the Programmatic Regulations requires that the USACE and the non-Federal sponsor; in consultation with the Department of the Interior, the EPA, the Department of Commerce, the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, the FDEP, and other Federal, Tribal, State, and local agencies; develop Operating Manuals to ensure that the goals and purposes of the Plan are achieved. The Programmatic Regulations also state in section 385.28(a)(6) that the Operating Manuals will: comply with NEPA; describe regulation schedules, water control, and operating criteria for a project, group of projects, or the entire system; make provisions for the natural fluctuation of water made available in any given year and fluctuations necessary for the natural system as described in the Plan; be consistent with applicable water quality standards and applicable water quality permitting requirements; be consistent with the reservation or allocation of water for the natural system and the Savings Clause provisions described in the PIR and the PCA; reflect the operational criteria used in the identification of the appropriate quantity, timing, and distribution of water dedicated and managed for the natural system; include a drought contingency plan (DCP) that is consistent with the Seminole Tribe of Florida's Water Rights Compact; and include provisions authorizing temporary short term deviations. When implemented, the CERP SOM and POMs will replace the existing C&SF Project Water Control Plans, Master Water Control Manuals and regulation schedules.

5.2 APPLICABILITY

This Guidance Memorandum applies to all projects of CERP and, over time the SOM will incorporate and integrate many of the features of the C&SF project. The format and major elements of Operating Manuals should be similar for all project components implemented under the Plan. However, the content of the manual for each project will vary depending on the number and complexity of features in the project, as well as the complexity of interactions between the subject project, other projects within the Plan, and other existing C&SF Project features.

5.3 OPERATING MANUALS

As required by the Programmatic Regulations, Operating Manuals for CERP consist of a System Operating Manual (SOM) and Project Operating Manuals (POMs). The following

subsections provide a brief summary of the composition of the SOM and the POMs, along with the manual's relationship to existing USACE water control plans and Master Water Control Manuals (Master WCMs).

Water control plans include coordinated operating schedules for project/system regulation and such additional provisions as may be required to collect, analyze and disseminate basic data, prepare detailed operating instructions, assure project safety and carry out regulation of projects in an appropriate manner. Regulation schedule refers to a compilation of operating criteria, guidelines, rule curves and specifications that govern basically the storage and release functions of a reservoir. In general, schedules indicate limiting rates of reservoir releases required during various seasons of the year to meet all functional objectives of the particular project, acting separately or in combination with other projects in a system. Schedules are usually expressed in the form of graphs and tabulations, supplemented by concise specifications. Water control plans are developed for reservoirs, locks and dams, deregulation and major control structures and interrelated systems to conform to objectives and specific provisions of authorizing legislation and applicable USACE reports.

5.3.1 Project Operating Manuals

Each PIR developed under CERP will include a Draft POM as an annex to the PIR. As described in section 5.5 of this Guidance Memorandum, the Draft POM in the PIR will be updated and revised as necessary for subsequent phases of project implementation. Prior to the completion of project construction, the assumptions in the Draft POM will be reviewed and updated. The Draft POM will be revised as appropriate and promulgated as the Preliminary POM for use during the Operational Testing and Monitoring Phase. A Final POM will be completed for the long-term operations and maintenance phase of the project. The preliminary and Final POMs for a project will be developed in compliance with NEPA and in compliance with the Savings Clause of section 601 of WRDA 2000 (see Guidance Memorandum #3).

One main purpose of the POM is for day-to-day use in water resource management for essentially all foreseeable conditions affecting the project. The POM also documents how the project objectives were translated into operational rules, thereby providing guidance when unforeseen situations arise or conditions change. The POM should clearly describe what the intent of the operational rules is. The POMs will include water management related regulation schedules, detailed operating instructions and operating criteria developed to meet the project purposes, goals, objectives and benefits outlined in the PIR, including the quantity, timing and distribution of water for the natural system and other water-related needs. The POMs may also contain provisions, as required, to collect, analyze and disseminate basic data related to structure operations (e.g., headwater, tailwater, and stage). The POMs will also include instructions to ensure project safety and to carry out project operations in an appropriate manner.

The USACE and the non-Federal sponsor, in consultation with other Federal, State, tribal, and local governments, will jointly develop and approve the POMs. Within the USACE, approval authority for POMs rests with the USACE South Atlantic Division (SAD).

Development of POMs will be coordinated with SAD to ensure consistency with applicable regulations. Development of the POMs will be carried out in a public process in accordance with NEPA and other applicable laws and regulations. The POMs, along with other information included in the PIR, will provide information necessary to complete an application for water quality certification.

5.3.2 System Operating Manual

In general, the SOM will provide a system-wide plan for operation of the projects implemented under CERP, as well as for other existing features of the C&SF Project. The POMs are included in Volumes 2-7 of the SOM by providing the details necessary for integrating the operation of the individual project components with the system-wide operational framework described in Volume 1 of the SOM. The SOM will include the operating criteria of all of the approved POMs.

The Programmatic Regulations require that the SOM initially be based on the existing completed C&SF Project features and will be developed by the USACE and the SFWMD as laws and regulations require. Existing water control plans, regulation schedules, and Master Water Control Manuals (Master WCMs) for the C&SF Project will remain in effect until approval of the SOM. The SOM will follow the procedures for preparation of water control plans, regulation schedules and Master WCMs found in applicable USACE regulations. The SOM is envisioned to be comprised of seven volumes. Volume 1 will provide a system-wide operational framework for projects implemented under the Plan, as well as existing C&SF Project features. Volumes 2 through 7 will be organized by geographical region and will include an appendix containing each of the POMs for that region. The geographical volumes of the SOM will be revisions of the original Master WCMs previously developed for the C&SF Project. The entire SOM will be revised periodically to integrate changes and ensure optimum system-wide operations.

The POMs will be considered supplements and revisions to the SOM, and will present aspects of the projects that are not common to the system as a whole. As POMs for new projects are implemented, the POMs will be inserted into an appendix of the appropriate geographical volume of the SOM.

The USACE and the SFWMD, in consultation with other Federal, State, tribal, and local governments, will jointly develop and approve the SOM. Within the USACE, approval authority for the SOM rests with the USACE South Atlantic Division (SAD). Development of the SOM will be coordinated with SAD to ensure consistency with applicable regulations. Development of the SOM will be carried out in a public process in accordance with NEPA and other applicable laws and regulations. The SOM will also meet the requirements of the Savings Clause of section 601(h)(5) of WRDA 2000 and will contain documentation of the Savings Clause analyses.

5.4 GENERAL GUIDANCE FOR PREPARATION OF OPERATING MANUALS

This section provides general guidance related to development of operating manuals, particularly with regard to: 1) coordination and public review during development of the operating manuals; 2) ensuring consistency with other requirements of the Programmatic Regulations; and 3) providing sufficient operational flexibility within the operating manuals to accommodate the wide range of climatic and regional conditions that are frequently encountered within the existing water management system. Attachment 5-A provides detailed guidance related to the format and content for POMs and Attachment 5-B provides detailed guidance related to the format and content for the SOM.

5.4.1 Coordination and Public Review

The following discussion is provided to emphasize the importance of enhanced coordination between modelers, water managers, hydraulic designers and PDT members, as well as providing guidance for public review and input, throughout the development of the PIR and the POMs.

5.4.1.1 Coordination Between Modelers, Water Managers, Hydraulic Designers, and the Project Delivery Team

The general procedure in the planning process is to develop alternative plans that are intended to meet the project goals and objectives. These alternative plans are then evaluated and compared against one another to select the best alternative. This evaluation and comparison step often involves the use of hydrologic simulation models**.** One of the major factors that can affect project performance during simulation modeling is the operating criteria. In order for the planning process to result in practical and realistic project operations, it is imperative that the operating criteria used for simulation modeling are feasible in the real world, and that the simulation modeling adequately represents the project features and operations. Thus, the POM must provide "real world" operating criteria that is consistent with the assumptions from the original plan formulation and simulation modeling process. The operating rules that are described in the Project Operating Manual must translate the operational intent of the project necessary to achieve the benefits of the project. This can be challenging since the formulation and evaluation of the project is based on simulation modeling of an available period of record while the POM needs to describe the operating criteria and protocols that are based on current conditions.

To maintain consistency throughout the operational planning process, continued coordination and communication is required between the PDT, hydrologic simulation modelers, hydraulic designers and water managers. During the early stages of operating criteria development, the PDT should coordinate with modelers, designers, and water managers that are familiar with current and past operations in the basin. Coordination between the PDT and the modelers should be focused on ensuring that the modelers clearly understand the objectives of the project features articulated in the PIR and how the operations of each feature are intended to meet those objectives. With this information, the modelers will be able to conceptualize and

simulate the project features in a manner that is consistent with the objectives of the project and the operating criteria. This is an extremely important consideration, as the modeling process inevitably involves the use of simplifying assumptions. While these assumptions are necessary, the modelers must be aware of the intent of project features, as well as how the model output will be used to evaluate the performance of the project features.

Communication between the PDT and the water managers is also critical to ensure the feasibility of implementing the POM in real-time, real world conditions. There are frequently constraints on water levels and flow volumes within hydrologic basins that may affect the ability of operations to be carried out within that basin. Water managers are a knowledgeable resource for any real-world constraints that may apply to specific operations, and should be consulted throughout the development of the operating criteria and the POM.

The project managers must ensure that the intent and objectives of the entire project are well documented and that adequate communication regarding the intent of the operating criteria takes place between the PDT, modelers, designers, and water managers during plan formulation. In addition, documentation of how each project feature fits into meeting these objectives is necessary. Effective communication between all parties involved in planning and operating the project is the best assurance that project goals, objectives and desired benefits will be achieved in the most efficient manner possible.

5.4.1.2 Public Review Process

The public will be provided with an opportunity to review and comment on the Draft POM as part of the review process for the PIR as described in the Programmatic Regulations. Public involvement activities will also be implemented to inform and educate the public about updates and revisions to the POMs, and to allow opportunities for public review and comment whenever significant changes are made to the POMs.

5.4.2 Consistency with Requirements of the Programmatic Regulations

It is essential that the project be operated to deliver water as identified in the PIR during each phase of project implementation and operations described in section 5.5 of this Guidance Memorandum. In addition, the Programmatic Regulations also specifically include several provisions requiring consistency of the Operating Manuals with other factors, including: the reservation or allocation of water made available by the State as required by section 601 of WRDA 2000; Savings Clause provisions; changes made as a result of CERP updates; and water quality standards and water quality permitting. The following provides a brief discussion of these requirements.

5.4.2.1 Consistency with Guidance Memorandum #4 and Consistency with the Reservation or Allocation of Water made by the State Pursuant to Section 601 of WRDA 2000

In the PIR, the PDT is required to identify the water made available by the project and to identify the water to be reserved or allocated for the natural system following the process

outlined in Guidance Memorandum #4. The Draft POM will be developed using the Initial Operating Regime, described in Guidance Memorandum #1 and in Guidance Memorandum #4, and will include conceptual discussion of the operations necessary for the Next-Added Increment Condition. The Draft POM will also include a discussion on how to transition from the Initial Operating Regime to the operations expected as constraints in the IOR are lifted. The operational rules expressed in the Draft POM must show how they will be used to achieve the benefits of the project and the Plan. Similarly, the Preliminary POM and the Final POM will also contain this discussion on how to transition from the Initial Operating Regime to the operations expected as constraints in the IOR are lifted.

The Programmatic Regulations have a specific requirement that the POM must be consistent with the reservation or allocation of the water for the natural system that is made under State law (Guidance Memorandum #4).

Both the consistency with the identification of water made available in Guidance Memorandum #4 and consistency with the reservation or allocation of water made available to the natural system will be accomplished through close coordination between the PDT, modelers, and water managers during all four of the following closely related tasks in the PIR development: 1) development of operating criteria for the hydrologic simulation modeling to optimize the benefits of the selected alternative plan; 2) development of the Initial Operating Regime 3) development of the POM; and 4) identification of water made available by the project and the identification of water to be reserved or allocated for the natural system.

This coordination is graphically depicted in Figure 5-1. During the hydrologic simulation modeling of the selected alternative plan, the project operators and water managers will work with hydrologic modelers to develop operating criteria to be used in simulating operations of structural features of the selected alternative plan. The operating criteria from this model run will then be carried over and adapted for the preparation of the POM. The hydrologic modelers will work with project operators and water managers to ensure that the criteria and guidance in the Operating Manuals is a reasonable representation and captures the intent of the operating criteria used in the modeling and provides the intended benefits of the project.

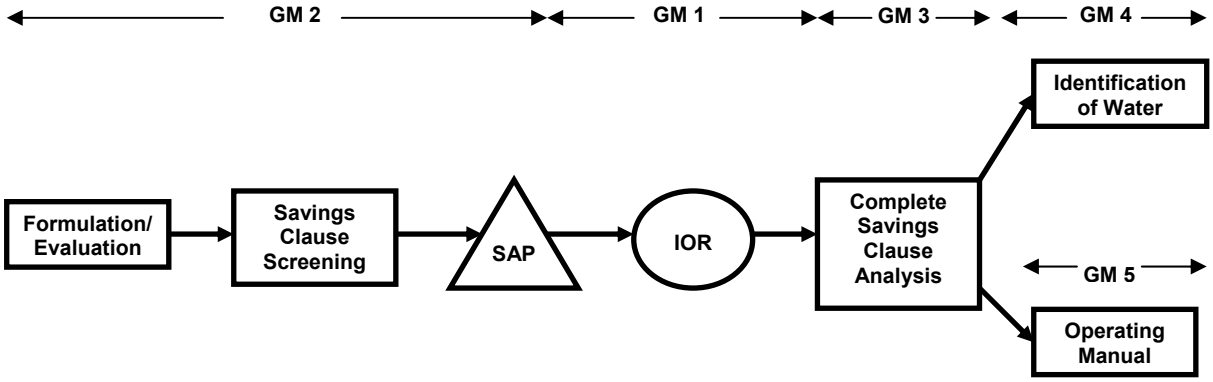


Figure 5-1: Relationship between Project Operating Manual and Other PIR Tasks

5.4.2.2 Savings Clause and State Assurances Provisions

The Programmatic Regulations also require that the POM be consistent with the Savings Clause requirements of WRDA-2000 to ensure that a new project resulting from implementation of the Plan does not: 1) eliminate or transfer existing legal sources of water until a new source of water supply of comparable quantity and quantity is available to replace the water to be lost as a result of implementing the project; 2) reduce levels of service for flood protection that are in existence on the date of enactment of WRDA-2000; or 3) have an effect on the rights of the Seminole Tribe of Florida under the compact among the Seminole Tribe of Florida, the State of Florida, and the SFWMD. This consistency will be maintained by ensuring that the operating criteria in the POM are based on the criteria used for hydrologic simulation modeling that was performed to verify conformance with Savings Clause provisions during development of the PIR. As the POM is updated or revised, analyses to determine if the project is causing an elimination or transfer of existing legal sources of water or a reduction in levels of service for flood protection will be conducted to ensure that project operations are in compliance with the provisions of the Savings Clause (see Guidance Memorandum #3).

In addition to the Savings Clause provisions, the POM must be consistent with the assurances provided in Chapter 373 of the Florida Statutes, for the project. These assurance are described in Attachment 4-B to Guidance Memoranda #4.

5.4.2.3 Consistency With Periodic CERP Updates

In accordance with the Programmatic Regulations, the USACE and the SFWMD are required to perform periodic CERP updates whenever necessary to ensure that the goals and purposes of the Plan are achieved, but not any less often than every five years. The periodic updates will provide one of the many means for determining if management actions are necessary to seek improvements in CERP based on new information resulting from changed or unforeseen circumstances, new scientific and technical information, new or updated modeling, information developed through the adaptive management and assessment principles contained in the Plan, and/or future authorized changes to the Plan. When necessary, changes to the POMs and SOM will be considered to incorporate new information identified during the CERP updates.

5.4.2.4 Water Quality Standards And Water Quality Permitting Requirements

In order to meet the requirements of section 601 of WRDA 2000 and the Florida Statutes, all CERP POMs must be consistent with applicable water quality standards. Therefore, POMs should provide sufficient information to demonstrate that proposed operations will be consistent with applicable water quality standards and will meet the requirements set forth in the State water quality certificate. Attachment 5-C provides some guidelines and examples for information to include in the POM related to water quality certification.

5.4.3 Relationship Between Operational Flexibility and Adaptive Management

Some level of operational flexibility must be incorporated into the POM in order to accommodate the wide range of climatic and regional conditions that are frequently encountered within the existing water management system. This operational flexibility is necessary to allow water managers to better meet project goals, objectives and desired benefits of the project while still providing for flood control and other C&SF Project purposes. A simple example of operational flexibility is provided by spillways that could have a high range and a low range of headwater stages that could be used depending on field conditions. Another more extreme example of operational flexibility is illustrated by the range of allowable discharges in the Decision Trees of the Lake Okeechobee Water Storage and Environmental (WSE) regulation schedule adopted in 2000 (Attachment 5-D).

As discussed in Guidance Memorandum #6, adaptive management is an on-going refinement process that is an integral part of the effort to provide continuous improvement of CERP. Once the Final POM is implemented during the Long-term Operations and Maintenance Phase of the project, monitoring and assessment of project performance, as well as the system-wide performance of the Plan, may reveal opportunities or unforeseen problems related to the project that may be outside the scope of the POM. These scenarios will be addressed using the adaptive management protocols described in Guidance Memorandum #6.

The adaptive management process may result in modifications to water management operations in the POM. If the operational modification recommended by the adaptive management process falls within the established ranges of the POMs operational flexibility, then the adaptive management recommendation may be implemented without revising the POM. However, if the adaptive management recommendation falls outside the scope of the POM, then additional analysis, formal agency coordination and public review, and/or a temporary deviation approved as set forth in Attachment 5-A, section III, subsection 13, "Deviation from Normal Operating Criteria" would likely be required to revise or deviate from the operating criteria in the POM.

5.5 PHASING OF PROJECT OPERATING MANUALS

Development of POM will involve an iterative process that will continue throughout the life of the project, as illustrated by Figure 5-2. The Draft POM will include operating criteria based on the IOR and will generally discuss the transitions to operations during, construction, the Operational Testing and Monitoring Phase, and the Long-term Operations and Maintenance Phase. Refinements to the operating criteria will be made as more design details, data, operational experience and information is gained during these phases. A Preliminary POM will be prepared and approved for the Operational Testing and Monitoring Phase. This will be followed by a Final POM that will be prepared and approved for the Long-term Operations and Maintenance phase. After the Final POM is completed and the Long-term Operations and Maintenance Phase is underway, the Final POM and the SOM will continue to be revised based on additional scientific information, new CERP or non-CERP activities being implemented, and new CERP updates.

As updates and revisions are made to the SOM, individual revised pages will be clearly identified with the date of the latest revision. As a POM is revised, each previous iteration of the manual will be archived to provide historical continuity for project operations.

As shown by Figure 5-2, the anticipated points of update and revisions to the POM are as follows:

- Draft POM for the PIR/EIS
- Preliminary POM during Operational Testing and Monitoring Phase
- Final POM
- Revisions to the Final POM and SOM during the Long-Term Operations and Maintenance Phase

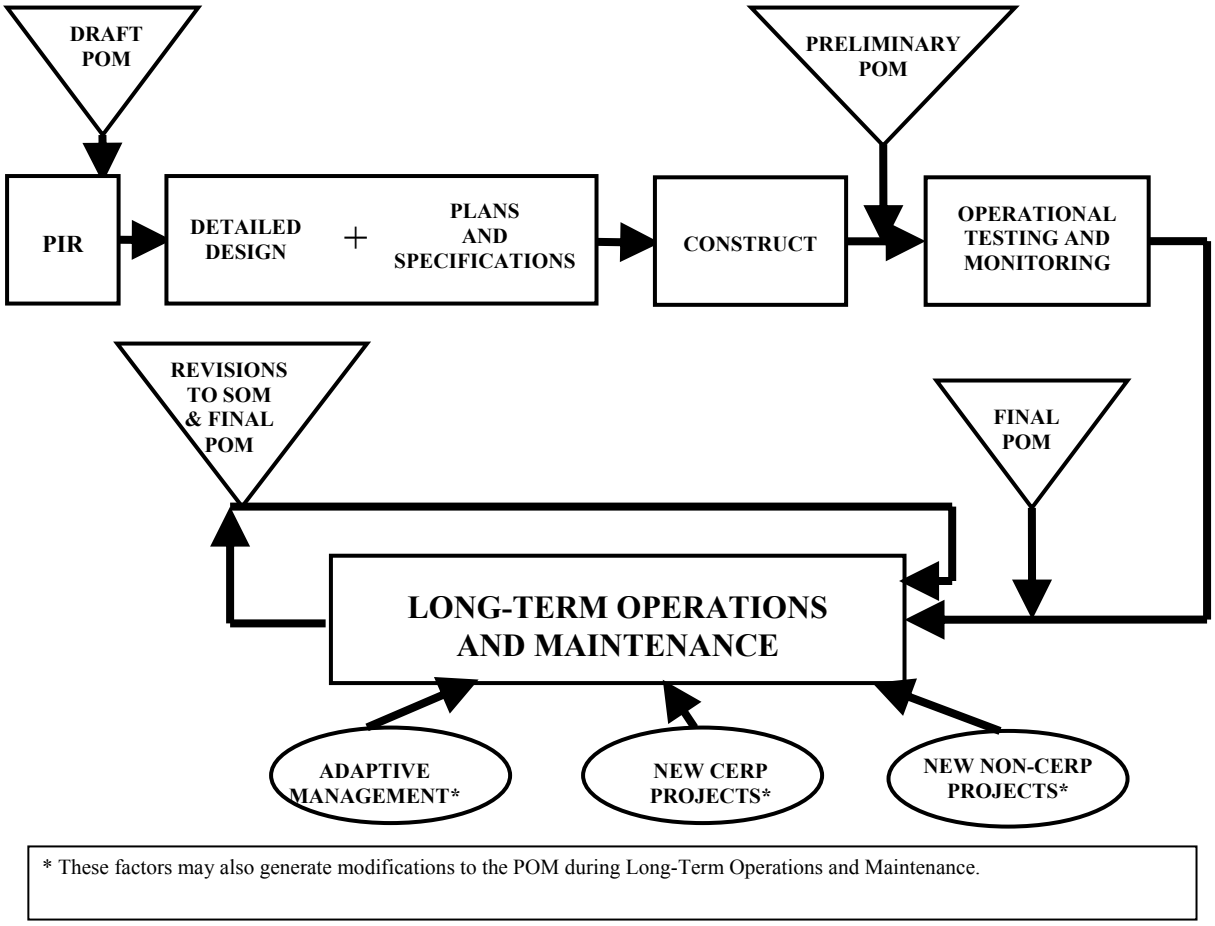


Figure 5-2 Phasing of the Project Operating Manual

5.5.1 Draft POM for Inclusion in the PIR

Initially, a Draft POM will be developed during the PIR phase of the project. This Draft POM will be consistent with, and part of, the NEPA documentation and will be included as an annex to the PIR. Water management operations in the Draft POM will consider operations of existing or planned projects with approved operating plans, including both CERP and non-CERP activities, that may influence operations of the subject project. This may include projects or project features that are upstream, downstream or in the vicinity of the subject project, and operations to be used during construction. The Draft POM will include operating criteria that are applicable for the construction phase and the Operational Testing and Monitoring Phase. The operational rules expressed in the Draft POM must show how they will be used to achieve the benefits of the project and the Plan. The Draft POM will be based on the Initial Operating Regime (IOR).

The construction phase operations portion of the Draft POM will focus on facilitating construction of the project components while maintaining established levels of project purposes, such as water supply, flood protection, and any required delivery of water to the natural system. Defining operating criteria to be used during construction will require consideration of issues that are unique to the construction phase such as real estate issues, construction schedules, contract sequencing, temporary by-pass canals, and dewatering activities. During the design Phase, the Draft POM may need to be updated as a result of updated information or changes to the project. Some of these POM modifications may result from value engineering analyses conducted during the design phase. During the construction phase, the Draft POM may need to be updated based on detailed design information and operational experience gained during the construction phase.

5.5.2 Preliminary POM

The Preliminary POM will be used for operations during the Operational Testing and Monitoring Phase (OTMP), which is the time period between completion of physical construction and the final acceptance and transfer of the project or project feature to the non-Federal sponsor and the assumption of operation and maintenance of the project or project feature by the non-Federal sponsor. The purpose of the OTMP is to verify that the project features perform as designed prior to transferring the project to the non-Federal sponsor. The time period for the OTMP will be defined in the PCA. Analyses to determine if the project is causing an elimination or transfer of existing legal sources of water or a reduction in levels of service for flood protection will be conducted to ensure that OTMP operations are in compliance with the provisions of the Savings Clause. When approved, the Preliminary POM will be added to the appropriate volume of the SOM.

5.5.3 Final POM

Following completion of the OTMP, the Final POM will be prepared. The Final POM will consolidate the incremental refinements recommended during the previous phases and will describe water management regulation schedules and operating criteria for use by the non-Federal sponsor for the long-term operation of the project component. Analyses to determine if the project is causing an elimination or transfer of existing legal sources of water or a reduction in levels of service for flood protection will be conducted to ensure that project

operations are in compliance with the provisions of the Savings Clause. This Final POM will supersede all other iterations of the POM. At this point, the project or project feature will be transferred to the non-Federal sponsor and operation and maintenance assumed by the non-Federal sponsor. The Operation and Maintenance (O&M) Manual, a separate and distinct requirement from the POM that establishes the policy for the long-term maintenance of flood control and related structures, will also be completed at this time. The O&M Manual will contain pertinent information for the safe and efficient use of the physical infrastructure of the project, and maintenance of the project's structural, mechanical and electrical systems.

5.5.4 Updating the Final POM

After the Final POM is approved and long-term project operations are underway, it is likely that the POM will need to be updated or modified over time. This may result from implementation of new CERP project components, implementation of new non-CERP activities, changes resulting from recommendations made through the adaptive management and assessment process outlined in Guidance Memorandum #6 or changes made through CERP updates. All revisions to the POMs and SOM will be completed in accordance with the process outlined in the Programmatic Regulations and applicable USACE regulations, consistent with applicable NEPA requirements. These regulations include ER 1110-2-240 Water Control Management (also published in 33 CFR 222.5); Engineering Manual (EM) 1110-2-3600 Management of Water Control Systems; ER 1110-2-8156, Preparation of Water Control Manuals; and Engineering Technical Letter (ETL) 1110-2-335 Development of Drought Contingency Plans.

It is anticipated that in some cases, a new CERP project and POM will result in a need to change operating criteria and/or update a Final POM for an existing project. In that circumstance, the NEPA requirements for the change to the existing POM may have been fulfilled during the NEPA coordination for the new PIR. If not, then additional NEPA documentation and public involvement may be required. Analyses to determine if the project is causing an elimination or transfer of existing legal sources of water or a reduction in levels of service for flood protection will be conducted to ensure that project operations are in compliance with the provisions of the Savings Clause. The POM for the existing project will be revised, as necessary, and will replace the old POM. This revised POM will also replace the old version of the POM in the appropriate geographical volume of the SOM. Furthermore, if the modifications to the existing POM will influence system-wide operations, then Volume 1 of the SOM will be updated to reflect these changes, including the rationale for the modifications and a description of any interactions between project features.

5.6 DEVELOPMENT OF THE SYSTEM OPERATING MANUAL

During the development of the original USACE Master WCMs for the C&SF Project (ER 1110-2-8156-Preparation of Water Control Manuals), the south Florida hydrologic system was divided into five interconnected geographical regions. The SOM will replace this existing set of Master WCMs. The SOM provides an integrated system-wide framework for operating the implemented projects of CERP as well as the existing C&SF Project. The complete SOM will provide explicit guidance and operating criteria for the operational

interactions between the system's geographically related regions. Attachment 5-B provides more detailed information on the format and content of the SOM.

5.6.1 Composition of the System Operating Manual

The SOM will consist of seven volumes, six of which (Volumes 2 through 7) are comprised of the geographically related regions within the original C&SF Project. The overall system framework of the SOM will be contained in Volume 1, which will provide a system-wide operating plan for the implemented projects of the Plan and the C&SF Project features. Generally, Volumes 2 through 7 will retain the original format of the Master WCMs for the existing C&SF Project, with a few modifications to accommodate the CERP POMs. The format of Volume 1 will be modified to provide the framework for system-wide operations.

The information from the existing C&SF Project Master WCMs will be utilized and modified as necessary for the appropriate volumes of the SOM. A new volume, entitled "Southwest Florida", a region not covered in the original Master WCMs, will be added as Volume 7. The C&SF Project "Authorities and Responsibilities (A&R) Manual" (the original Volume 1) will be incorporated into the new Volume 1 of the SOM. The "Discretionary Changes" chapter of the A&R Manual, which describes historical modifications to the C&SF Project, will be moved to Appendix A of the new Volume 1 for reference purposes. The new volume 1 will include language that captures the system-wide intent of the CERP, the role of RECOVER in evaluating the system-wide benefits and guidance on the periodic efforts to conduct a system-wide analysis to ensure continuing optimum performance of existing capability.

All approved water control plans, POMs, and/or operating criteria for C&SF Project structures will be found in the appropriate geographical volume (Volumes 2 through 7) of the SOM. Any modifications resulting from implementation of a new POM that are relevant to system-wide operations will be incorporated into the appropriate SOM volume. The existing C&SF Project structure descriptions and rating curves appendix, formerly found in Appendix A of the Master WCMs, will be located in Appendix A of Volumes 2 through 7 of the SOM. This appendix will be modified, and/or new descriptions added, as each new POM is implemented.

Each CERP Preliminary and Final POM will be inserted into Appendix B of the appropriate SOM volume as a supplement and will be referenced in the front of the SOM in a "History of Revisions" table that will be updated as each POM is completed. The table will provide the location of the POM within the SOM, the date the POM was completed, and the location of the structure descriptions and rating curves.

To summarize, the SOM will consist of the following volumes:

- Volume 1: System Operating Manual–System-wide
- Volume 2: System Operating Manual–Kissimmee River–Lake Istokpoga Basin
- Volume 3: System Operating Manual–Lake Okeechobee and Everglades Agricultural Area

- Volume 4: System Operating Manual–Water Conservation Areas, Everglades National Park, and ENP–South Dade Conveyance System
- Volume 5: System Operating Manual–East Coast Canals
- Volume 6: System Operating Manual–Upper St. Johns River Basin
- Volume 7: System Operating Manual–Southwest Florida

For clarification, Table 5-1 describes the old and new nomenclature for the 7 Volumes of the SOM.

Table 5-1: Old/New Nomenclature for the Seven Volumes of the SOM

VOLUME	OLD	NEW
1	Authorities and Responsibilities	System-wide
2	Kissimmee River–Lake Istokpoga Basin	Same
3	Lake Okeechobee and Everglades Agricultural Area	Same
4	Water Conservation Areas, Everglades National Park, and ENP-South Dade Conveyance System	Same
5	East Coast Canals	Same
6	Upper St. Johns River Basin	Same
7	None	Southwest Florida

5.6.2 Updates to the System Operating Manual

As discussed previously, each POM will be incorporated into the System Operating Manual. As the POMs are incorporated into the SOM, other sections of the SOM may need to be revised to ensure that the operations of all projects are integrated and consistent and that the system is operated to achieve the benefits of the Plan. The revision process must follow the requirements of the Programmatic Regulations.

ATTACHMENT 5-A
FORMAT AND CONTENT OF PROJECT OPERATING MANUALS

This attachment provides guidance related to the format and content of POMs for CERP projects. In general, the POM should include descriptions and operating criteria for all structures that are part of the CERP project, such as gravity structures, pump stations, diversion, or ASR facilities. The POM should also consider and discuss foreseeable operations of other water resource projects that are hydrologically connected, but are not integrated components of the subject CERP project. The following provides more detailed instructions on format and content for the POMs.

I. Format of Project Operating Manuals

This section describes the general format for POMs. Some topic headings listed in this section may not be utilized in all phases of the POM. Topic headings may be included as placeholders in early Draft POMs for use in future iterations. Additionally, use of topic headings may vary depending upon the number and complexity of project features covered by the POM, as well as interactions with other C&SF Project features and other CERP features.

The "Table of Contents" in section II and the "Guidance on Content for Project Operating Manuals" in section III provide an easy to follow guide for preparation of POMs. These two sections should be used by the PDT as a checklist of relevant issues/items to be addressed in the Draft POM for the PIR.

A. General

The following items provide a summary of general formatting guidance for POMs:

- Manual covers will be color coded by basin.
- All completed versions of the POMs should have a spine labeled with the project name.
- Pages in the manuals should be dimensioned 8-1/2 by 11 inches and loosely bound with cover stock.
- Every page should include a page number and a date showing the most recent revision date.
- Individual revised pages will be clearly identified with the date of revision.

B. Editorial Guidance

The following guidance should be followed when developing the POM:

- Use of the term "regulation" should be used carefully because the term has multiple meanings. For example, "regulation" can mean either: (1) water control procedures and decisions that normally are determined by regulating engineers (hydrologic or hydraulic), or (2) legal rules, agreements, or contracts;

e.g., section 7 of Flood Control or Navigation Regulations, ER 1110-2-240, water supply contracts, and ruling of interstate compacts.

- Use of the term "operation" should be restricted to physical manipulation of spillway gates, outlet works, or instrumentation associated with projects.
- Use of the term "operator" refers to the individual who has the responsibility for the physical "operation" of the project.
- Use of the term "water manager" refers to the individual who prepares the successive phases of the POM, and participates in the development of the PIR and the translation of modeling results to real-world operating criteria.

C. Tables and Plates

- Disperse tables that are one page or less in size throughout the text. Include all tables that are over one page in the "Tables" section following the text to facilitate narrative continuity within the text. Although these tables are located separately, the table numbering system in the text should include both sets of tables–those in the Tables section and those dispersed throughout the text. Page numbering for the section on tables would be the same as numbering chapters except page numbers would be preceded by a "T." Reference to a table would read as follows," … shown in Table 1-2 (see page T1-1)", and in the List of Tables as:

Table	Page
1-1	1-2
1-2	T1-1
1-3	1-4

- Include tables showing elevation versus area and elevation versus capacity in increments of one foot or less. These tables should cover elevation ranges e.g. from the bottom of the lake, storage area and impoundment to maximum pool.
- Plate and table numbers should correspond to chapter numbers where first referenced. Example: Plate 1-1, 1-2, 1-3, 2-1, 2-2.
- Title block on plates should be easily readable when the manual is opened, with the preferred location in the lower right-hand corner.
- Scales used on plates should be divided into units of one, two, five or multiples of ten per inch. The scale selected should be easy to read and usable for actual operations.

EXHIBIT 9

II. Example Table of Contents (Subject to Project Needs)

Item	*Title*
i.	Title Page
ii.	Notice to Users of Manual
iii.	Emergency Regulation Assistance Procedures
iv.	Table of Contents
v.	Pertinent Data
1	Introduction
2	General Project Purposes, Goals, Objectives, and Benefits
3	Project Features
	a. Existing Features
	b. Proposed Features
	c. Removed Features
4	Project Relationships
5	Major Constraints
6	Standing Instructions to Project Operators
7	Operational Strategy to Meet Project Objectives
	a. Achieving Natural System Goals, Objectives and Benefits
	b. Flood Damage Reduction
	i. Normal and Emergency Operations
	ii. Hurricane or Tropical Storm Operations
	iii. Storage Area Weir Discharge
	iv. Uncontrolled Discharge
	c. Water Quality
	d. Water Supply Operations
	e. Recreation
	f. Fish and Wildlife
	g. Navigation
	h. Other
8	Pre-Storm/Storm Operations
9	Consistency with the Identification of Water and Reservations or Allocations of Water for the Natural System
10	Consistency with Savings Clause and State Assurances Provisions
11	Drought Contingency Plan
12	Flood Emergency Action Plan
13	Deviation from Normal Regulation
	a. Emergencies
	b. Unplanned Minor Deviations
	c. Planned Deviations
14	Rate of Release Change

15	Seepage Control
16	Initial Reservoir/Storage/Treatment Area Filling Plan
17	Non-typical Operations for Reservoir/Storage/Treatment Area Performance
18	ASR System Plan
19	Water Control Data Acquisition System Plan
20	Consistency with the Adaptive Management Program and Periodic CERP Updates
21	Interim Operations During Construction
22	Interim Operations During Operational Testing and Monitoring
23	Conceptual Description of Project Operations for Transition from the Initial Operating Regime to the Next- Added Increment Condition

NOTE: The sections below that follow the main text of the document will be preceded by individual title pages:

- Tables
- Figures
- Plates/Operational Schematics
- Exhibits:
  - Structure Descriptions and Rating Curves
  - Formal Agreements
  - Water Control Data Acquisition System Plan
  - Standing Instructions to Project Operators
  - Other (e.g. supplementary pertinent data)

III. Guidance on Content for Project Operating Manuals

The content of the POMs may vary depending upon the number and complexity of project features covered by the POM, as well as interactions with other C&SF Project features and other CERP features. Most POMs will include the topic headings shown in section II Example Table of Contents. Paragraphs may be further subdivided when necessary. For example, subdivision may be necessary to accommodate larger projects, projects with multiple features, or projects that impact or affect adjacent projects that may also require some explanation. In addition, examples of site layouts and operational schematics can be found in Attachment 5-D.

The following provides guidance regarding the content for each of the paragraphs shown in Section II Example Table of Contents.

i. **Title Page**
ii. **Notice to Users of Manual**
iii. **Emergency Regulation Assistance Procedures**
iv. **Table of Contents**
v. **Pertinent Data.** The pertinent data included in this paragraph should be limited to approximately one page. If necessary, additional information relating to water

management may be tabulated in an exhibit following the main text of the document. Restrict information included here as follows:

- Location (state, county, river/canal, and river/canal mile).
- Drainage area upstream of the project and the uncontrolled areas above any major control points downstream.
- Site layout and schematic of project features. Examples of operational schematics and figures are located in Attachment 5-D.
- Type, length, height, crest elevation, top width of dam, dikes, and tidal barriers; type and size of all discharge facilities; spillway, pump stations, outlet works, water supply pipes, and navigation locks.
- Real estate guide taking lines by fee and easement. (Optional for Draft POM.)
- Pertinent elevations with corresponding reservoir/storage area surface areas, incremental and cumulative storage and discharge capacities of spillway and outlet works for maximum pool, top induced surcharge, top flood control pool, top conservation pool, top inactive pool, invert lowest intake, and streambed/canal bottom. Also indicate the volumes of sediment reserve, dead storage, and the range of any seasonal joint use, when applicable.

1. <u>Introduction</u>

This paragraph should include a very brief introduction to the POM which may include, but is not limited to, the following:

- A statement that the main purpose of this POM is for day-to-day use in water management for essentially all foreseeable conditions affecting the [INCLUDE PROJECT OR PROJECT FEATURE NAME OR DESCRIPTION].
- A statement identifying project phase that this POM will cover (e.g., PIR/EIS Phase, Construction Phase, and OTMP, or Long-Term Operations and Maintenance Phase).
- A statement that there is a possibility that modifications and/or revisions to the POM may occur during the remaining project phases.

2. <u>General Project Purposes, Goals, Objectives and Benefits</u>

This paragraph should include a summary of the project purposes, goals, objectives, and benefits described in the PIR and should describe, in general terms, how the Draft POM is designed to meet project purposes as stated in the PIR. This paragraph should also include a statement that the project will be operated in accordance with the POM to achieve the goals, purposes and benefits outlined in the PIR, including the quantity, timing and distribution of water for the natural system and other water-related needs identified through the process outlined in Guidance Memorandum #4.

3. <u>Project Features</u>

- Existing Features. Provide a brief description of existing project features by basin, including water control structures, reservoirs, canals, stormwater treatment areas (STAs), and a brief description of each feature's purpose and role in meeting the project purposes and achieving project benefits.
- Proposed Features. Provide a brief description of the proposed features of the selected alternative plan including location, water control structures, reservoirs,

canals, and STAs, with a brief description of each feature's function in meeting the project purposes and achieving project benefits.

- Removed Features. Describe any existing project features that will be or have been removed or altered due to the new project, along with a brief explanation of the reason that the operational function of this feature is no longer needed and/or how this operational function will be provided by another project feature or operational change, if applicable.

4. <u>Project Relationships</u>

As new CERP and non-CERP activities are implemented, POMs for existing C&SF or CERP project features may need to be modified or revised. This paragraph should describe how the new project features and/or operating criteria change, impact, link, or interact with the existing features. If this new POM results in operational modifications to other existing CERP or C&SF Project features, the POMs for the existing project features will be revised and the revised POMs will supersede the previous version of the POMs.

5. <u>Major Constraints</u>

Identify constraints related to the movement, storage, and/or utilization of the water resource. List and explain constraints imposed by existing projects, anticipated constraints from project components currently underway but not yet completed, and anticipated constraints from future CERP projects. Describe physical constraints including unremediated malfunctions; gate change limitations; structural and hydraulic design limitations; discharge constraints associated with inoperative gates; low pool level; ASR system intake and water supply; outlet limitations; reservoir/storage area limitations associated with high pool levels such as backwater into upstream structures, water quality concerns during initial filling and refilling of storage/treatment areas, leaks in levees, embankment boils, and required movement of facilities. This paragraph should also identify any potential legal, political, and social conflicts with project operations, as well as any major conflicts between purposes that could influence operations.

6. <u>Standing Instructions to Project Operators</u>

Briefly describe existing and proposed regulations for the project operators during normal conditions, during communication outages, unforeseen emergency events requiring deviations from prevailing regulation schedules, and spillway/outlet works restrictions.

7. <u>Operational Strategy to Meet Project Objectives</u>

In general terms, briefly describe existing and proposed regulations and/or operational strategies of project features to meet the goals, objectives, and benefits in the PIR as described in Paragraph 2 (General Project Purposes, Goals, Objectives, and Benefits), which include restoration, preservation, and protection of the South Florida ecosystem, while providing for the other water-related needs of the region and meeting the requirements for protection of health and public safety. Include project component interaction with other project components from a system-wide

perspective. Briefly explain how the project component would be operated to meet the quantity, timing, and distribution of water for the natural system and other water-related needs identified through the process outlined in Guidance Memorandum #4. Provide a brief explanation of the relationship of the Draft POM to the project's phases as outlined in the PIR, the implementation schedules for projects currently underway but not yet completed, and implementation schedules for future CERP projects that may influence operations of the subject project component. Include a summary of how the assumptions used in the development of the hydrologic simulation model have been translated into operational rules to fulfill the project's purposes, goals, objectives, and benefits.

a.) **Achieving Natural System Goals, Objectives, and Benefits.** State the primary ecological objectives for the project features as outlined in the PIR, with a description of operational criteria that are designed to meet those primary ecological objectives. Operating criteria for the natural system must be designed to achieve the environmental performance and benefits described in the Plan while maintaining other water related needs. Operational criteria should be consistent with water reservations or allocations and where applicable, should include specific environmental operations such as marsh-driven, estuarine salinity targets, or rain-driven operations, all of which are intended to avoid unintended harmful impacts to the natural system. Operating criteria should include descriptions concerning operational intent and explain how the operational rules were developed to meet desired objectives. These objectives should seek to mimic the natural hydrology of the receiving basin as much as possible. Included should be a detailed description of the hydrologic targets, the predictive tools used to estimate the targets, and discussions of operational flexibility. See Figure 5-D-9 in Attachment 5-D for an example of predictive tools graphics. It should be noted in the Project Operating Manual that the predictive tools graphics are planning tools used to estimate the performance of the project and are based on the best available science, hydrologic analyses and on historical meteorological conditions. Actual meteorological conditions may vary from historical. Although operating criteria for the natural system will be developed to achieve the predicted performance of the project, these predictions may not be accurate in all cases. Project performance will be monitored and adaptive management utilized to refine project operations and performance as necessary to achieve expected benefits. Water managers should be provided operational flexibility in meeting environmental targets based on the water available and inherent system constraints. The Project Operating Manual should contain a discussion of operational intent including this operational flexibility.

b) **Flood Damage Reduction.**

i) Normal and Emergency Operations. Describe any flood damage reduction operating criteria for project phases that require flood damage reduction operations, including rule curves, triggers, water surface elevations, and minimum flows. Include normal and emergency regulations. This discussion

should briefly address the following: an explanation of existing and proposed operating criteria; release scheduling procedures during flood emergency; computer applications; role of the USACE; relative emphasis upon controlling peak outflow or pool level and backwater; use of seasonal or joint use storage; regulation with respect to storage zones including surcharge; use of streamflow predictions; forecasting total flow downstream; reference to exhibits (Standard Design Flood [SDF], Standard Project Flood [SPF], maximum flood of record, other); special concerns for safety. This paragraph should also reference a release schedule or water management diagram (this should be a table or plate, see EM 1110-2-3600). This paragraph should also provide transitional operations, as necessary, for existing features that are affected by new features coming on-line. Include a summary of how the assumptions used in the development of the hydrologic simulation model have been translated into operational rules relative to flood damage reduction, the project area, and areas of concern adjacent to the project area.

ii) **Hurricane or Tropical Storm Operations.** State the agency/organization that is responsible for operations at project water management structures prior to, during, and after a hurricane or tropical storm. Provide a detailed explanation of operating criteria to be followed before and during hurricanes or tropical storms, if different from typical operating criteria. Include a procedure for using weather forecasting and National Weather Service broadcasts to determine the timing for implementation of hurricane or tropical storm procedures. Reference the Emergency Action Plan for the project, including the State procedure for interrupted communications, and the procedure for informing local emergency management offices, if necessary.

iii) **Storage Area Weir Discharge.** Provide a general listing of conditions that may cause reservoir/storage area emergency overflow weir discharge. Include a detailed explanation of operating criteria to be followed at project features when weir discharge is occurring due to exceedance of storage capacity at reservoir/storage area.

iv) **Uncontrolled Discharge.** Provide a brief description and design capacity for structures designed for uncontrolled discharge, including emergency overflow spillways and uncontrolled weirs and culverts.

c) **Water Quality**. P.L. 92-500 requires that all Federal facilities be managed, operated, and maintained to protect and enhance the quality of water and land resources through conformance with applicable Federal, State, Interstate, and local substantive standards. Where specific water quality benefits of a project have been identified, this paragraph should include specific operating criteria that are to be used to achieve those benefits. If no specific water quality benefits are identified, this paragraph should include information on specific operating criteria that are to be used continuously or periodically to ensure project compliance with applicable Federal/State water quality standards. Appropriate staff, in conjunction with water managers, should coordinate as necessary with FDEP and other

appropriate agencies to ensure that the project will comply with applicable water quality standards or CERP water quality certifications and permits during all phases of the project, including unique water quality concerns during the construction phase.

d) **Water Supply Operations.** Describe operating criteria to be used to provide releases to a canal or stream or withdrawal from a reservoir or storage area for municipal/industrial/irrigation usage and/or resource protection; reference contract(s), low flow requirements, fish and wildlife, water rights, roles of the USACE and the non-Federal sponsor; short-term release scheduling; long-range release planning, storage utilization (seasonal commingled, joint use). Show storage accounting method for more than one use of conservation storage. Reference and discuss example regulation exhibit. Include a summary of how the assumptions used in the development of the hydrologic simulation model have been translated into operational rules relative to water supply deliveries and storage within the project area and beyond the project area.

e) **Recreation.** Identify any special release or operating criteria for recreational activities such as fishing tournaments and competitive boating. Provide a list of passive recreation that is anticipated to result from operation of project's reservoir or storage area, if applicable. Project operations to enhance recreational activities must be consistent with the purposes of the project.

f) **Fish and Wildlife.** Where applicable, describe any special operating criteria necessary to accomplish specific fish and wildlife objectives that are in addition to the natural system goals, objectives, and benefits of the project, such as fish spawning, waterfowl, and endangered species.

g) **Navigation.** Release scheduling, accomplishment in general, lock filling and emptying procedure, aids to navigation, reference and discuss example regulation exhibit, integration with other projects.

h) **Other.** Where applicable, identify any special operating criteria necessary to address other conditions and concerns such as: health and welfare, mosquito control, aquatic plant management, debris control, low flow, freeze protection, special or emergency drawdown, upstream/downstream/adjacent ground water table, releases to aid construction upstream/downstream/adjacent, toxic and hazardous material spills.

8. Pre-Storm/Storm Operations

This paragraph should outline the concept of pre-storm operations such as canal or reservoir/storage area drawdown as it applies to project objectives. Provide an explanation of operating criteria related to pre-storm and storm operations, including rule curves, triggers, water surface elevations, and minimum flows to allow transfer of canal water to reservoir/storage areas. Pre-storm operations should seek to avoid negative impacts to the natural system and minimize negative impacts when they are

unavoidable. Provide discussion about how impacts to project purposes will be considered in the decision to begin pre-storm drawdowns. This paragraph should reference or describe procedures for using weather forecasting and National Weather Service broadcasts, as necessary, to determine the timing for implementation of pre-storm/storm operations. Include detailed operating criteria for pre-storm/storm operations during the iterative phases of the project as necessary: Construction Phase, OTMP, and Long-Term Operations Phase.

9. <u>Consistency with the Identification of Water and Reservations or Allocations of Water for the Natural System</u>

In the PIR, the PDT is required to identify the appropriate quantity, timing, and distribution of water for the natural system and other water-related needs in accordance with the process outlined in Guidance Memorandum #4. This paragraph should include a statement that the operating criteria within the POM are consistent with the operating criteria used to identify the water made available for the natural system during wet, average, and dry periods (reference the "Project Assurances" section of the PIR). This paragraph should also specifically state that the operating criteria are consistent with the water reservations or allocations for the natural system made by the State in accordance with section 601 of WRDA 2000.

10. <u>Consistency with Savings Clause and State Assurances Provisions</u>

The operating criteria within the POM will be consistent with those used for evaluating conformance with the Savings Clause during development of the PIR. Describe any special operating criteria that are necessary to fulfill the Savings Clause Provisions in accordance with the PIR. In addition, the operating criteria within the POM will be consistent with those used for evaluating conformance with State assurances provisions during development of the PIR

11. <u>Drought Contingency Plan</u>

Unless a project requires an individual DCP, the general regional DCPs located in Volumes 2 through 7 of the SOM should be utilized. If a general regional DCP is used, this paragraph should reference that specific regional DCP and volume of the SOM.. In addition, the Rules of the SFWMD Water Shortage Plan will be located with the DCP. This paragraph should include discussion on the relationship among the DCP, MFLs, regulation schedule floors, and reservations or allocations of water for the natural system and should include the process for how operations will be determined during drought.

12. <u>Flood Emergency Action Plan</u>

Descriptions, completion dates, and physical location of plans (can be attached as an exhibit in the POM or be a stand-alone document) if properly referenced in the POM.

13. <u>Deviation From Normal Operating Criteria</u>

This paragraph should describe approval and notification procedures required when deviations from the POM are necessary. The USACE District Commander is occasionally requested by the non-Federal sponsor to approve deviations from normal

operating criteria. Prior approval for a deviation is required from USACE-SAD except as noted in subparagraph "a" below. Deviation requests usually fall into the following categories:

a) **Emergencies.** Examples of emergencies that may result in a need to deviate from normal operating criteria include: drowning and other accidents; failure of the operation facilities; chemical spills; treatment plant failures; and other temporary pollution problems. Water control actions necessary to abate the problem should be implemented immediately unless such action would create equal or worse conditions. SAD must be informed of the problem and the emergency operating changes as soon as practicable. In addition, the non-Federal sponsor, the State of Florida (FDEP and SFWMD), and the Department of the Interior should be informed.

b) **Unplanned Minor Deviations.** There are unplanned instances that create a temporary need for minor deviations from the normal operating criteria, although these deviations are not considered emergencies. Construction accounts for the major portion of these incidents requiring minor deviations. Examples of activities that may require short-term deviations include construction of utility stream/canal crossings and bridge work. Deviations are also sometimes necessary to carry out maintenance and inspection of facilities. Requests for changes in release rates generally involve time periods ranging from a few hours to a few days. Each request should be analyzed on its own merits. In evaluating the proposed deviation, consideration must be given to upstream watershed conditions, potential flood threat, existing condition of the reservoir/storage area, and alternative measures that can be taken. In the interest of maintaining good public relations, requests for minor deviations are generally granted, providing that these deviations will not have adverse effects on the ability of the project (or projects) to achieve the authorized purposes. Approval for these minor deviations normally will be obtained from SAD by telephone. Written confirmation explaining the deviation and the cause will be furnished to the SAD water control manager. In addition, the non-Federal sponsor, the State of Florida (FDEP and SFWMD), and the Department of the Interior should be informed.

c) **Planned Deviations.** Each circumstance should be analyzed on its own merits. Sufficient data on flood potential, lake and watershed conditions, possible alternative measures, benefits to be expected, and probable effects on other authorized and useful purposes, together with the USACE district recommendation, will be presented by memorandum, facsimile, or electronic mail to the USACE-SAD for review and approval. In addition, the non-Federal sponsor, the State of Florida (FDEP and SFWMD), and the Department of the Interior should be consulted as part of the process of receiving approval from SAD for the deviation.

14. Rate of Release Change

This paragraph should provide the normal allowable rate of increase and decrease in releases from the project features covered by the subject POM. The rate of release change for the natural system should be designed to replicate the natural hydrologic change in the receiving basin to the extent possible.

15. <u>Seepage Control</u>

Provide a detailed explanation of operating criteria to be used during operation of project features for seepage control and marsh driven operations. Include conditions when operation of features for seepage control is not beneficial, such as when a reservoir or storage area is at design capacity, from beneficial seepage operations such as returning seepage water to natural areas or seepage to recharge well-fields. This discussion should include detailed operating criteria, as appropriate, for seepage control and marsh driven operations during the iterative phases of the project: Construction Phase, OTMP, and Long-Term Operations and Maintenance Phase.

16. <u>Initial Reservoir/Storage/Treatment Area Filling Plan</u>

Briefly describe the initial filling plan for projects involving reservoirs, impoundments, natural storage and treatment areas, and/or stormwater treatment areas (STAs). Include information on the preferred filling rate, the available options to control the filling rate, the consequences of sole purpose operation to control the rate, water quality requirements for the initial filling, and the most probable types of problems that might develop during the initial filling. Reference any documents prepared for the testing and/or initial use of project water management structures and equipment. Describe the proposed hydrologic data collection and transmission system and the plans for reading and evaluating instrument data and making visual inspections of the dam and downstream areas, both related to increments of pool level. Also describe which agency/organization will be responsible for decisions and implementation of emergency plans as necessary. Outline guidelines on conditions requiring notification of personnel in that organization and implementation of emergency plans. The final version of this paragraph will be completed before the OTMP of the project.

17. <u>Non-Typical Operations for Reservoir/Storage/Treatment Area Performance</u>

Describe any procedures and changes in operating criteria to be used for minimizing or avoiding dryout during a drought. Describe anticipated operations during routine maintenance or during situations where portions of the project are offline or out of service. Identify storage/treatment area refilling plan to be used following drought or offline operations. Refer to paragraph 16, Initial Reservoir/Storage/Treatment Area Filling Plan, if the refill operations are similar.

18. <u>Aquifer Storage and Recovery System Plan</u>

This paragraph should provide a description of how the project's water management structures will be integrated with ASR System capabilities. The paragraph should provide a general description of the ASR System, including the objectives, components, storage capacity, and pumping and discharge capabilities. The paragraph should also include a detailed explanation of typical operating criteria, as well as changes in operating criteria that may result from use of weather forecasts, for the

water management structures as the structures relate to management of water provided by and utilized by the ASR System. This discussion may include operating criteria for seasonal water storage to meet peak demands, long-term storage to meet drought demands, emergency operations for potable water, and the operations for water supply augmentation and flood damage reduction. This paragraph should also include a general explanation of the ASR System operations as related to the project's water management structures and reservoir/storage area capacity. Depending on the project, implementation of the ASR System may be an iterative process.

19. <u>Water Control Data Acquisition System Plan (WCDASP)</u>

Provide a statement that the WCDASP may be started during the PIR phase, will probably be completed during the Plans and Specifications Phase, and will be a subset of the Water Control Data System (WCDS) that is specific to CERP. This paragraph should provide a general description of the telemetry system, automation components, or equipment related to the project's water management structures and which will ultimately be needed to track relevant data after authorization of the Project. It should also identify the agency/organization that is responsible for operation and maintenance of the system or the system components. Include a description of the relationship between the environmental monitoring plan and the WCDASP. Equipment used in data acquisition essential to the water management function will be included in the WCDASP. This includes all hardware and software to be used for acquisition, transmission, processing, display, and dissemination of hydrological, meteorological, water quality, and project data for the purpose of supporting the water control mission. This may include, but is not limited to; uninterruptible power supplies, field data collection platforms, and data communication devices and circuits. The WCDASP will also identify site location of all hardware included within the Plan. Hardware siting and gage reference datum will be determined through coordination with appropriate agencies including the U.S. Geological Survey (USGS) and the SFWMD. If this plan is over one page in length, the plan could be referenced in this paragraph and included as an exhibit.

20. <u>Consistency with the Adaptive Management Program and Periodic CERP Updates</u>

This paragraph should include a statement that after long-term operations and maintenance of the project has been initiated, the POM may be further modified based on operating criteria approved by the USACE and SFWMD resulting from CERP updates and recommendations from the adaptive assessment process as outlined in Guidance Memorandum #6.

21. <u>Interim Operations During Construction</u>

Interim operations utilized during the construction phase will be developed in conjunction with the detailed construction schedule, if available. All interim operations will be conducted to be consistent with the Assurances of Project benefits as set forth in section 601 of WRDA 2000 and as discussed in the Programmatic Regulations and the Guidance Memoranda. Some items that may be included in this paragraph, the contents of which may change in the preliminary or Final POM, are (a)

Operational Strategy to Meet Project Objectives, (b) Project Relationships and Interactions, and (c) Major Constraints. If the detailed construction schedule is not available prior to completion of the PIR, this section can be inserted as a placeholder to be developed once the construction schedule is known. For the preliminary and Final POM, this section should be deleted since these operations would no longer be needed.

22. <u>Preliminary Operations During Operational Testing and Monitoring Phase</u>

Preliminary operations for the OTMP will be developed in conjunction with the plan for the Operational Testing and Monitoring Phase and promulgated in the Preliminary POM. All preliminary operations will be conducted so as to meet the Assurances of Project benefits as set forth in section 601 of WRDA 2000 and as discussed in the Programmatic Regulations and the Guidance Memoranda. Some items that may be included in this paragraph are (a) Operational Strategy to Meet Project Objectives, (b) Project Relationships and Interactions, and (c) Major Constraints. The assumptions and constraints may change in the Final POM.

23. Conceptual Description of Project Operations for Transition from the Initial Operating Regime to the Next- Added Increment

The Draft POM is based on the Initial Operating Regime (IOR). A conceptual discussion of how to transition from the IOR to the Next-Added Increment Conditions will be provided in this section.

NOTE: The sections below that follow the main text of the document will be preceded by individual title pages.

- **<u>Tables</u>**
- **<u>Figures</u>**
- **<u>Plates/Operational Schematics</u>**
- **<u>Exhibits</u>.** NOTE: Label the following items as exhibits instead of appendices, reserving the latter term to tie individual POMs with their respective SOMs. The number of exhibits will vary from project to project. "Standing Instructions to Project Operators" should be the last exhibit.

  - <u>Structure Descriptions and Rating Curves</u>.
  - <u>Formal Agreements</u>. Examples are:
    - -Memorandums of Understanding
    - -Field Working Agreement
    - -Section 7 Flood Control Regulations
    - -Letters from other agencies or minutes of requesting commissions acknowledging or concurring in important or unusual aspects of the operating manual. To conserve space it may be desirable to show only the portion of the contract pertinent to water management, e.g., omit payment schedules.
  - <u>Water Control Data Acquisition System Plan</u>

EXHIBIT 9

- Standing Instructions to Project Operators
- Other (e.g. supplementary pertinent data)

EXHIBIT 9

ATTACHMENT 5-B
FORMAT AND CONTENT OF THE SYSTEM OPERATING MANUAL

I. FORMAT OF THE SYSTEM OPERATING MANUAL

Each volume of the SOM will contain nine chapters, outlined and briefly defined in Section A of this attachment. However, the nine chapters of the System-wide, Volume 1, will be modified somewhat to address the system-wide framework, and are listed separately. The outline for Volumes 2 through 7 is modeled after page A-63 in ER 1110-2-8156, Preparation of Water Control Manuals. Volumes 2 through 7 will generally follow the original format of the Master WCMs for the existing C&SF Project, with a few exceptions to accommodate the CERP POMs. When individual pages are revised within the SOM, the pages will be clearly identified with the date of revision.

A. Chapter Outline and Annotated Descriptions

System Operating Manual
Volume 1–System-wide

I. Introduction–Discussion of purpose, scope, and operating agency.
II. Authorizations–Detailed discussion of project authorizations.
III. System-wide Watershed Description and Characteristics–Provide system-wide description and characteristics.
IV. Description of System Components–Description of the major project subdivisions as laid out in Volumes 2 through 7 of the SOM.
V. Data Collection and Communication Networks–Overview of data collection and communication networks.
VI. System Hydrologic Forecasts–Description of system-wide forecasts.
VII. System-Wide Operating Plan–Discussion of the ability of the SOM to meet project purposes. Focus on water management at the system-wide level.
VIII. Effect of System-Wide Operating Plan–Discussion of system-wide effects and benefits from the SOM.
IX. Water Management Organization–Discussion of responsibilities, organization, and interagency coordination.

- Tables
- Figures
- System-wide schematics
- Exhibits
- Appendix A–Discretionary Changes

EXHIBIT 9

System Operating Manual
Volumes 2 through 7

NOTE: As stated previously, a "History of Revisions" table will be located in the front of each of the Volumes 2 through 7 of the SOM.

I. Introduction–Discussion of purpose, scope, and operating agency.
II. Regional Description–Provide regional description.
III. Regional History–Provide general history of the region.
IV. Watershed Characteristics–Provide regional characteristics.
V. Data Collection and Communication Networks–Overview of data collection and communication networks.
VI. Hydrologic Forecasts–Description of regional forecasts.
VII. Regional Operating Manual–Discussion of the ability of the SOM to meet project purposes for that specific hydrologic region. Focus on water management at the regional level.
VIII. Effects of Regional Operating Manual–Discussion of regional effects and benefits from the SOM for that specific hydrologic region.
IX. Water Management–Discussion of responsibilities, organization, and interagency coordination.

- Tables
- Figures
- Appendix A–Structure Descriptions and Rating Curves
- Appendix B–Project Operating Manuals
- Appendix C–Drought Contingency Plan
- Appendix D–Interagency Coordination
- Appendix E–Flood Control Regulations
- Appendix F–Standing Instructions to Project Operators

EXHIBIT 9

ATTACHMENT 5-C
GUIDELINES AND EXAMPLES FOR OPERATING MANUAL CONTENT FOR WATER QUALITY CERTIFICATION ASSURANCES

This attachment provides general guidance on information necessary to provide reasonable assurances for water quality permitting. POMs should provide sufficient information to demonstrate that proposed operations would be consistent with applicable State water quality standards and requirements. The Draft POM will be included in the WQC application provided to the FDEP. Along with the other application materials, the Draft POM will be evaluated to determine whether the project can be constructed, operated, and maintained in compliance with applicable water quality standards and applicable WQC requirements.

This attachment provides examples of the type of information that should be furnished for most projects and some specific examples from existing operating criteria documents. It is recognized that these projects vary widely and therefore project-specific issues/concerns may need to be addressed. As a result, this guidance should not be interpreted as exhaustive or limiting in scope. Additional information may be necessary on a project-specific basis. It is also possible that the examples provided below may not be applicable to a given project and therefore would not be included in the POM.

It should be noted that depending on the activity being authorized, the required content of the POM may vary. In some cases, construction, operation, and maintenance authorization are being sought, while in others only construction authorization or O&M authorization are being sought. For instance, it should be noted that the USACE is not normally responsible for structure operations, and therefore, under most circumstances, is not the applicant for the operational authorization. However, USACE may be involved in functional testing of structures during the Construction Phase and the OTMP in order to develop the Completed Operating Manual. In this instance, the USACE would be seeking authorization of construction activities and OTMP activities, while the non-Federal sponsor would seek a separate authorization for long-term O&M of the project.

Ideally, construction, operation, and maintenance authorization will be sought concurrently, with the goal being to obtain the water quality permit following completion of the PIR. However, this is not always possible. If the permit application (including the Operating Manual) contains enough information to provide FDEP with all necessary assurances, a water quality permit may be issued at the completion of the PIR. Table 5-C-1 identifies the phase of the POM and the general content that will be necessary to demonstrate reasonable assurances for each activity:

Table 5-C-1: General Content Needed to Demonstrate Reasonable Assurances for Activities in the Project Operating Manual

Activity	Phase of Operating Manual	Content
Construction	Draft POM	Interim Operations during Construction, Preliminary information on OTMP Operations
OTMP	Preliminary POM	OTMP Operations, including Modifications Resulting from Adaptive Assessment
Operations and Maintenance	Final POM	Final Operating Criteria, including Modifications to Draft POMs

The following items and examples correspond to Sections II and III of Attachment 5-A.

Pertinent Data:

Identification of design peak flow conditions and SPF

Examples:

- STA-1W: The Standard Project Storm ([SPS]; 120% of the 100 year/24-hour storm) rainfall depth is estimated as 23.6 inches for a 24-hour duration over a 10-square mile basin area. During an SPS event, it is recommended to restrict inflow through structure G-302 to 1,110 cubic feet per second (cfs). For an SPS event, the estimated STA-1 inflow Basin maximum stage elevation was 19.4 ft., NGVD.
- Cerrillos Dam and Reservoir: The SPF was routed using the following assumptions: (1) reservoir level at the beginning of the flood would be at the top of the conservation pool, elevation 537.0 ft, NGVD; (2) outlet works would be inoperative during the flood; and (3) that the spillway would consist of a 394-foot. wide uncontrolled emergency spillway with a crest elevation of 611.3 ft., NGVD. The SPF routed maximum reservoir level is at elevation 627.6 ft., NGVD. The design discharge for the spillway is 15,190 cfs so that this flow, combined with local inflows downstream, would not exceed the SPF capacity of the Ponce channels (21,739 cfs).

Introduction:

Identification of developmental phase of POM

Examples:

- Draft POM for operations during construction
- Final phase of the POM

General Project Purposes, Benefits, Goals or Objectives:

1. Identification of any water quality purposes of the project

Examples:

- Phosphorus reduction
- Reduction of freshwater pulse releases

2. General explanation of how the proposed operations meet the water quality purposes of the project

Example:

- Preliminary Water Plan for the Ten Mile Creek Storage Area: Rapid pumping to the reservoir and slow drainage from the reservoir mimics the behavior of shallow surface storage that has been lost through development over the years. When operated correctly, the reservoir reduces runoff from most storm events and helps restore the historic flow patterns of freshwater entering the estuary.

Project Features:

1. Description of project features by basin including water control structures, reservoirs, and STAs.

Example:

- Ten Mile Creek: Water will be put into the reservoir via S-382, a 380 cfs pump station, located on the northern levee adjacent to the creek. S-382 will consist of three pumps; one 60 cfs pump and two with 160 cfs pumping capacity. In addition, the pump station will have a return bay with a 200 cfs capacity for flows from the reservoir back to the creek.

2. Identification of downstream receiving waters and the "restoration objective water body", specify flow path

Example:

- Ten Mile Creek: The immediate downstream receiving water is C-96. The water will then flow into Ten Mile Creek, downstream of the Gordy Road Structure. Ten Mile Creek then flows into the North Fork of the St. Lucie River which discharges into the Indian River Lagoon. Ten Mile Creek, St. Lucie River, and Indian River Lagoon are all considered restoration objective water bodies.

3. Description of outflow discharge scenario, including, but not limited to, point or sheetflow discharge

Example:

- Ten Mile Creek: The outflow structure will consist of a gravity control structure, which will be a point discharge into the North St. Lucie River Water Control District's Canal 96. From this point, the water will flow north in Canal 96 and discharge downstream of the existing "Gordy Road" control structure on the eastern end of Ten Mile Creek.

4. As appropriate, brief description of feature's water quality design goal-such as STAs (state target constituent level) and polishing cells (statement of no target level)

Example:

- Indian River Lagoon South Project: (Structure discharge to meet salinity envelope in the estuary.) When the daily average salinity measured at the Roosevelt Bridge in the St. Lucie Estuary is above 12 parts per thousand (ppt), pump station S-421 will be triggered when there is over 1000 cfs flow at spillway structure S-49, and 50% of the flow will be captured in the reservoir. When the daily average salinity measured at the Roosevelt Bridge in the St.

Lucie Estuary is between 12-10 ppt, pump station S-421 will be triggered when there is over 500 cfs flow at S-49, and 50% of the flow is captured up to 900 cfs full capacity.

5. Identification of storage volume and treatment area available

Example:

- Ten Mile Creek: The reservoir and treatment cell will have a total storage capacity of 6,000 acre-feet. The reservoir will have 526 acres of effective storage area and the treatment cell will have 132 acres of treatment area.

Project Relationships and Interactions:

1. Description of any structural or operational changes necessary during construction. Consideration of existing structures and structure operations, as well as temporary and new features resulting from the project's ongoing construction phase

Examples:

- Kissimmee River Restoration Project: (Relocation of a structure.) Boat launching ramps at S-65, S-65B and S-65C will be relocated to the edge of the flood plain. Ramps will be connected with the restored river by access channels.
- Kissimmee River Restoration Project: U.S. Highway 98 will be temporarily relocated to maintain traffic flow during construction of bridge openings. A temporary 840-foot bypass extending 50 feet south of the existing road will be constructed on existing spoil.

2. Consideration of interactions with operations and features of other projects existing, under construction, planned, or scheduled, that are upstream, downstream, or in the vicinity of the subject project

Example:

- STA-1West: Spillway 5AS (S-5AS) has historically been used to facilitate water supply releases from WCA-1 to the L-10, L-12, L-8, and C-51 basin for irrigation. Since the construction of the STA-1 Inflow Basin, operation of S-5AS for water supply requires reverse flows through diversion structures G-300 and G-301. This, in turn, necessitates the closing of inflow structure G-302, preventing flows from entering STA-1W until irrigation demands are met.

3. Operations to satisfy pump station warranty requirements

Example:

- STA-1West: Maintenance requirements for the G-310 discharge pump station include operation of the pumps for approximately two to four hours per month as necessary, to maintain mechanical integrity of the pumps.

Operations to Meet Project Purposes:

1. General description of movement and storage of water

2. Optimum flow and water elevations, may be season dependent

Examples:

- S-9A: Seepage from higher water levels in WCA-3A and WCA-3B flows eastward toward the Western C-11 drainage basin. The purpose of the project is to backpump seepage at S-9A into WCA-3A at the same rate that water enters the 7900 feet of C-11 Canal from the S-9A pumps to the S-381 gates. The S-381 structure acts as a canal divide to separate the urban area to the east of the structure from the mainly natural area located to the west.
- STA-1 West: Target stage/depths for both wet and dry seasons were established for the STA-1 West treatment cells. (These target depths for Cell 1 and 2, shown below in Table 5-C-2, are from Table 1, p.28, STA-1West Operation Plan.)

Table 5-C-2: Example Wet/Dry Season Target Stages from STA-1W Treatment Cells

Cell	Wet season/Target Stage (+/- .2 ft.)	Dry Season Conservation Stage/Depth when available (+/- .2ft.)	Measured at Structure	Operational Structure
1	11.9/1.8	12.4/2.3	G-253 HW	N/A
2	11.7/2.25	12.2/2.75	G254 HW	N/A

3. Maximum water elevations, may be season dependent

Example:

- STA-1 West: The maximum operational depth for treatment cells 1, 2, 3, and 4 has been established at 4.5 feet above average ground elevation.

4. Minimum water elevations, may be season dependent

Example:

- STA-1 West: To the extent practicable, operations of STA-1West will maintain stages at or above the 0.5 feet above the average ground elevation in the treatment cells to minimize potential negative effects of drought on subsequent project performance.

5. Pump station operational limitations

Example:

- Pump Station 6 (S-6): The present drawdown limit is elevation 9.0 ft., NGVD. Pumps may overheat if head is greater than (>) 7.0 feet. If, during a pumping operation, the water surface on the intake bay falls below elevation 9.0 ft National Geodetic Vertical Datum (NGVD) as indicated by the staff gauge, the speed of all pumps then operating should be reduced to not less than 500 revolutions per minute (rpm). If this does not restore the water surface in the intake pool to elevation 9.0 ft. NGVD, one or more of the pumping units should be shut down until the minimum pool elevation is re-established.

6. Statement of any operations or coordination procedures for water quality and any beneficial water quality aspects of each component

Examples:

- Algae Blooms in the Caloosahatchee River (C-43): During the seasonally dry months from December to April of each year, the Caloosahatchee River flow diminishes to the point that severe algae blooms may develop in the River above the Franklin Lock and Dam. Municipal water intakes in this area could be clogged with the algae. Short-term high rates of discharge from Lake Okeechobee are required to break up the algae bloom.
- Salinity Intrusion in the Caloosahatchee River (C-43): During the extreme dry months of April and May, the river flow may drop to near zero. When this condition prevails, navigation lockages through the W.P. Franklin Lock may allow a saltwater wedge to move upstream. Eventually, the chloride content of the water can exceed the drinking water standard of 250 parts per million (ppm). When this occurs, SFWMD requests the USACE to flush out the saltwater with a short-term high rate of discharge from Lake Okeechobee.

Flood Damage Reduction:

1. Description of areas of concern adjacent to project area

Example:

- STA-1 East: S-361 is a secondary inflow pump station that discharges directly to Cell 4S. The intent is to provide drainage and flood control service to those lands south and east of S-361 which were tributary to the C-51 West Canal, but have been hydraulically severed as a result of the construction of STA-1 East. Those lands consist of Rustic Ranches Subdivision, and agricultural lands west of Flying Cow Road and south of Rustic Ranches. In addition, seepage accumulated along the east line of STA-1East may be pumped into STA-1East by S-361.

2. Sequencing of structure operations including operating criteria-can be presented in a table, may be season dependent

3. Brief description of standard project flood used to design and operate project features

Example:

- STA-3/4: The Standard Project Storm ranges between 36.0 and 56.0 inches for a three-day duration storm depending on site-specific conditions and risk management considerations. STA-3/4 is considered low risk due to the long distance from major urban population centers. Therefore, a maximum three-day precipitation depth of 36 inches was employed in the design of STA-3/4 as described in the Plan Formulation Document.

4. Identification of operations during high flow events (or address in uncontrolled discharge section)

Example:

- S-80: During regulated maximum flood releases, the minimum headwater elevation at St. Lucie Spillway (S-80) will be operated no lower than 10.0 ft., NGVD for lake stages up to 18.5 ft., NGVD. This is to help reduce erosion upstream of the dam due to high velocities. However, past experience has

determined that an effort should be made to prevent the headwater at S-80 from receding below 12.0 ft., NGVD in order to avert problems with the nearby local irrigation pump intakes.

- STA-3/4: Summary of STA structure operations required during SPS event: maintain full pumping through Pump Stations G-370 and G-372; fully open all interior control structures; keep diversion structures G-371 and G-373 closed; operate seepage pumps within capacity to maintain 8.0 ft., NGVD within the seepage canal; and operate pump stations within capacity to maintain headwater stages of 14.0 ft., NGVD or lower.

Pre-Storm/Storm Operations:

1. Statement of project features operation initiation requirements

Example:

- Interim Operational Plan (IOP) for Protection of the Cape Sable Seaside Sparrow (IOP): Between 24 and 72 hours before tropical storm conditions in Miami-Dade, the following target water levels are set for the South Dade Conveyance System. The initiation of the pre-storm drawdown criteria will be triggered when Dade County falls within the average error forecast swath as developed by the National Hurricane Center (NHC). These pre-storm drawdown levels are not less than the level at which water supply deliveries are made during dry periods, that is 1.5 feet below optimum canal levels, except the reach north of G-211, which is 1.0 foot below current, normal operating levels.

2. Sequencing of structure operations including structure operating criteria-can be presented in a table, may be season dependent

Example:

- IOP: In an effort to achieve the specified drawdown targets, a sequence of operational actions is recommended as described in Table 5-C-3. The goal is to achieve one target before proceeding to the next sequence. However, since this goal may not always be possible to achieve the target level, operations will proceed based on the best available information at the time:

Table 5-C-3: Example Drawdown Targets for Various Reaches of L-31N and C-111

Sequence	Canal	Reach	Target Draw-Down Level (ft.)
1	L-31N	S-331 to S176	4.0
	C-111	S-176 to S-177	3.0
2	L-31N	G-211 to S-331	4.0*
	L-31N	S-335 to G-211	5.0

* If Angel's well is 5.5 ft-NGVD or below, then 4.0 would be the target, otherwise, 3.5 ft-NGVD at the headwater of S-331 will be the target.

Water Quality:

1. State operations designed to achieve water quality objectives (including water quality performance measures and minimum flow levels [MFLs]) or avoid water quality constraints

   Example:

   - IRL: When the daily average salinity measured at the Roosevelt Bridge in the St. Lucie Estuary is below 10 ppt, pump station S-421 will be triggered when there is over 500 cfs flow at S-49, and all flow is captured up to 900 cfs capacity.

2. Overview of coordination process to be used during the construction phase to ensure compliance with water quality standards

3. Sequencing of structure operations including structure operating criteria-can be presented in a table, may be season dependent

   Examples:

   - IRL: Proposed wet and dry season operations for the reservoir and STA are shown in Table 5-C-4.

Table 5-C-4: Example Wet and Dry Season Operations for IRL Reservoir and STA

Reservoir Depth (feet)	Wet Season (June to November) Discharge to STA (cfs)	Dry Season (December to May) Discharge to STA (cfs)
1	10	5
2	25	5
3	40	10
4	60	20
5	80	30
6	100	40
7	100	50
8	100	100

   - When S-401 is off, STA release from structures S-482 and S-498 shall be adjusted according to the daily average salinity measured at the Roosevelt Bridge in the St. Lucie Estuary, as shown in Table 5-C-5.

Table 5-C-5: Example STA Releases at the Roosevelt Bridge

Salinity (ppt)	STA Release (cfs)
>12	600
12-10	400
10-6	200
<6	0

EXHIBIT 9

Water Supply:

1. Sequencing of structure operations including structure operating criteria-can be presented in a table, may be season dependent

Examples:

- IRL: During the dry season when there is a water supply demand in the C-23 basin, water stored in the southern reservoir will be discharged back into C-23 via drawdown structure S-413, at a maximum rate of 300 cfs.
- Site 1 Impoundment Project: Water supply releases are made from the Site 1 Impoundment via S-526A when the Hillsboro Canal upstream of G-56 recedes to either 6.5-6.9 ft NGVD during the wet season or 7.8-8.2 ft., NGVD during the dry season. Water supply releases from the impoundment will continue until the Hillsboro Canal reaches either 7.3-7.7 ft., NGVD during the wet season or 8.3-8.7 ft., NGVD during the dry season, or until the Impoundment falls to 10.8-11.2 ft., NGVD, whichever occurs first.

Recreation:

If applicable, state any structure operating criteria-may be season dependent

Fish and Wildlife:

1. Sequencing of structure operations including structure operating criteria-can be presented in a table, may be season dependent

Example:

- Manatee Gate Operations: Single or multiple gates at S-77: (1) to allow manatees to pass under the gates, the minimum opening for any gate under the "less than or equal to three feet of head" condition is two and a half feet; (2) if during the adjustment process, the head across the structure should exceed three feet, the gates should be closed in reverse order to openings permitted by the maximum allowable gate opening (MAGO) curves, and the operating procedures applicable to head greater than three feet should then be used.

Navigation:

If applicable, state any structure operating criteria-may be season dependent

Initial Reservoir/Storage/Treatment Area Filling Plan:

1. Identification of any water quality considerations during initial filling, pump tests, or refill event

Example:

- STA-3/4: Since some of the vegetation will not be full grown by the time of startup, certain precautions are required for storm and intra-event conditions. Operational stage elevations will necessarily be required to be lower in cells that have incomplete vegetation coverage. Once all vegetation coverage is complete, as determined by the site manager, normal STA-3/4 operations can commence.

2. State operations that include preventing discharge from storage/treatment area to avoid water quality constraints

Example:

- STA-3/4: In order to avoid the potential for initial discharges of higher concentrations of mercury following construction and initial filling (flooding) of the STA, samples will be collected to demonstrate that outflow concentrations of mercury are less than inflow concentrations, prior to initiating discharges.

Non-Typical Operations for Reservoir/Storage/Treatment Area Performance:

1. Drought Operations: Detail any procedures for minimizing or avoiding dryout (see DCP as appropriate)

   Example:

   - STA-1 East: The static water level within the treatment cells, to the greatest extent practicable, will be maintained to minimize potential negative effects of drought on subsequent project performance. All treatment cell interior structures will be operated to maintain the best distribution of available inflows. Outflow structures S-365, S-369, and S-372 will be closed to detain available water within the treatment cells. All treatment cell interior structures will remain open. Outflow pump station, S-362, will not discharge until desirable water levels and vegetative conditions within the treatment cells have improved, allowing for treatment cell discharge.

2. Treatment Cells Out of Service: Describe anticipated operations during routine maintenance or during situations where portions of the project are offline/out of service

   Example:

   - STA-1 West: Treatment cells and/or flow-ways may be isolated or "taken off-line", when deemed necessary. Treatment Cells 5A and 5B can be taken off-line by closing structures G-304 A-J and G-306 A-J. Treatment Cells 1 through 4 can be taken off-line by closing G303. Treatment flow-ways 1/3 and 2/4 also have the capability of being taken off-line independently through manipulation of various inflow and outflow structures.

3. Storage/Treatment Area Refill: Identify storage/treatment area refilling plan to be used following drought or offline operations. If refill operations are similar to Initial Storage Area Filling Plan, refer to Item 17 in Section III of Attachment 5-A.

ASR System Plan:

1 General description of ASR system including objectives, components, storage capacity, and pumping and discharge capabilities

2. Description of relationship between existing water management structure operating criteria and operating criteria of the ASR system

3. State operations affecting interaction of project features and ASR

   Example:

   - Temperature equilibration

Exhibits:

1. Stage-duration curves
2. Discharge rating curves

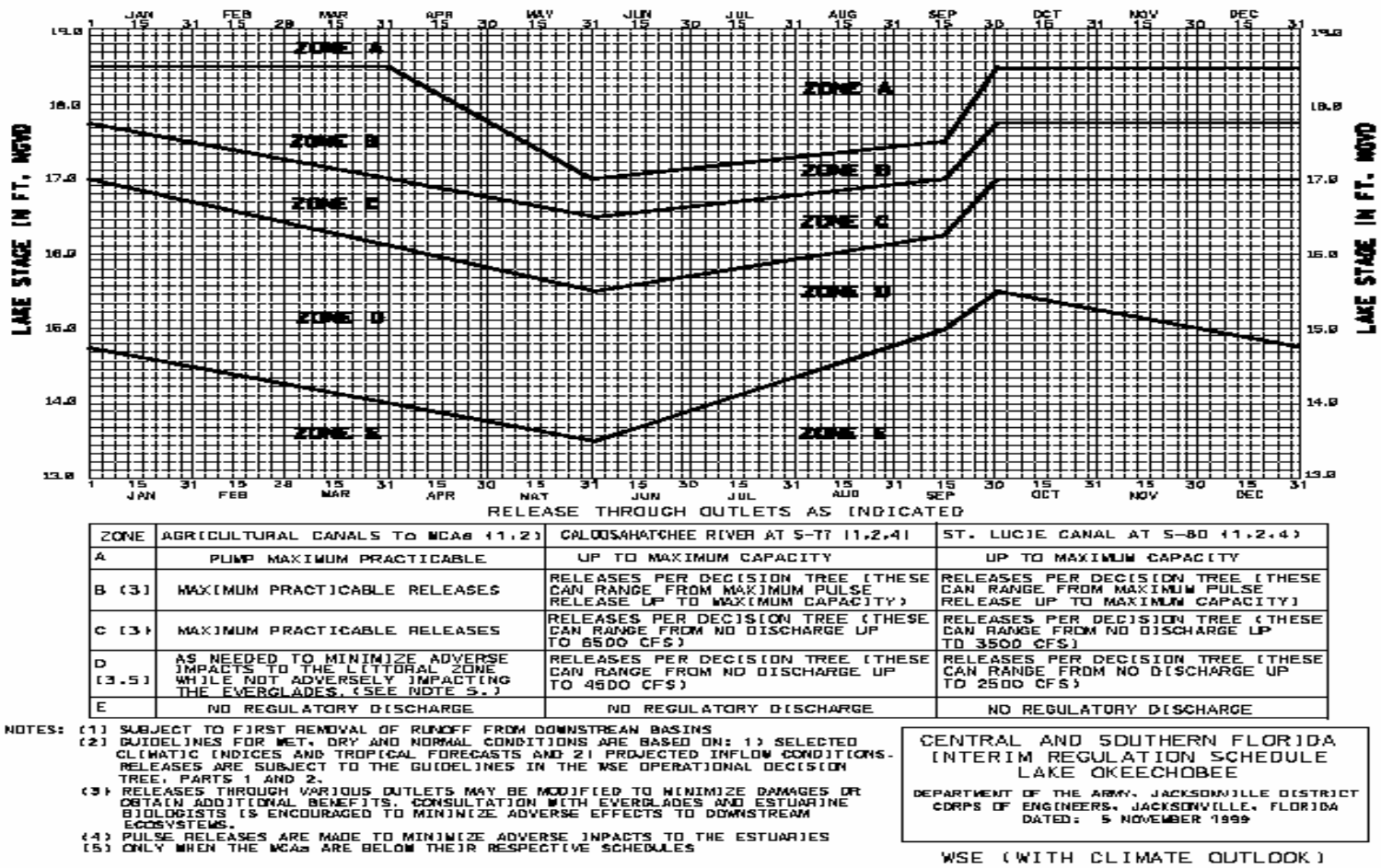
EXHIBIT 9

ATTACHMENT 5-D
EXAMPLES OF OPERATIONAL SCHEMATICS AND FIGURES

Reference the following examples when developing operational schematics and other figures for inclusion in the POMs. In order, the examples are:

- Figure 5-D-1: Lake Okeechobee WSE Regulation Schedule
- Figure 5-D-2: WSE Operational Guidelines Decision Tree, Part 1
- Figure 5-D-3: WSE Operational Guidelines Decision Tree, Part 2
- Figure 5-D-4: Indian River Lagoon South: C-25 Basin Operations
- Figure 5-D-5: Indian River Lagoon South: C-23/C-24 Basin Operations
- Figure 5-D-6: Site 1 Impoundment Project Site Layout
- Figure 5-D-7: Example of Structure Description and Operating Criteria Table
- Figure 5-D-8: Example of Structure Rating Curve
- Figure 5-D-9: Example Monthly Inflow Volumes

EXHIBIT 9



ZONE	AGRICULTURAL CANALS TO WCAs (1,2)	CALOOSAHATCHEE RIVER AT S-77 (1,2,4)	ST. LUCIE CANAL AT S-80 (1,2,4)
A	PUMP MAXIMUM PRACTICABLE	UP TO MAXIMUM CAPACITY	UP TO MAXIMUM CAPACITY
B (3)	MAXIMUM PRACTICABLE RELEASES	RELEASES PER DECISION TREE (THESE CAN RANGE FROM MAXIMUM PULSE RELEASE UP TO MAXIMUM CAPACITY)	RELEASES PER DECISION TREE (THESE CAN RANGE FROM MAXIMUM PULSE RELEASE UP TO MAXIMUM CAPACITY)
C (3)	MAXIMUM PRACTICABLE RELEASES	RELEASES PER DECISION TREE (THESE CAN RANGE FROM NO DISCHARGE UP TO 6500 CFS)	RELEASES PER DECISION TREE (THESE CAN RANGE FROM NO DISCHARGE UP TO 3500 CFS)
D (3,5)	AS NEEDED TO MINIMIZE ADVERSE IMPACTS TO THE LITTORAL ZONE WHILE NOT ADVERSELY IMPACTING THE EVERGLADES. (SEE NOTE 5.)	RELEASES PER DECISION TREE (THESE CAN RANGE FROM NO DISCHARGE UP TO 4500 CFS)	RELEASES PER DECISION TREE (THESE CAN RANGE FROM NO DISCHARGE UP TO 2500 CFS)
E	NO REGULATORY DISCHARGE	NO REGULATORY DISCHARGE	NO REGULATORY DISCHARGE

NOTES: (1) SUBJECT TO FIRST REMOVAL OF RUNOFF FROM DOWNSTREAM BASINS
(2) GUIDELINES FOR WET, DRY AND NORMAL CONDITIONS ARE BASED ON: 1) SELECTED CLIMATIC INDICES AND TROPICAL FORECASTS AND 2) PROJECTED INFLOW CONDITIONS. RELEASES ARE SUBJECT TO THE GUIDELINES IN THE WSE OPERATIONAL DECISION TREE, PARTS 1 AND 2.
(3) RELEASES THROUGH VARIOUS OUTLETS MAY BE MODIFIED TO MINIMIZE DAMAGES OR OBTAIN ADDITIONAL BENEFITS. CONSULTATION WITH EVERGLADES AND ESTUARINE BIOLOGISTS IS ENCOURAGED TO MINIMIZE ADVERSE EFFECTS TO DOWNSTREAM ECOSYSTEMS.
(4) PULSE RELEASES ARE MADE TO MINIMIZE ADVERSE IMPACTS TO THE ESTUARIES
(5) ONLY WHEN THE WCAs ARE BELOW THEIR RESPECTIVE SCHEDULES

CENTRAL AND SOUTHERN FLORIDA
INTERIM REGULATION SCHEDULE
LAKE OKEECHOBEE

DEPARTMENT OF THE ARMY, JACKSONVILLE DISTRICT
CORPS OF ENGINEERS, JACKSONVILLE, FLORIDA
DATED: 5 NOVEMBER 1999

Figure 5-D-1: Lake Okeechobee WSE Regulation Schedule

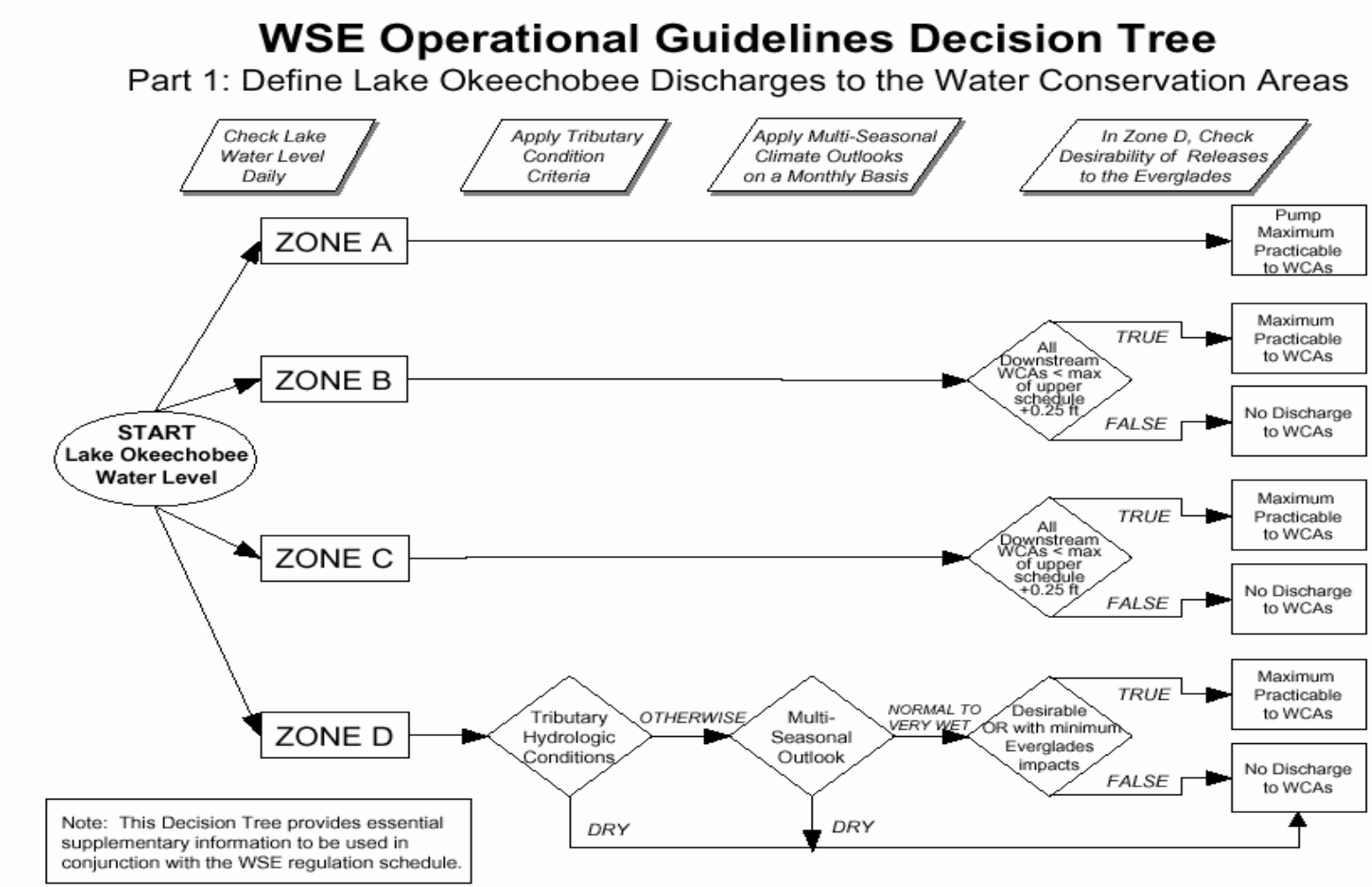


Figure 5-D-2: WSE Operational Guidelines Decision Tree Part 1

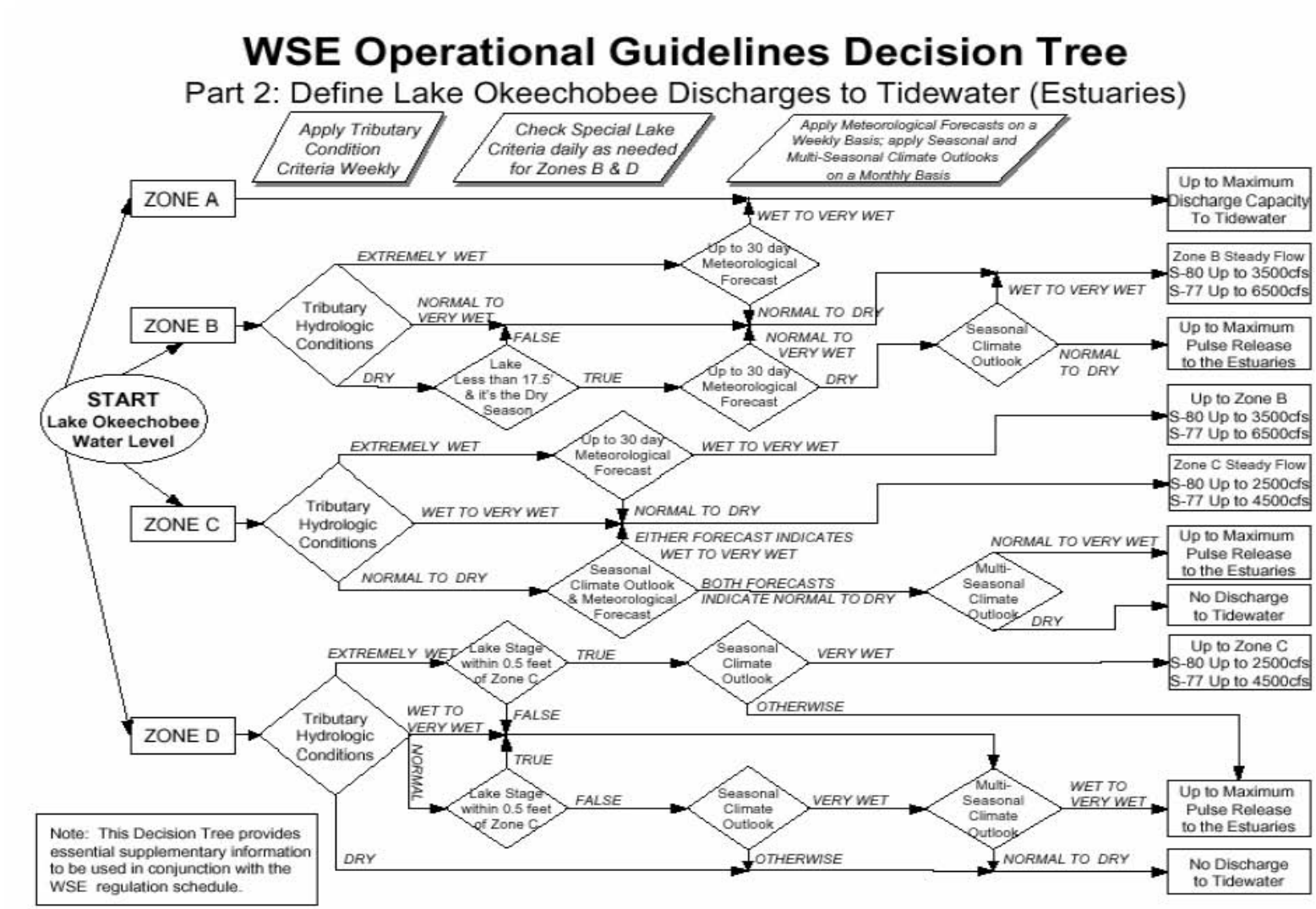


Figure 5-D-3: WSE Operational Guidelines Decision Tree Part 2

EXHIBIT 9

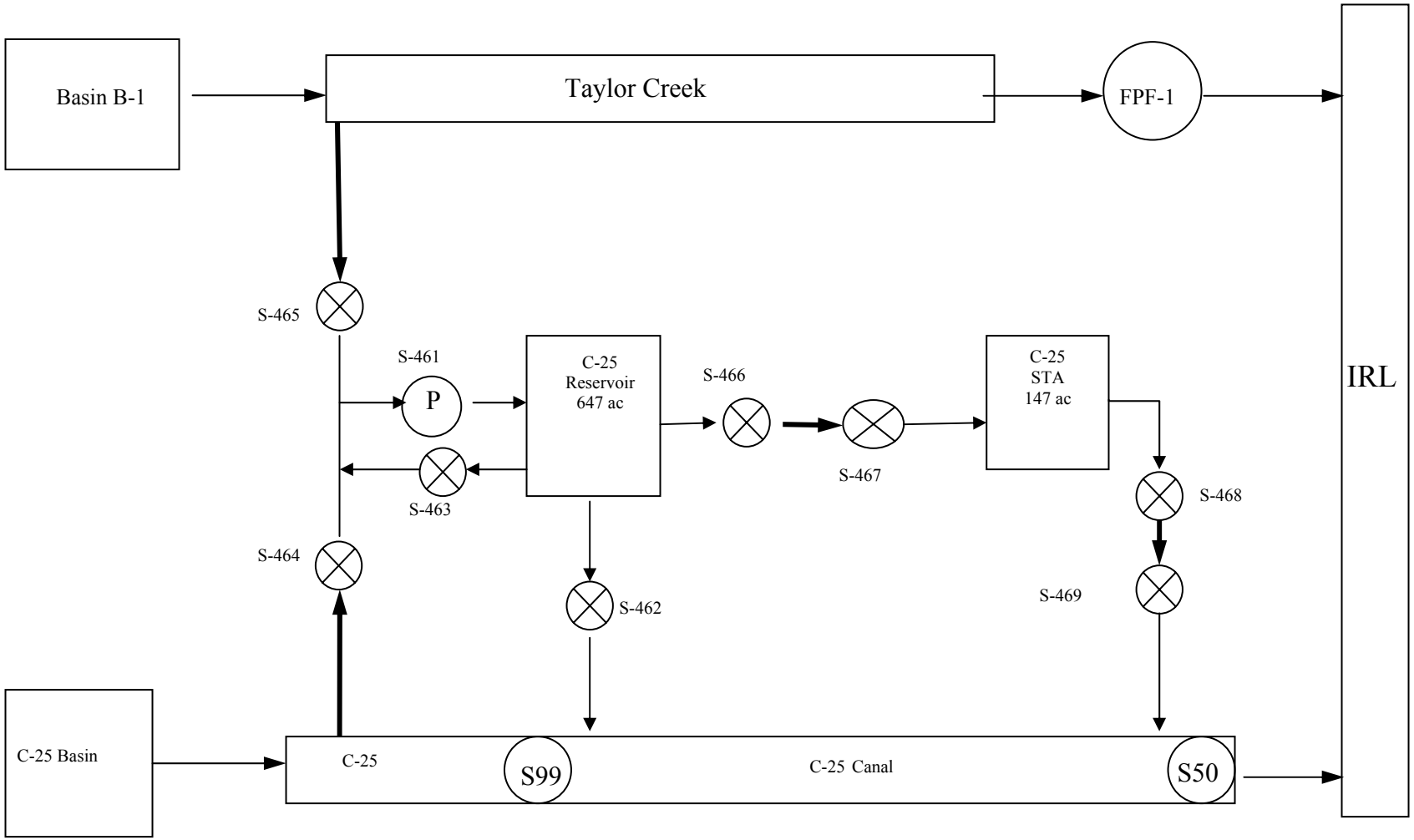


Figure 5-D-4: Indian River Lagoon South: C-25 Basin Operations

EXHIBIT 9

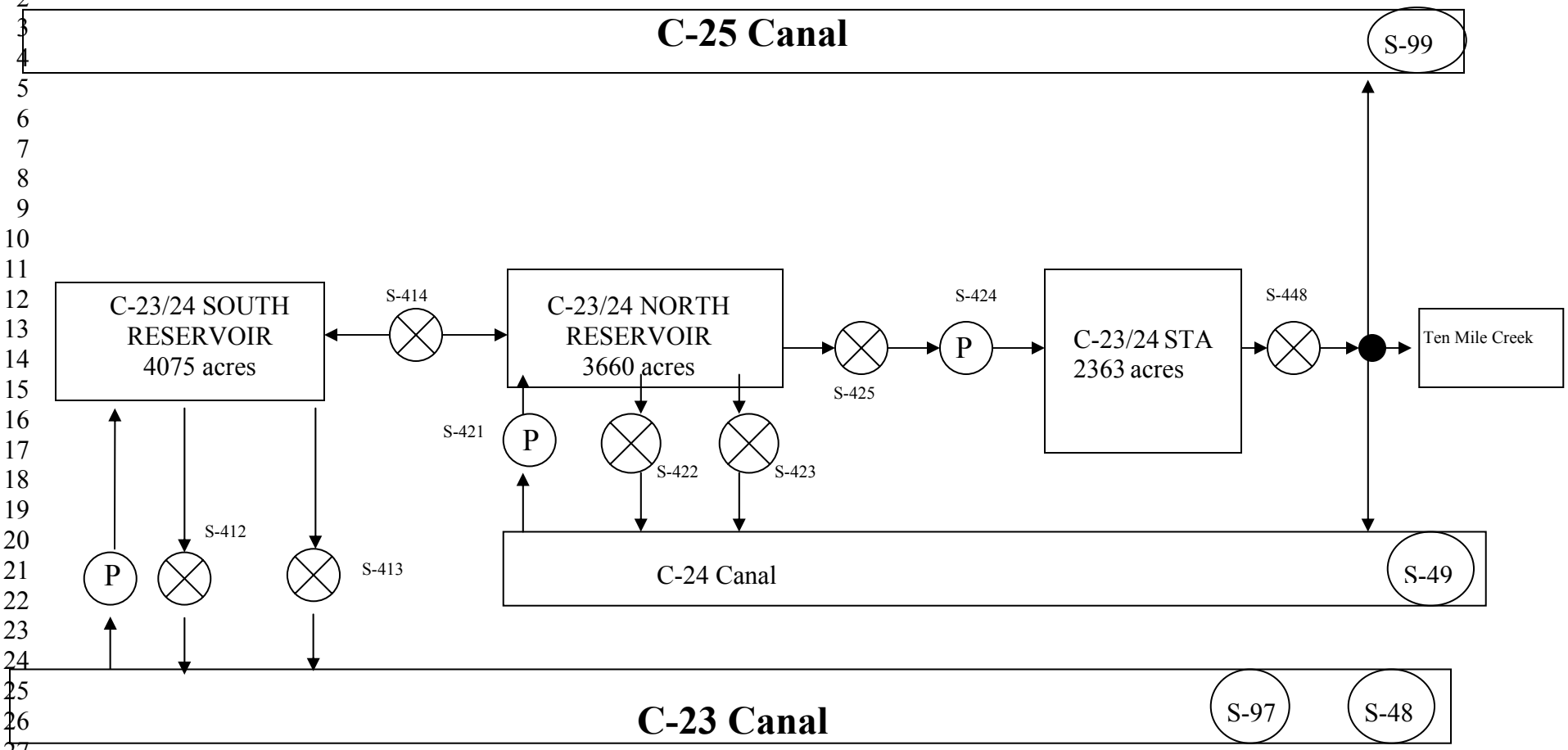


Figure 5-D-5: Indian River Lagoon South: C-23/C-24 Basin Operations

EXHIBIT 9

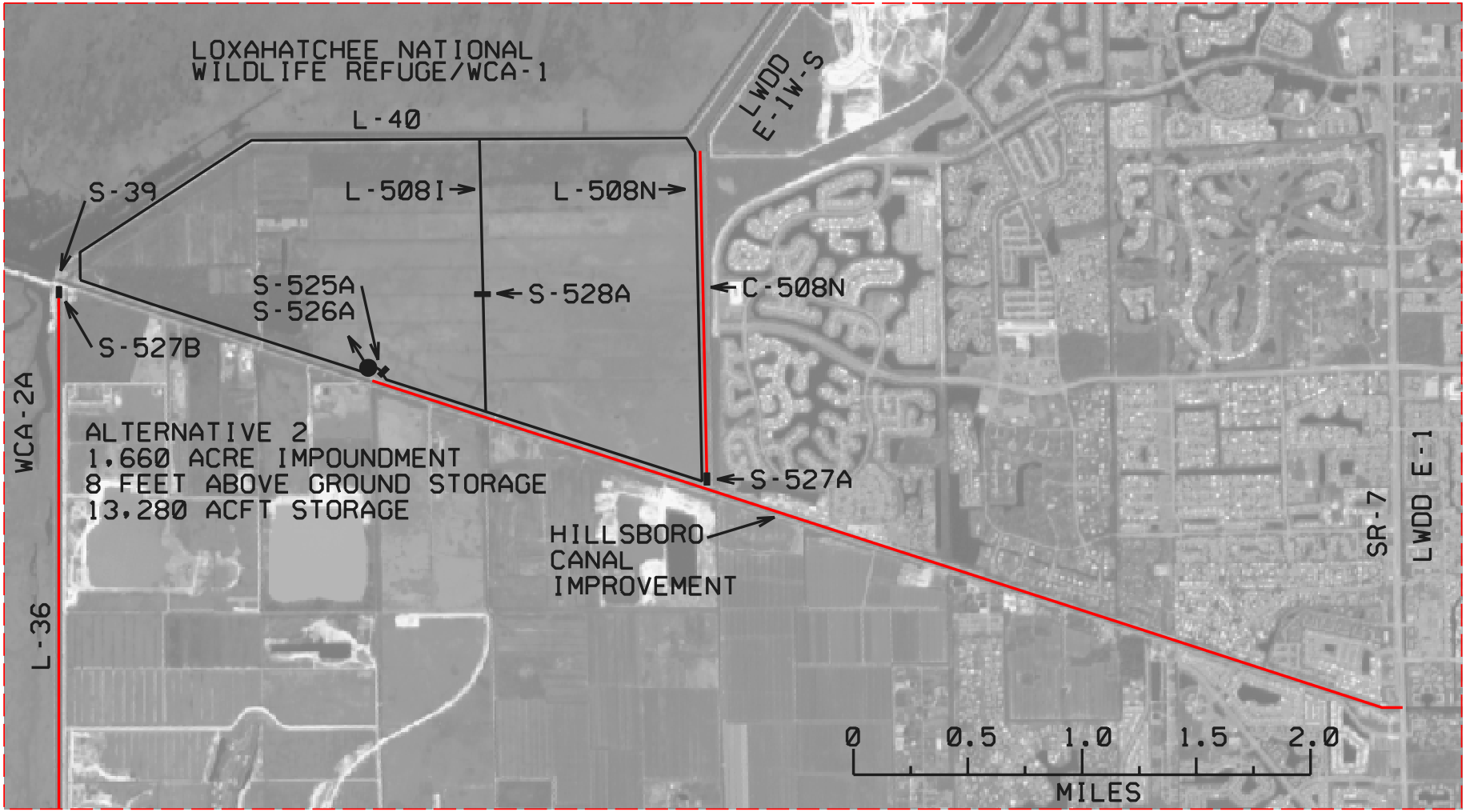


Figure 5-D-6: Site 1 Impoundment Project Site Layout

Hydraulic Design Data for S-367

Description	Design Data
Location	Cell 3 Outlets/Cell 4N Inlets
Static Water Level, Headwater (ft.)	16.25
Structure Geometry	
Inlet Structure Type	Headwall/slide gates
Number of Barrels	1
Barrel Dimension	8’ x 8’ RCB
Culvert Length (ft)	806
Invert Elevation (ft.)	7.00
Outlet Structure Type	Projecting
Number of Structure	5(A,B,C,D&E)
Total Peak Design Discharge (cfs)	1,540
Design Discharge Conditions	
Rating Curve	Figure X
Normal Operation	
Discharge per Structure (cfs)	0-308
Headwater Elev. (ft.)	15.50-19.46
Tailwater Elev. (ft.)	15.00-18.85
Peak Flow	
Discharge per Structure (cfs)	308
Headwater Elev. (ft.)	19.46
Tailwater Elev. (ft.)	18.85

Figure 5-D-7: Example of Structure Description and Operating Criteria Table

Structure 84

Location. S-84 is located on C-41A about 12 miles downstream from S-83 and about a mile upstream from the junction of C-41A with C-38, near Lake Okeechobee.

Purpose. The structure maintains optimum upstream water control stages in Canal 41A; it passes the design flood (30% of the Standard Project Flood) without exceeding the upstream flood design stage and restricts downstream flood stages and channel velocities to non-damaging levels; and it prevents backflow from Lake Okeechobee through C-38 during excessive stages in the lake resulting from floods or wind tides.

Description. The structure is a 2-bay spillway with vertical lift gates and a crest elevation of 13.2 ft., NGVD. The structure was designed to pass the 30-percent SPF (10-year) discharge of 5,670 cfs at a design headwater and tailwater of 24.5 and 19.3 ft., NGVD, respectively.

Operation. Normal headwater elevation is 25.0 ft., NGVD. Optimum water control is maintained between 24.3 and 25.2 ft., NGVD with automatic gate controls. The automatic controls restrict discharge to design flow by incremented gate openings for inflows greater than design flow. There should also be a description of how these operations contribute towards achieving benefits. Special operational rules for water delivery to natural areas should be included when appropriate.

For more information on this structure refer to the Kissimmee–Lake Istokpoga Water Control Manual.

Figure 5-D-7: Example of Structure Description and Operating Criteria Table (continued)

EXHIBIT 9

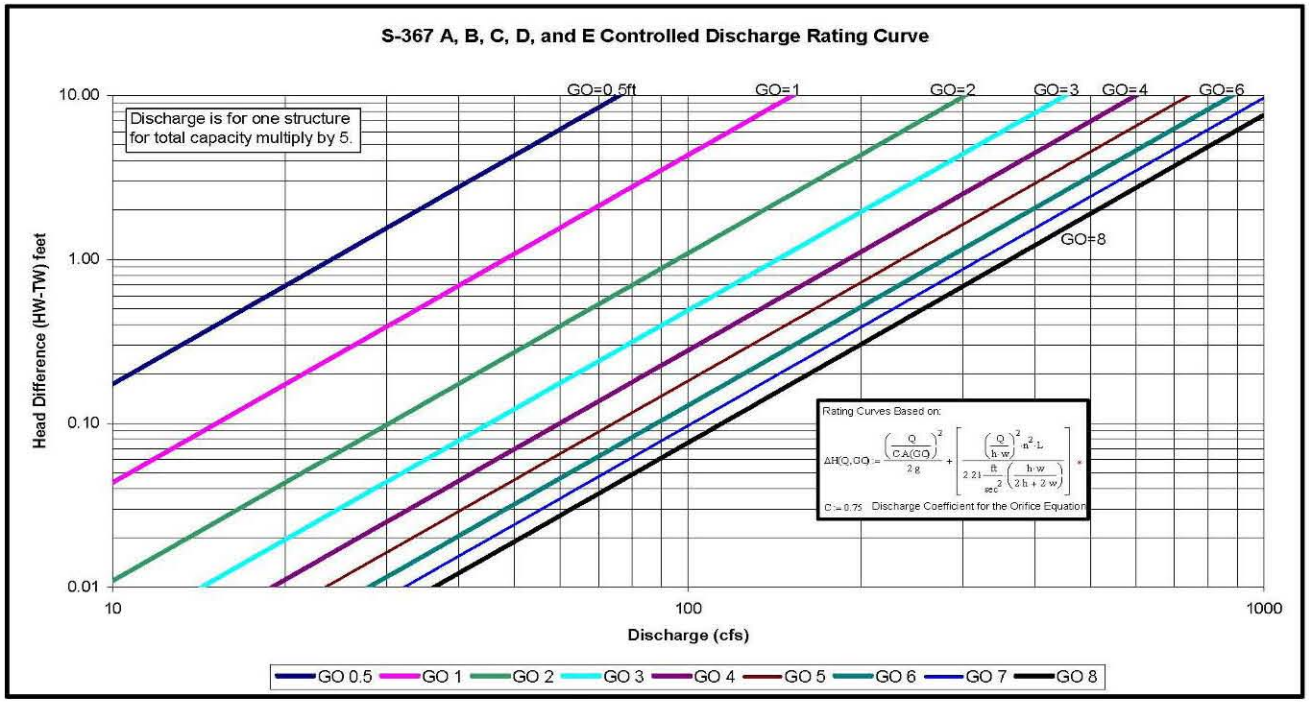


Figure 5-D-8: Example of Structure Rating Curve

EXHIBIT 9

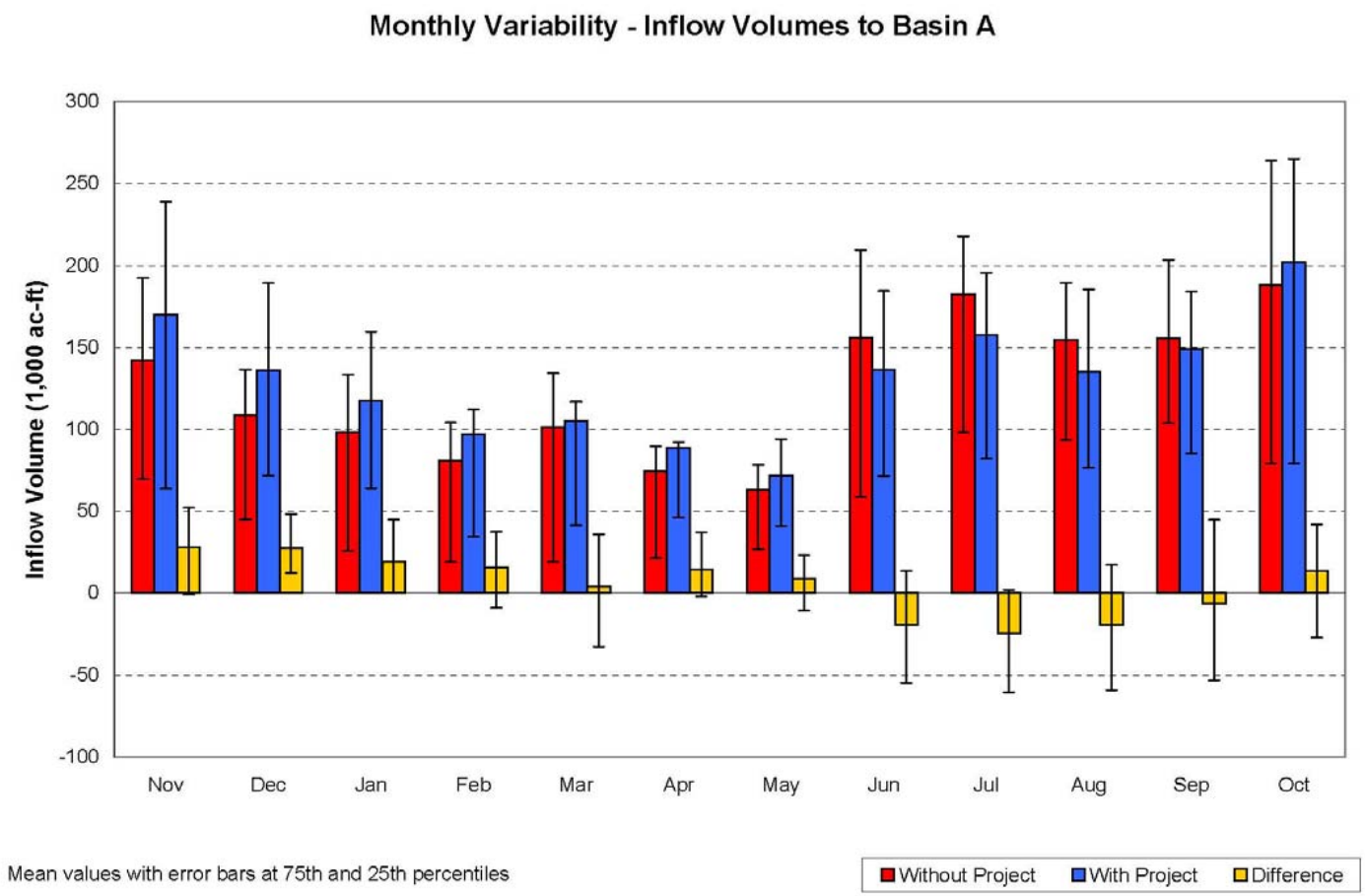


Figure 5-D-9: Example of Monthly Inflow Volumes

EXHIBIT 9

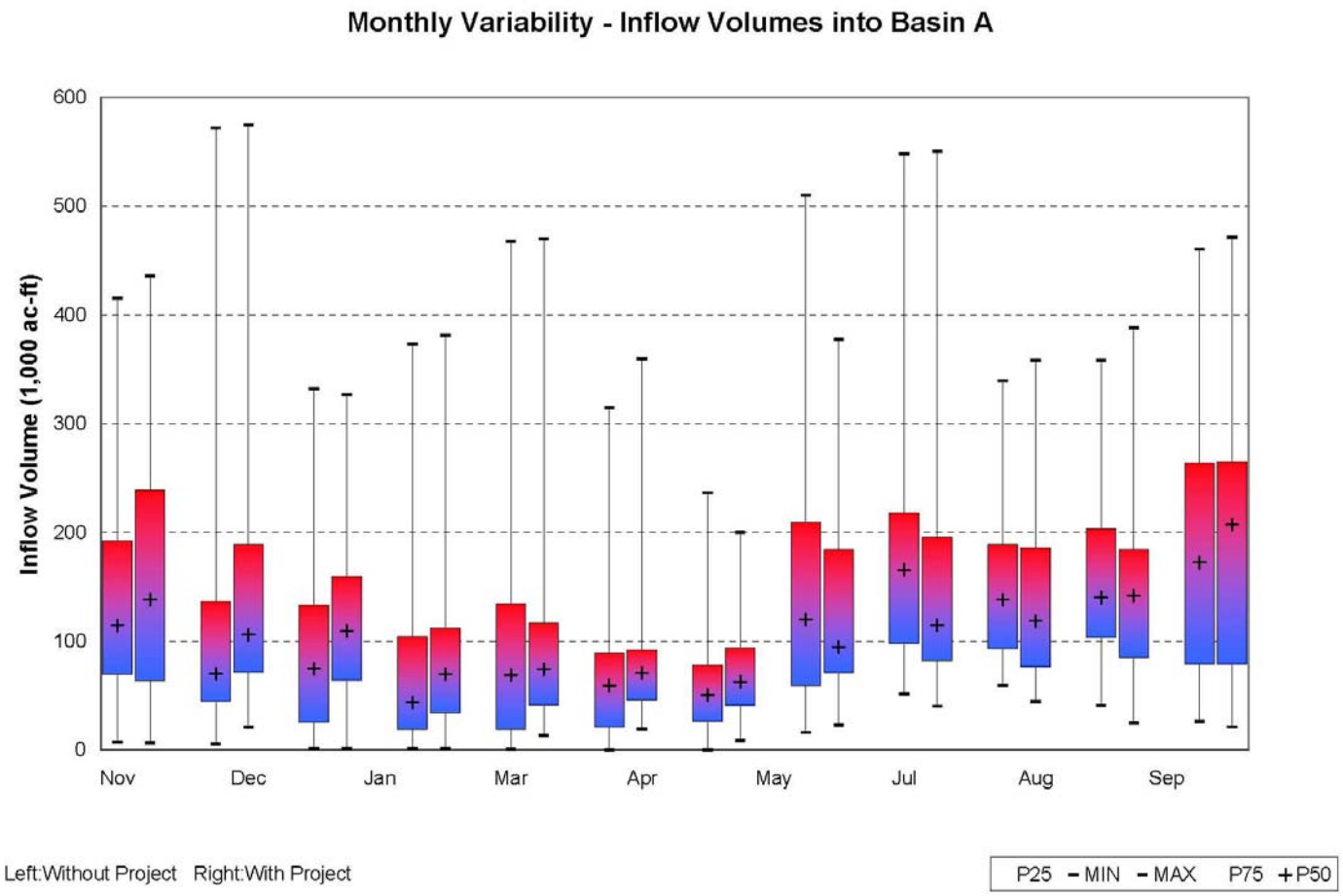


Figure 5-D-9: Example of Monthly Inflow Volumes (continued)

EXHIBIT 9

SECTION 6: GUIDANCE MEMORANDUM #6
ASSESSMENT ACTIVITIES FOR ADAPTIVE MANAGEMENT

6.1 PURPOSE

This Guidance Memorandum provides general direction for the conduct of the adaptive management program and the assessment activities of RECOVER. RECOVER is a system-wide program of CERP that is responsible for the organization and application of scientific and technical information to ensure that the system-wide goals and purposes of the Plan are achieved. RECOVER is charged with implementing the Plan's assessment activities composed of four basic components: (1) development of a system-wide monitoring program for the South Florida ecosystem; (2) design and implementation of data management and analysis protocols; (3) interpretation of ecosystem responses to the Plan; and (4) identification of opportunities for making changes to the Plan that would improve performance and/or cost-effectiveness.

A critical element of the Plan's adaptive management program is the development and application of a scientifically rigorous assessment program to analyze and understand the responses of the South Florida ecosystem to the implementation of the Plan. This Guidance Memorandum describes the strategy for conducting credible scientific assessments of the Everglades ecosystem to facilitate understanding of how the Plan is affecting the South Florida ecosystem. Specifically, these assessments address hydrological, biological, ecological, water quality, water supply, and other responses to the Plan. This Guidance Memorandum does not provide complete guidance on how to conduct assessments. RECOVER is developing a separate document "Assessing the Response of the Everglades Ecosystem to Implementation of the Comprehensive Everglades Restoration Plan" that provides more complete technical guidance for the conduct of assessments. This technical guidance serves as the foundation for the development and subsequent revision of the assessment portion of the Monitoring and Assessment Plan (MAP).

section 601 of WRDA 2000 establishes an integrated framework to ensure that the goals and purposes of the Plan are achieved. Integral to this framework is the establishment of interim goals and interim targets. The establishment of interim goals allows for assessment of progress towards achieving the natural system restoration goals of the Plan and provides a key feedback mechanism as ecosystem responses to implementation of the Plan are monitored to ensure that the goals and purposes of the Plan are being achieved. Similarly, establishment of interim targets allows for assessment of progress towards achieving other water-related needs of the region.

6.2 APPLICABILITY

This Guidance Memorandum applies to all individual projects of CERP as well as to the integration of CERP projects into the comprehensive plan. This Guidance Memorandum also provides specific direction to RECOVER, particularly the Assessment Team of RECOVER responsible for assessment activities.

6.3 ADAPTIVE MANAGEMENT

6.3.1 Introduction

Development of an adaptive management program is a critical element of CERP. Adaptive management for the Plan is defined in the Programmatic Regulations as "the continuous process of seeking a better understanding of the natural system and human environment in the South Florida ecosystem, and seeking continuous refinements in and improvements to the Plan to respond to new information resulting from changed or unforeseen circumstances, new scientific and technical information, new or updated modeling; information developed through the assessment principles contained in the Plan; and future authorized changes to the Plan in order to ensure that the goals and purposes of the Plan are fulfilled." The adaptive management program is intended to guide the implementation of the Plan and will be used to assess the responses of the South Florida ecosystem to the Plan and to determine whether these responses match expectations, including expected performance levels. Figure 6-1 outlines the adaptive management framework for implementing CERP.

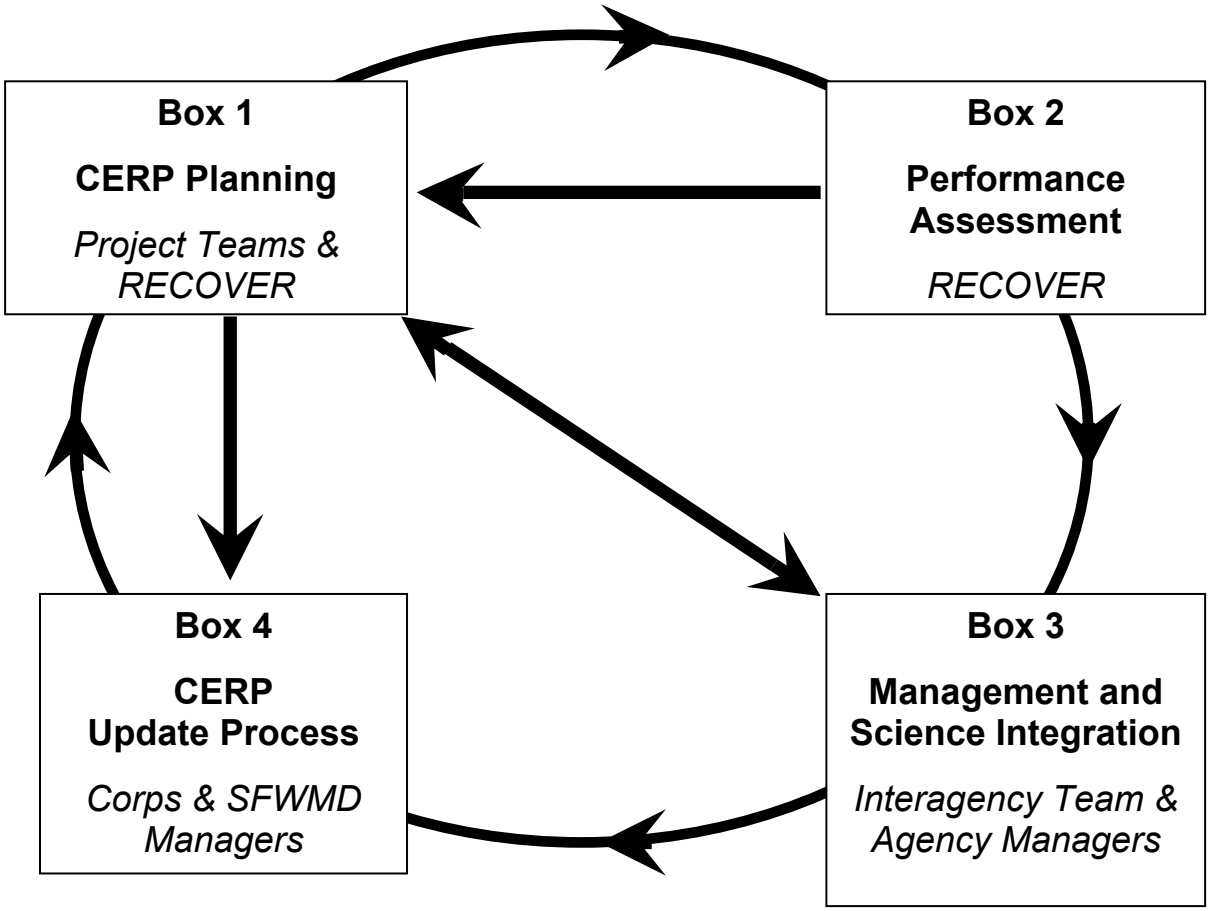


Figure 6-1: CERP Adaptive Management Framework Overview

6.3.1.1 Box 1: CERP Planning

The principles of adaptive management should be applied during CERP planning activities at both the system-wide and project-levels in order to anticipate and plan for performance uncertainties and incorporate performance-based versatility into project designs and recommended Plan improvements. There are several ways of addressing uncertainty: (1) anticipate uncertainty and build performance-based versatility or robustness into the design of the Plan and each individual project; or (2) detect and correct errors after project construction and make adjustments as they arise to ensure restoration goals are achieved. The former incorporates adaptive management principles into the planning process while the latter option represents the traditional approach to planning activities.

The concept of **robustness** is important to the adaptive management strategy and can be defined as the sensitivity of key design parameters to operate effectively given the variability and uncertainty of future events. The use of robust alternatives addresses the dilemma of making rational decisions today even though future conditions may be uncertain. Robustness is the ability of the Plan or individual project components to accommodate surprise and to perform well even under shifting conditions.

System-wide Planning - RECOVER will conduct periodic updates of CERP as required by the Programmatic Regulations to ensure that the system-wide goals of the Plan are being achieved. These updates are scheduled to occur at least every five years and will include evaluation of the Plan using new and/or updated modeling, which utilizes the latest scientific, technical, and planning information. The incorporation of an adaptive management approach into the framework for restoration of the Everglades supports the improvement of system-wide performance as learning and knowledge about the ecosystem improves. Broad planning scenarios addressing new and/or updated modeling or information (e.g., sea-level rise or updated modeling assumptions) are examples of new information to be evaluated at the system-wide scale. Based on predicted Plan performance incorporating these scenarios, it will be determined whether the Plan is still able to meet its goals and objectives. When appropriate, results of these system-wide evaluations will be used to initiate management actions within Box 3 (Management and Science Integration) that are necessary to adjust the Plan.

Project-Level Planning - Each CERP project is developed by a PDT (PDT) responsible for guiding the project through the planning process for CERP projects. Adaptive management principles can be applied during development and formulation of alternatives and during the detailed development of the selected alternative plan.

6.3.1.2 Box 2: Performance Assessment

An essential element of adaptive management is the development and execution of a scientifically rigorous monitoring and assessment program to analyze and understand responses of the system to implementation of the Plan. This assessment program relies heavily on the implementation of the integrated system-wide monitoring plan for CERP, entitled the Monitoring and Assessment Plan (MAP), but also would include new

information that is developed through improved models or scientific research. The scientific and technical information generated from the implementation of the monitoring program and from other sources will be organized to provide a process for RECOVER to assess CERP performance and system responses and to produce system status reports describing and interpreting the responses. Additionally, in accordance with the Programmatic Regulations, RECOVER is required to prepare a technical report at least once every five years; this report presents a system-wide assessment of whether the goals and purposes of the Plan are being met, including whether the interim goals and interim targets are being achieved or are likely to be achieved. Where appropriate, project-level data will also be incorporated into the assessment of system performance.

Monitoring and Assessing System Performance - Implementation of the MAP allows natural and human system responses to be assessed relative to stated hypotheses for these ecosystems and evaluated relative to the trends or targets established for the Plan through approved performance measures and targets. The MAP is a key component of the system-wide adaptive management strategy and is essential for the success of CERP by supplying the data necessary to assess system performance and modify the Plan to improve performance, if necessary.

RECOVER will use a hypothesis-based approach for assessment of system performance, which will provide a more robust and flexible approach than assessing individual performance measures. The hypothesis-based approach uses the best available science and models and recognizes the complexities of the ecological responses being detected by the MAP and CERP project-level monitoring. The approach attempts to capture the mechanistic interactions of multiple stressors rather than relying on a single metric to characterize ecological complexity. Furthermore, the hypothesis-based approach is scientifically robust and incorporates adaptive management principles such that it increases the likelihood of detecting undesired and unexpected responses of the ecosystem to CERP implementation and non-CERP activities.

Interim Goals and Interim Targets - Although the assessment performance measures provide targets for pre-drainage restoration, the Programmatic Regulations require that the incremental progress toward achieving CERP expectations be reported on a regular basis. To fulfill this need and determine if CERP performance is progressing as expected, interim goals and interim targets are being established to document the Plan's expected performance at five-year increments throughout the implementation of the Plan. The technical reports provided by RECOVER will help provide the means to determine if actual CERP performance is reaching the level described in the interim goals and interim targets. The utility of employing interim goals and interim targets lies in its ability to help detect whether the Plan is performing as expected so that refinements can be made. Additionally, as predictive capabilities improve and ecosystem relationships are better understood, the interim goals and interim targets will be fine-tuned to more accurately reflect CERP expectations. This incorporation of new information and subsequent refinement of the Plan to improve performance embodies the ongoing responsiveness of the adaptive management process.

RECOVER Technical Report - The final product resulting from Box 2 is the RECOVER Technical Report. The Programmatic Regulations state that "whenever it is deemed necessary, but at least every five years, RECOVER shall prepare a technical report that presents an assessment of whether the goals and purposes of the Plan are being achieved, including whether the interim goals and interim targets are being achieved or are likely to be achieved." The Technical Report represents RECOVER's system-wide science-based assessment of CERP performance toward achieving the goals and purposes of the Plan and will be used along with policy, legal, and cost considerations under Box 3 activities to produce the Assessment Report.

6.3.1.3 Box 3: Management and Science Integration by RECOVER and Agency Managers

Box 3 represents the phase of the adaptive management process in which scientists and managers collaborate in understanding the challenges and opportunities presented by new knowledge about, or unexpected events within, the south Florida ecosystem. Activities encompassed within Box 3 are triggered by new knowledge that reveals a potential opportunity to improve conditions in the South Florida ecosystem or a problem that could require a change to CERP implementation. The products of Box 3 are issue identification and an Assessment Report prepared by the USACE and SFWMD in accordance with section 385.31(b) of the Programmatic Regulations.

Overview of Box 3 Actions - The Box 3 process is comprised of two basic activities: issue identification and Assessment Report. The objectives of issue identification are to recognize whether implementation feedback is significant enough to trigger a Box 4 CERP update process by the USACE and SFWMD. The issue identification is accomplished via a structured dialogue involving scientists and managers. The goal of the dialogue is for scientists and agency managers to develop a common interpretation of the scientific and technical information which may have implications for management decisions affecting the CERP program. The issue identification may involve a strategic search for useful ideas, management measures, and more effective management approaches. The second activity is Assessment Report. In accordance with the Programmatic Regulations, the Assessment Report will be developed by the USACE and SFWMD, based on the Technical Report prepared by RECOVER, as well as the information developed from the issue identification accomplished through the structured dialogue among scientists and managers.

6.3.1.4 Box 4: CERP Update Process

The final element of the adaptive management framework involves the USACE and SFWMD jointly deciding on a course of action based on the information provided by the issue identification conducted under Box 3. Courses of action include investigating structural or operational changes to the Plan or alterations to the sequencing of projects. The actions encompassed within Box 4 will occur under the guidance of senior management within the USACE and SFWMD in consultation with other agencies, tribal governments, and stakeholders.. The selection of the preferred course of action by senior management from

USACE and SFWMD will be considered the course of action for improving performance that best represents societal values, scientific input, and the policies of USACE and SFWMD.

Modification of CERP - If decision-makers determine that modification of the CERP is required to improve Plan performance, in general there are three alternatives available to decision-makers:

(1) Consider altering the sequencing of project implementation to adjust the storage, treatment or delivery of water to improve interim performance;
(2) Consider operational changes to improve existing project performance, or
(3) Consider adjustments to the Plan. These changes could include adding, deleting or modifying individual project components.

If the USACE and SFWMD determine that modifications to the Plan are necessary to achieve the goals and objectives of the Plan, USACE and SFWMD will prepare a Comprehensive Plan Modification Report using the formal process outlined in the Programmatic Regulations. The report will contain appropriate NEPA documentation to supplement the Programmatic Environmental Impact Statement included in the "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement" dated April 1, 1999. Minor adjustments to the Plan, including operational changes, may be made through individual PIRs or changes to the System Operating Manual and would include appropriate NEPA processes.

No Modification to CERP - If performance expectations are being met, then no changes to the Plan would be required.

6.3.2 Initiating Adaptive Management Activities

There are a number of factors or events that will occur during the implementation of CERP that may trigger the initiation of the adaptive management process. This section describes these factors and events.

6.3.2.1 Periodic CERP Updates

The Programmatic Regulations require that the Plan be evaluated periodically using new or updated modeling that includes the latest scientific, technical, and planning information. As appropriate, the results of this evaluation may be used to initiate adaptive management activities, as described in Boxes 2, 3, and 4 of Figure 6-1 including the consideration of a Comprehensive Plan Modification Report, consistent with section 385.32 of the Programmatic Regulations.

6.3.2.2 Shortfalls in Project Performance

In the event that a Plan project does not perform as planned and designed because there is a "shortfall" in the quantity or quality of water that the project produces or if the restoration benefits are not produced, the USACE and the SFWMD will initiate adaptive management activities, including preparation of an assessment by RECOVER (Box 2) as described in this Guidance Memorandum.

6.3.2.3 Achievement of Interim Goals and Interim Targets

The interim goals provide a means by which the restoration success of the Plan may be evaluated at specific points throughout the overall planning and implementation process of CERP and are established to facilitate inter-agency planning, monitoring, and assessment. Similarly, the interim targets provide a means by which the Plan's progress towards providing for other water-related needs of the region may be evaluated. If the USACE and SFWMD find that the interim goals or interim targets are not met or are unlikely to be met, then corrective actions would be initiated in accordance with the Programmatic Regulations, including consideration of adaptive management actions.

6.3.2.4 Required Periodic Assessments

In accordance with the Programmatic Regulations, RECOVER is required to prepare a technical report, not any less often than every five years, that presents an assessment of whether the goals and purposes of the Plan are being achieved, including whether the interim goals and interim targets are being achieved or are likely to be achieved.

6.4 ASSESSMENT ACTIVITIES

6.4.1 Background Information

The Programmatic Regulations provide authorization for, and requirement of, an adaptive management program to continuously seek a better understanding of the natural system and the human environment in the South Florida ecosystem and to provide a basis for making refinements to the Plan. Adaptive management is a critical element of the Plan as a response to new information to ensure that the goals and purposes of the Plan are fulfilled and that the benefits to the natural system and the human environment are achieved. An essential element of adaptive management is the development and conduct of a scientifically rigorous assessment program to analyze and understand responses of the system to implementation of the Plan. In the context of CERP, the overall adaptive management program includes four basic components and steps (Figure 6-1). Collectively, these components and steps are necessary to design and implement the system-wide MAP, to design and activate a data management and data analyses protocol, to interpret and report system responses, and to identify opportunities for making improvements to the Plan.

The module-level and system-wide assessments of natural and human system responses to the CERP projects will provide the primary basis for conducting an adaptive management strategy. Interpretations of system responses provided by these assessments will be used to identify potential refinements and improvements in the design and operation of the Plan, in the context of the overall adaptive management strategy.

6.4.2 Applied Science Strategy in RECOVER

RECOVER is responsible for the coordination and application of an Applied Science Strategy (Ogden and Davis, 1999) during Plan implementation. This strategy outlines a process for organizing current scientific understanding of wetland and estuarine ecosystems into interrelated components that can effectively support restoration efforts. The major components of the Applied Science Strategy are the development of regional and total system conceptual ecological models, identification of performance measures and targets, development and implementation of a system-wide monitoring program, and development of an assessment strategy. Natural and human system responses will be assessed relative to stated hypotheses for these systems and evaluated relative to the trends or targets established for the Plan through performance measures and objectives outlined in the MAP.

6.4.3 Conceptual Ecological Models

Conceptual ecological models are the scientific foundation for a majority of performance measures for the natural system used in the development of CERP (Ogden and Davis, 1999). The conceptual ecological models illustrate the links among societal actions, environmental stressors, and ecological responses (USEPA, 1998) and provide the basis for selection and testing the set of causal hypotheses that best explain how the natural systems in South Florida have been altered (Gentile et al., 2001). Developed as a planning and design tool, conceptual ecological models are used in ecological risk assessment analysis worldwide (Rosen et al., 1995; Gentile et al., 2001) and are one of the major components of the Applied Science Strategy of RECOVER.

The conceptual ecological models, developed for 11 physiographic regions defined in the MAP and a total system model (in preparation), provide the scientific basis for development of the CERP system-wide monitoring design and assessment process. The conceptual ecological models are a planning tool for translating the overall restoration goals of the Plan into the specific performance measures that will be used to plan, design, and assess the success of the Plan. In addition to illustrating the ecological links between the physical, chemical and biological elements in specific physiographic regions of South Florida, conceptual ecological models provide the scientific foundation for: (1) developing causal hypotheses linking the most important hydrologic and chemical stressors with the major ecological effects, thus forming the basis for predicting responses to CERP projects and other restoration efforts, and (2) creating sets of measurable indicators of success (e.g., performance measures) as the basis for assessing how well the projects achieve the broad, policy-level goals that have been established for CERP.

6.4.4 Performance Measures

Performance measures consist of ecological attributes or environmental stressors (e.g., hydrology, water quality, and habitat alteration) that are indicators of conditions in natural and human systems. Performance measures, developed in large part from the conceptual ecological models, have been integrated into hypotheses at a module scale (section 6.4.2.1), which provide a framework for interpreting the system-wide performance of the Plan.

Additional performance measures are derived from Federal and State law or policy (e.g., water supply and flood protection). Indicators for the interim goals and interim targets will also be incorporated into the system-wide performance assessment.

RECOVER has defined "assessment" and "evaluation" performance measures. Assessment measures are those that can be directly measured during implementation of CERP projects in order to track changes in the state of the natural and human systems. Evaluation measures are used to predict system-wide performance as determined through simulation modeling of the Plan. As understanding of the ecosystem increases, and model development continues, it is expected that a more unified set of performance measures will be developed and used for both evaluation and assessment. Performance measures include hydrology, water quality, biological measures, water supply, and flood protection measures. Some performance measures relate directly to the level of particular stressors (e.g., rate of nutrient input, degree of alteration of salinity, depth of water), whereas others relate to key attributes of the ecosystem (e.g., fish population size, oyster health, seagrass spatial extent). Achieving the targets (or trajectories towards the targets) of a well-selected set of performance measures is expected to result in system-wide sustainable restoration, as described in the Plan. To optimize the assessment and adaptive management process, a single integrated set of performance measures with both predictive (evaluation) and assessment elements should be considered for RECOVER system-wide tasks including project alternative evaluation, assessments, and the interim goals and interim targets. The application of an integrated set of performance measures fosters clear assessment of targeted system responses and allows project planning to be guided by the same indicators and endpoints as will be used to monitor progress during the implementation of the Plan. Performance measures for CERP are identified in the Plan's System-Wide Performance Measure Documentation Report.

6.4.5 MAP Module Groups

The MAP modules represent four geographical regions of the South Florida landscape, with additional modules for hydrology monitoring (to assist in evaluating water supply and flood protection performance measures) and mercury bioaccumulation. These modules function as the basic organizing elements and research units of the MAP and form the basis for the scientific teams that interpret and analyze monitoring data. These modules include:

- Greater Everglades
- Southern Estuaries (Florida and Biscayne Bays, Southwest Florida Coast)
- Northern Estuaries (St. Lucie Estuary/Southern IRL, Caloosahatchee Estuary, Lake Worth Lagoon, and Loxahatchee River Estuary)
- Lake Okeechobee
- South Florida Hydrology Monitoring (Water Supply and Flood Protection)
- South Florida Mercury Bioaccumulation

The four geographic modules encompass one or more of the conceptual ecological models described above. Each module contains a sampling network designed by a module group, with consideration of compatibility and efficiency that was derived from coordination with the other modules.

Module Groups are teams of scientists and technical experts with expertise in ecology, hydrology, and water quality, and who have experience relative to the natural or human systems described in the MAP modules. Module Groups combine the senior scientists of the agencies participating in the development and implementation of the MAP with other leading scientists who are widely recognized in their fields and are actively working in South Florida ecosystems.

The Module Groups and associated Principal Investigators are responsible for coordinating the implementation and quality assurance of the MAP monitoring and research projects for each of the modules. Module Groups ensure that implementation of specific monitoring components follows the overall program sequencing developed by the Assessment Team of RECOVER. Module Groups are also responsible for comparing the MAP monitoring data requirements to the non-MAP data already being collected to identify where existing efforts can be incorporated or modified to meet MAP monitoring and assessment guidance criteria.

6.5 GUIDANCE FOR THE CONDUCT OF ASSESSMENT ACTIVITIES OF RECOVER

Assessment activities are organized into three major themes: (1) the efficacy of monitoring components and research activities implemented as part of the system-wide monitoring program, including review of reports from project-level monitoring; (2) the implementation of the Plan in terms of regional and system-wide performance and the progress toward meeting long-term objectives and interim goals and interim targets; and (3) the capture and assessment of additional information that may be subsequently identified as relevant to system-wide responses, including new model results. General guidance for the process of conducting assessments follows in this Guidance Memorandum.

The strategy developed for assessing measurable changes in system responses is a multi-step process consisting of monitoring design analysis, data acquisition, data analysis, interpretation, integration, and assessment of system-wide performance. This strategy is designed to address, but is not limited to, the following types of questions: (1) has the indicator changed from the pre-CERP condition; (2) is the change in the desired direction and magnitude; and (3) is the change consistent with expected responses described in the Plan's hypotheses as identified in section 3 of the MAP, Part 1. This Guidance Memorandum also addresses the strategy for determining if the measured responses are achieving the interim goals and interim targets established according to section 385.38 of the Programmatic Regulations.

A key part of this strategy is determining pre-CERP variability and establishing reference conditions for each of the hydrologic, water quality, and ecological indicators. Background variability and spatial patterns will be the emphasis of this effort for the first five years before the implementation of specific Plan projects that are expected to influence the ecosystem. A fundamental concept underlying the assessment strategy is the ability to detect measurable change of individual and aggregated performance measures. Measurable change is defined as the magnitude and direction of change of a performance measure from the pre-CERP reference condition (i.e., environmental baseline).

Another approach for analyzing trends in ecological systems is to study the changes in the response of ecological attributes along a known stressor gradient (e.g., hydrologic, water quality). This approach may be particularly suited for cases where the temporal extent of a database is not sufficient to detect statistically significant trends and changes beyond the limits of background variability. This methodology, which would incorporate sampling along environmental stressor gradients, can be used to supplement other approaches to evaluate CERP induced changes.

Critical to the success of implementing any assessment is the ability of the sampling designs for the RECOVER MAP, Part I monitoring components to have the power to detect measurable change in hydrologic (including water supply and flood protection), water quality, and ecosystem indicators. The organization of the MAP attempts to reflect the stepwise scientific process required to detect and measure variability, status and trends in individual performance measures by Principal Investigators. This process is followed by the integration of multiple performance measures at the module level. Finally, some combination of integrating performance across modules and assessment of system-wide hypotheses from the Total System Model will be used to provide a system-wide assessment of hypotheses.

6.5.1 Integrative Assessment Strategy and Process

A multi-step process for detecting and assessing changes in performance measures called the Integrative Assessment Guidance (IAG) process, has been established for assessing progress toward achieving interim goals and interim targets, and evaluating the status of module and system-wide hypotheses (Figure 6-3). The guidance is comprised of three sections. The first addresses assessments at the MAP component level (i.e. specific monitoring and supporting research projects), the second at the module level, and the third at the system-wide level. The assessment process, outlined in Figure 6-2, applies specifically to the natural system and will be modified, as necessary, to address water supply and flood protection.

6.5.2 MAP Component-Level Module Level

The MAP component-level guidance is directed at the Principal Investigators working on specific monitoring and supporting research projects within a Module Group. The assessment guidance at the MAP component-level has three parts: (1) estimating the ability to detect change; (2) establishing reference conditions; and (3) measuring changes from reference conditions. At this level, the assessments focus on: (1) selecting the analysis tools necessary to measure the magnitude and direction of change in the performance measures; (2) determining whether changes are consistent with desired trends or targets and MAP hypotheses; and (3) determining if there are indications of unanticipated events that affect desired outcomes (Figure 6-2).

6.5.3 Module Level

Module-level analyses focus on the integration of multiple performance measures in the assessment of specific hypotheses. These module-level analyses cumulate data for trend

analysis. At this level, Module Groups integrate and interpret the annual reports prepared by each Principal Investigator, evaluate the relevance and utility of non-MAP data and consider any other information relevant to the assessment. Module-level assessments are conducted to determine the direction and magnitude of change in the integrated performance measures to determine if the changes are consistent with expected responses described in causal hypotheses. If the trends do not correspond to the expected responses, the Module Groups must provide plausible scientific explanations (Figure 6-2). Finally, the Module Groups will contribute interpretations of progress toward achieving interim goals and interim targets, identify unexpected results, and address episodic events.

6.5.4 System-Wide

System-wide analysis performed by the RECOVER Assessment Team addresses the synthesis of findings across modules and across years to provide a comprehensive description of the status of the system. While the final approach to the system-wide level assessments remains to be clarified, it is important for the integrative assessment process to allow for flexibility and not be too prescriptive or too limiting in the approach at the system-wide level, including consideration of the Total System Conceptual Model as an additional tool. This assessment will include an evaluation of progress toward achieving system-wide interim goals and interim targets. A summary assessment report is prepared in order to determine whether system responses are consistent or inconsistent with the system-level restoration goals and hypotheses. Assessments will also be conducted to determine whether corrective actions might be necessary to improve performance.

EXHIBIT 9

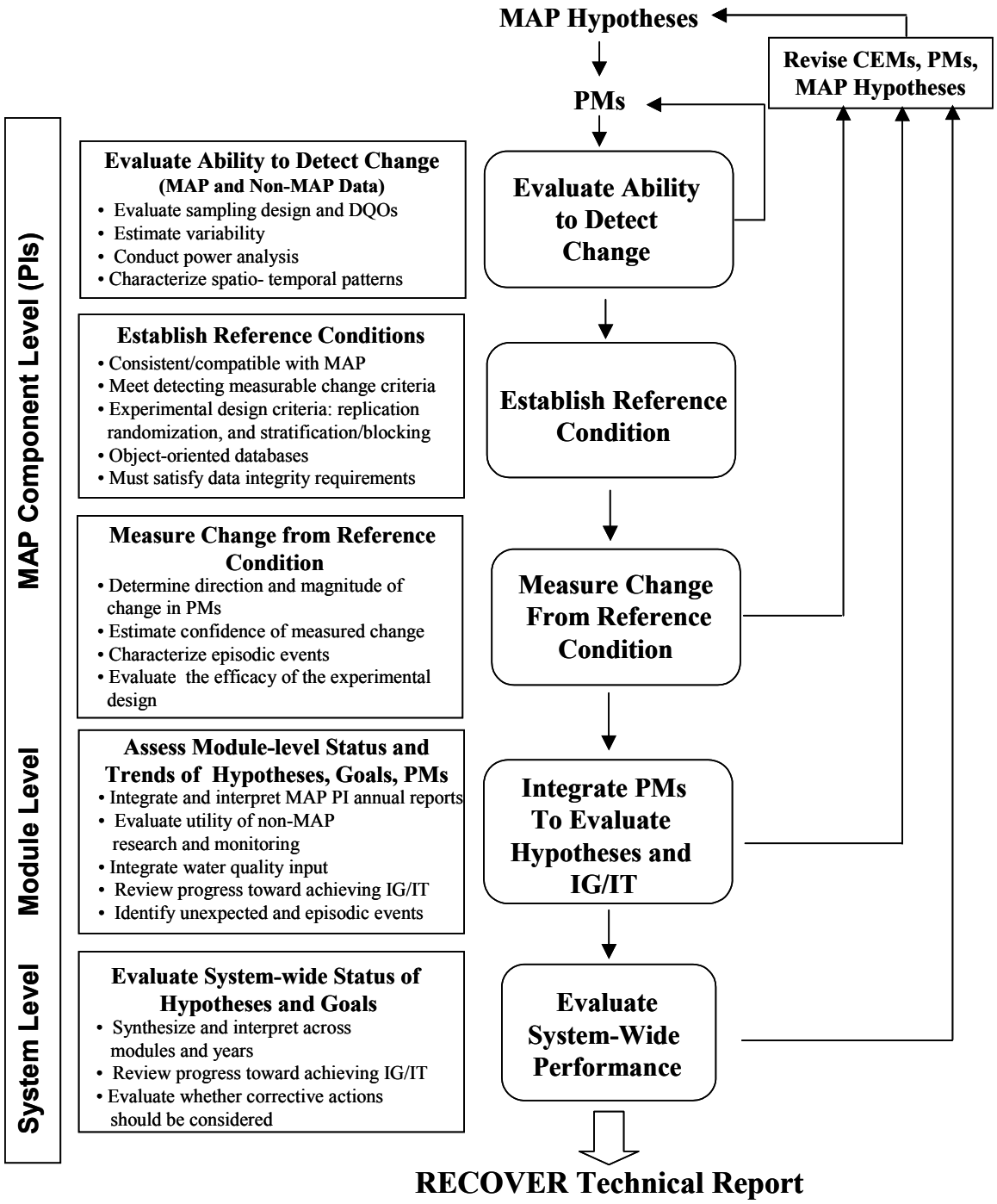


Figure 6-2: MAP Technical Assessment Process

6.5.5 Identification of Need for MAP Changes or Adaptive Management Actions

The results from the system-wide analysis may result in the need for the RECOVER Assessment Team to address a suite of options. The intent of this section is to provide guidance on the possible decision alternatives that could result from the assessment of individual or multiple performance measures and MAP hypotheses within and across modules. A fundamental assumption is that this guidance has been applied to analyzing and integrating the performance measures within a module.

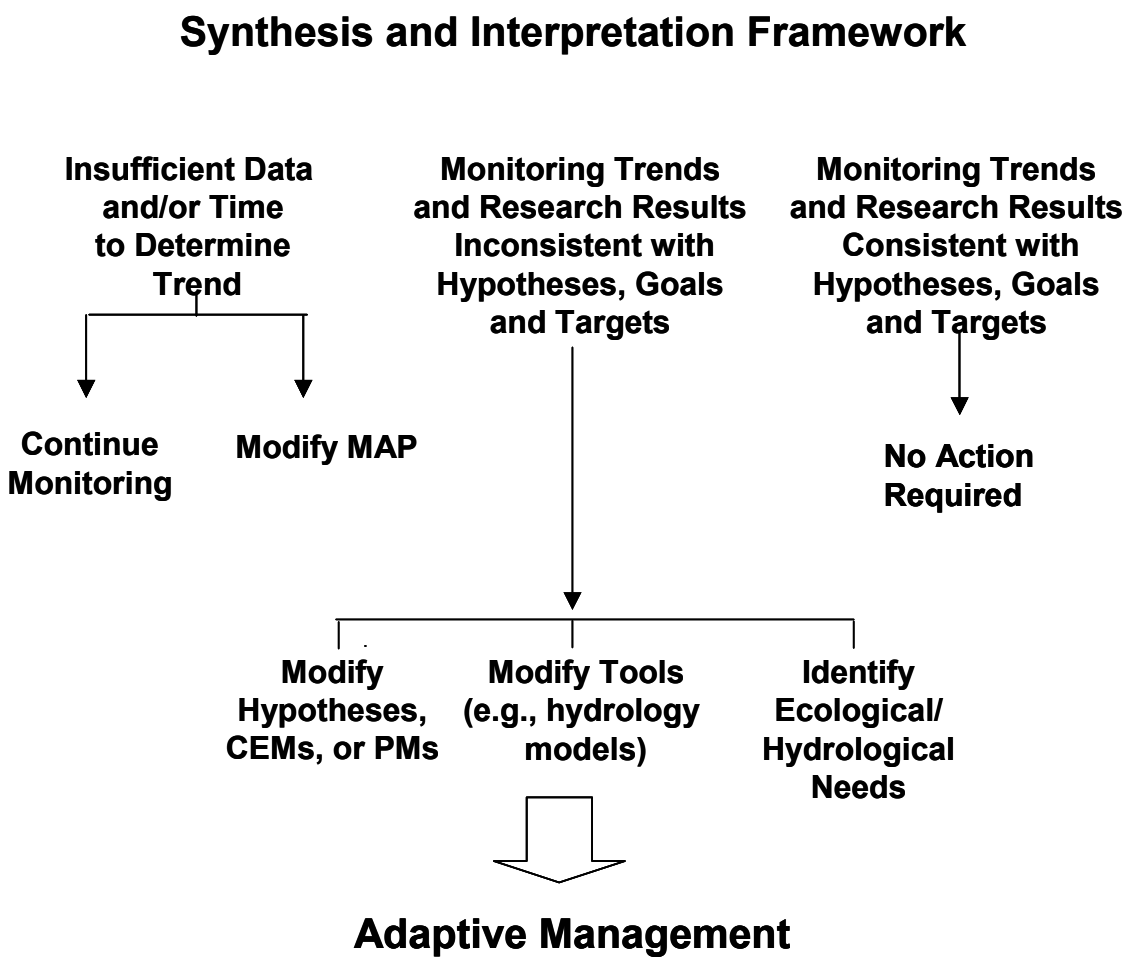
There are three plausible alternatives for how to interpret system-wide assessments as illustrated in Figure 6-3. The first alternative recognizes that there was insufficient data or time to determine a pattern or trend. In this case, two possible explanations can be postulated: (1) insufficient time for either the performance measure or the system to respond in a manner allowing for the MAP hypothesis to be critically examined; or (2) the wrong metrics are being measured and reported. In the former case, the monitoring should continue until the performance measure being assessed is able to express itself fully. In the latter case, the option is to modify the MAP.

The second alternative is that the monitoring trends and research results are inconsistent with and/or do not support the hypotheses or the interim goals and interim targets. This scenario could result in the following options: (1) modify the hypotheses, conceptual ecological models and/or the associated performance measures; (2) modify the tools (i.e., hydrologic models); and/or (3) identify system-wide hydrological and/or ecological needs to improve performance of the Plan. This last option would provide the basis for initiating the next phase of the adaptive management process (see Figure 6-1) that would address alternatives for modifying water management operations and/or the Plan.

In the third alternative, a trend is detected that is consistent with the hypotheses and the interim goals and interim targets. No action would be needed in this case.

The RECOVER technical report (section 6.6.3) will use this framework in describing its system-wide assessment and will base its conclusions based on the best available science. These conclusions may include whether changes to the MAP are needed or if adaptive management actions to improve Plan performance should be considered.

EXHIBIT 9



CEM = Conceptual Ecological Model
MAP = Monitoring and Assessment Plan
PM = Performance Measure

Figure 6-3: Decision Framework for Interpreting System-Wide Assessments

EXHIBIT 9

6.6 TECHNICAL ASSESSMENT REPORTING FRAMEWORK

6.6.1 Strategy and Purpose

The Plan's Technical Assessment Reporting Framework (Figure 6-4) places considerable emphasis on the analysis, synthesis and interpretation of the monitoring and research data. Further, the new data that are acquired annually are combined with previous years' trend data to provide a comprehensive and timely synthesis of all the available data. In so doing, this framework assures the early identification of potentially unexpected results and an assessment of the magnitude and direction of change in ecosystem responses, including indicators of interim goals and interim targets and the basic information required to produce the RECOVER Technical Report.

The Technical Assessment Reporting Framework (Figure 6-4) illustrates the process proposed for analyzing, integrating, and interpreting the MAP and other monitoring and research data in a comprehensive, systematic, and logical manner. Two principles underlie this framework: (1) an emphasis on the importance of conducting annual assessments of the monitoring data, and (2) the assumption that the technical foundation for the MAP resides with the Principal Investigators and Module Groups. After having completed several reporting cycles, the timeline will be evaluated based on its ability to: (1) assess the efficacy of the sampling designs; (2) capture trends in system responses; (3) detect unexpected responses; (4) assess progress toward achieving interim goals and interim targets; and (5) determine whether corrective actions need to be considered.

6.6.2 Reporting Framework

The Technical Assessment Reporting Framework identifies the types of reports that contribute to the RECOVER Technical Report. The Principal Investigator Report, prepared by the Principal Investigators, is the first level of the MAP and non-MAP data analysis and interpretation. The Principal Investigators Report will be required annually. This report will cumulate new data annually and combine it with previous years' data to provide a "running" status of the performance measures of interest at the MAP component and module level. Data used in these reports must meet data quality objectives and adhere to Quality Assurance Systems Requirements. In addition, databases used in the reports must comply with data validation and standardization requirements for CERP.

Each of the Principal Investigator Reports for a module will contribute to the preparation of the MAP Module Group and Assessment Team (AT) System Status reports. The objectives of these reports are to integrate and interpret the information in each of the Principal Investigator Reports, review non-MAP data for inclusion in the assessment and provide a module-level (Module Group Report) and system-wide (AT System Status Report) status of the hypotheses, restoration goals, and performance measures based on a multi-year analysis of trends. These reports will also review progress toward achieving interim goals and interim targets. Finally, the integration of all module data will afford the opportunity to identify unexpected or episodic events.

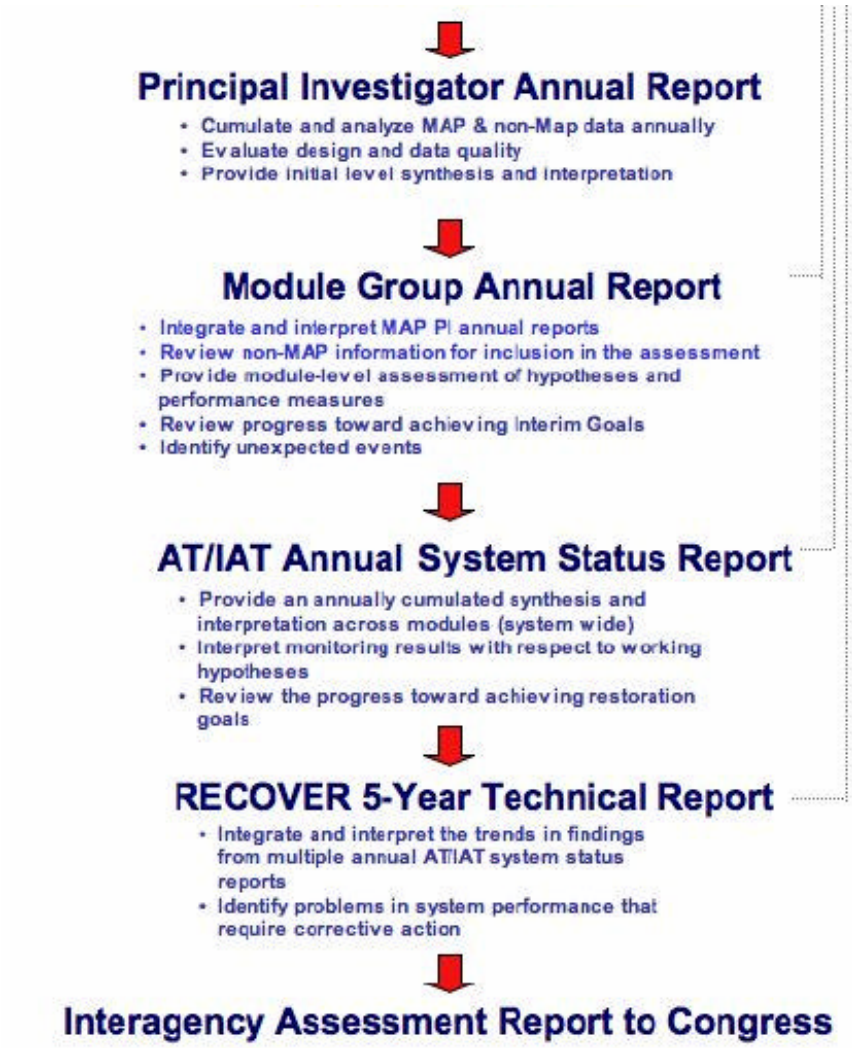


Figure 6-4: Assessment Reporting Framework

Each of the MAP-Principal Investigator Reports for a module will be used in the preparation of the MAP Module Group Report. The objectives of the MAP Module Group Report are to integrate and interpret the information in each of the Principal Investigator Reports, review non-MAP data for inclusion in the assessment and provide a module-level status of the hypotheses, restoration goals, and performance measures based on a multi-year analysis of trends. This report will also review progress toward achieving module-level interim goals and interim targets. Finally, the integration of all module data will afford the opportunity to identify unexpected or episodic events.

6.6.3 RECOVER Technical Report

The RECOVER technical report will provide a system-wide integration of all current and past hydrologic, water quality, and ecological data, synthesized across modules. The RECOVER technical report provides an assessment of whether the goals and purposes of the Plan are being achieved, assessing progress towards achieving system-wide interim goals and interim targets, and provides an assessment of system-wide hypotheses. The report will specifically identify those system responses that are inconsistent with the goals and purposes of the Plan, and will evaluate whether corrective actions should be considered based on scientific findings of system-wide or regional ecological needs. In accordance with section 385.31(b)(4) of the Programmatic Regulations, the technical report will be prepared at least every five years. However, preparation of RECOVER technical reports more frequent than a five-year interval will occur as appropriate, in response to specific, system-wide technical and scientific issues, the magnitude and frequency of undesirable or unexpected responses, in response to new scientific understandings of the natural systems, and as improved understanding of the rates of ecological responses may influence reporting rates.

6.6.4 Integrative Assessment Reporting Timeline

The reporting structure and timelines, outlined in Figure 6-5, provides guidance for the production of annual reports by MAP Principal Investigators, Module Groups, and the AT/Integrative Assessment Team (IAT). This guidance does not identify fixed reporting dates because of variations in starting times for different MAP Principal Investigator contracts. However, over time, it is anticipated that reporting timelines at the MAP Principal Investigator Reports will become more synchronized. At such time, the reporting timelines should follow the sequence specified for each block in Figure 6-5.

At the MAP Principal Investigator level, data will be collected and processed on an annual basis. After each 12-month data collection/processing period, the Principal Investigators will prepare an analysis and interpretation of each year's new data plus previous year's data (MAP Principal Investigator Annual Report). This analysis should be complete within nine months from the end of the 12-month data collection period. This analysis phase will include incorporation of physical (e.g., hydrology and geomorphology) and chemical (e.g., water quality and contaminants) data where appropriate. Encompassed within the nine-month analysis period is a six-month time lag in availability of physical and chemical data because of Quality Assurance/Quality Control and data management requirements. The time lags in accessing some data sets do not allow the Principal Investigators to meet the reporting

milestones established in this guidance. In these cases, time lags must be shortened to no more than six months in order to meet reporting milestones. Additionally, multi-agency physical and chemical data have inherent issues such as consistent reporting mechanisms, data formatting and data availability. These issues create constraints on incorporation of physical and chemical data for the MAP analysis that must be resolved.

The individual MAP Principal Investigator Annual Reports, which will eventually include several years of data that has been accumulated and analyzed annually, are then synthesized at the Module Group level to address the Module hypotheses, relevant performance measures and interim goals. The Module Group Annual Reports will include a compilation of the individual Principal Investigator Annual Reports plus a synthesis section that synthesizes, assesses, and interprets the status of the relevant Module hypotheses and interim goals. It is envisioned that the annual analysis of hydrology and water quality status and trends will be cumulative, integrating historical (pre-MAP) databases and the annually acquired MAP databases and provide the interpretative context for assessing the status of Module level hypotheses. Each year the Module Group Annual Reports will be summarized and accumulated every year (i.e., rolled up) to create an Annual System Status Report that will address the overall status of the system relative to system level hypotheses, performance measures and restoration goals.

There are three functions for the Annual Assessment Team System Status Reports. First, at least every two years, the current Annual System Status Report, which represents the accumulation of multiple years of information, will be used to provide information to the National Academy of Sciences and for the CERP Report Card. There are no new analyses involved in this activity. Second, at least every five years, the current cumulated Assessment Team Annual System Status Report, which represents multiple years of data “rolled up” into one report, will be peer-reviewed. This peer review process will be completed before being used as one of the major components of the RECOVER Technical Report which is mandated by the Programmatic Regulations to provide an assessment of the Interim Goals. In addition, this edition of the Annual System Status Report will provide the following: 1) a synthesis of findings across modules and across years to provide a holistic description of the status of the system; 2) an evaluation of the results in relationship to supporting system-level hypotheses and achieving system-wide Interim Goals; 3) a summary of those changes that are consistent with goals and hypotheses and those that are not; 4) a discussion of why the goals and hypotheses are not being achieved; and 5) an identification of those issues relevant to adaptive management.

The third use of the Annual Assessment Team System Status Report is to identify and report major unanticipated findings that may need attention and correction that have been identified and “flagged” by the Module Group Annual Reports. The module groups would include, as appropriate, these “red flags” as the module groups synthesize the Principal Investigator Reports and prepare the Module Group Annual Reports. If an unexpected and undesirable response, with respect to the goals of CERP or the hypotheses, is detected at the module or system scale, a technical report can be generated immediately.

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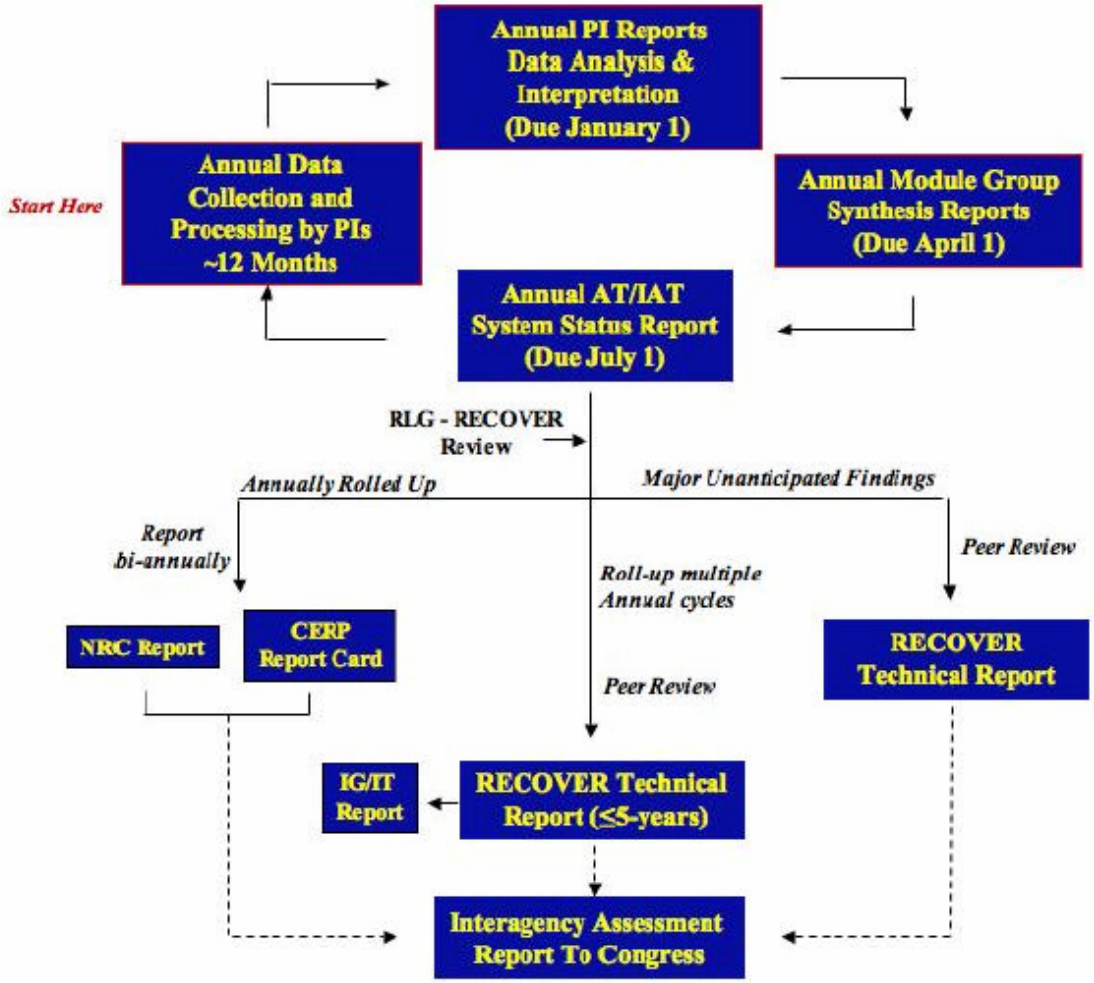

Figure 6-5: Reporting Timeline

6.7 PEER REVIEW OF ASSESSMENT DOCUMENTS

The peer review process enhances the scientific credibility of assessment documents by providing a means for independent experts to offer constructive criticism and scientific and technical advice. Currently, peer review of RECOVER documents is discussed at length in CERP Guidance Memorandum 27.00 and will be followed for peer review requirements in this Guidance Memorandum. Although the Programmatic Regulations only specify the necessity of external peer review for the draft assessment report produced by the USACE and the SFWMD, other assessment documents and processes may also benefit from external peer review.

The assessment process is divided into logical progression levels (Figures 6-1 and 6-3). Peer review should be considered at several of these levels as described below.

6.7.1 Principal Investigator Level

This level of external peer review would primarily consist of that associated with drafted journal articles that relate to completed studies and other research associated with Plan activities. As appropriate, these activities will be identified in individual scopes of work for individual MAP components.

6.7.2 Module Group (Module Group Report) and System Level (AT System Status Report)

External peer review should occur on a case-by-case basis as deemed appropriate by the RECOVER Assessment Team. These may include situations such as when the assessment indicates that: (1) changes in the MAP components (e.g. conceptual ecological models, performance measures or MAP hypotheses) are warranted; (2) there are unresolved and significant technical disputes; or (3) there are significant new findings that are relevant to ecosystem responses.

6.7.3 RECOVER Technical Report Level

The RECOVER Technical Report will contain scientific information and interpretations and will potentially present scientifically and technically controversial issues and findings. The process leading to the report involves a large, long-term investment and multiple projects. Therefore, peer review at this level should be consistent with peer review guidance (currently CERP Guidance Memorandum 27.00).

Once completed, the comments, feedback and other information (constructive criticism and scientific and technical advice) resulting from peer review must be adequately considered and documented. This information should be included as an attachment or appendix to the final version of the report. The report should also include a section addressing how the peer review comments were incorporated, including an explanation and rationale for not incorporating specific suggested changes if this is the case, as well as making any recommendations for inclusion or consideration in following report iterations. The peer reviewers should be included in the distribution list for the report to allow the reviewers to see how their comments or input were addressed.

EXHIBIT 9

ATTACHMENT 6-A
MINIMUM REPORTING GUIDANCE

The following is minimum reporting guidance for Principal Investigators, Module Groups, and the RECOVER Assessment Team that parallels the assessment process discussed in this Guidance Memorandum and Figure 6-3 of this Guidance Memorandum. This minimum reporting guidance applies specifically to the natural system and can be modified, as necessary, to address water supply and flood protection.

A. Evaluate Ability To Detect Change–Principal Investigator Level

- Describe and discuss the results of the power analysis for the sampling design.
- Determine the minimum detectable difference of the power analysis and associated confidence and uncertainty.
- Describe any suggested changes in the MAP sampling design and implications of those changes for the power analysis and the minimum detectable difference.

B. Establish Reference Condition–Principal Investigator Level

- Describe non-MAP monitoring and research data sources used in the assessment. If non-MAP data were used, did the data meet the criteria outlined in this guidance? If non-MAP data were used and did not meet the guidance criteria, provide a rationale to justify the inclusion of the data.
- Describe how representative the data are in space and time.
- Describe the approaches used to address measuring variability.
- Enter the data into a system-wide data management system.

C. Measure Change From Reference Condition–Principal Investigator Level

- Describe the methods used to estimate the direction and magnitude of change in performance measures from the reference state both annually and cumulatively for multiple years.
- Compare current status of the performance measure with the performance measure's desired trend or target.
- Evaluate consistency of monitoring results with the MAP hypotheses.
- Determine if there are indications of unanticipated events and describe how the events may be affecting the desired outcome.
- External peer review will be conducted as appropriate.

D. Integrate Performance Measures To Evaluate Module Hypotheses-Module Group Level

- Integrate multiple performance measures to provide an assessment of module-level hypotheses.
- Describe the direction and magnitude of change in the integrated performance measures and determine if the changes are consistent with expected responses described in the Plan's hypotheses.

- If trends do not correspond to expected responses, provide a probable rationale or explanation for the findings.
- Evaluate progress toward achieving module-level interim goals and interim targets.

E. System-Wide Performance Evaluation–Recover Assessment Technical Team Level

- Synthesize findings across modules and across years to provide a holistic description of the status of the system.
- Evaluate the results in relationship to supporting system-level hypotheses and achieving system-wide interim goals and interim targets.
- Summarize those changes that are consistent with the interim goals and interim targets and hypotheses and those that are not.
- Provide a discussion of why the interim goals and interim targets and hypotheses are not being achieved.
- Provide a discussion of adaptive management issues.
- The system-wide Technical Report will be peer reviewed, consistent with the Programmatic Regulations and the appropriate CERP guidance on peer review.

EXHIBIT 9

APPENDIX A
DEFINITIONS

In addition to those terms already defined in the Programmatic Regulations, the following terms are defined for these Guidance Memoranda:

Acceler8 means the program of the State of Florida to implement certain features of the Plan using State resources and financing.

Alternative Formulation Briefing (AFB) means the meeting held to discuss the results of the formulation and evaluation process and to obtain approval of the tentatively selected plan, as described in USACE regulations and policy.

Assessment Report means the report prepared by the USACE and the SFWMD, in consultation with Federal, Tribal, State, and local agencies and tribal governments, as part of the adaptive management program, in accordance with the Programmatic Regulations.

Assessment Team means the RECOVER team that is responsible for conducting assessment activities under the adaptive management program.

Comparable source means a source that is sufficiently similar to or equivalent to the existing legal source in terms of quantity and quality.

Design Coordination Team (DCT) means the team established pursuant to the design agreement between the Corps of Engineers and the non-Federal sponsor.

Elimination or transfer means the reduction of all or a portion of an existing legal source of water caused by implementation of one or more CERP projects and/or the sending of all or a significant portion of an existing legal source of water from its original location to another location within the South Florida ecosystem caused by implementation of one or more CERP projects.

Existing Conditions Baseline means the hydrologic conditions in the South Florida ecosystem as modeled by using a multi-year period of record based on assumptions such as land use, population, existing legal uses of water quality and assumed operations of the C&SF Project that includes authorized CERP projects with approved operating plans and non-CERP activities with approved operating plans at the time the tentatively selected plan is identified.

Existing legal use means a water use that is authorized under a SFWMD or FDEP consumptive use permit under Part II of Chapter 373, F.S., or is existing and exempt from consumptive use permit requirements under Chapter 373, F.S., such as domestic uses of water.

Existing legal source means the quantity and quality of water available within a water basin (including seepage, surface water, direct rainfall, and groundwater) used for a water supply, which is legally protected by Federal or State law, including the quantity and quality necessary for protection of the source of supply, consistent with State and Federal law, as of December 11, 2000, for:

(i) An agricultural or urban water supply;
(ii) Allocation or entitlement to the Seminole Indian Tribe of Florida under Section 7 of the Seminole Indian Land Claims Settlement Act of 1987 (25 U.S.C. 1772e);
(iii) the Miccosukee Tribe of Florida;
(iv) water supply for Everglades National Park; or
(v) water supply for fish and wildlife."

Future Without CERP Baseline means the hydrologic conditions in the South Florida ecosystem as modeled by using a multi- year period of record based on assumptions such as land use, population, water demand, water quality, and assumed operations of the C&SF Project that includes projected conditions at the end of the period of analysis for the Plan and specifically excludes any CERP projects.

Indicator means an element or component of the natural or human system that is expected to be influenced by the Plan, and has been selected to be monitored as representative of a class of system responses.

Initial Operating Regime means the hydrologic conditions in the South Florida ecosystem at the time that a CERP project becomes operational as modeled by using a multi-year period of record based on assumptions such as land use, population, water demand, and water quality and assumed operations of the C&SF Project that includes authorized CERP projects with approved operating plans and non-CERP activities with approved operating plans at the time that the tentatively selected plan is identified.

Intervening Non-CERP activities means changes in permitted demands and structural or operational changes to the C&SF Project or other water resources systems in the South Florida ecosystem that are made by Federal, State, tribal, and local governments and which not included in the Plan.

Monitoring and Assessment Plan (MAP) means the plan prepared by RECOVER that describes the system-wide monitoring program to be implemented by RECOVER that is designed to measure status and trends towards achieving the goals and purposes of the Plan and the activities that assess if measured responses are desirable and are achieving the interim goals and interim targets or the expected performance level of the Plan.

MAP Module Group Report means the report prepared by RECOVER that integrates and interprets the information in each of the Principal Investigator reports, reviews non-MAP data for inclusion in the assessment report and provides a module-level status of the hypotheses, restoration goals, and performance measures based on a multi-year analysis of

trends. The MAP Module Group Report also reviews progress at a module-level towards achieving the interim goals and interim targets.

Next-Added Increment Baseline means the hydrologic conditions in the South Florida ecosystem as modeled by using a multi- year period of record based on assumptions such as land use, population, water demand, water quality and assumed operations of the C&SF Project that includes projected conditions at the end of the period of analysis for the Plan and includes only those approved CERP projects at the time that the tentatively selected plan is identified.

Other water-related needs means Federally authorized purposes of the Central and Southern Florida Projects, including water supply, saltwater intrusion prevention; water quality protection, protection of wetland systems within urban areas, navigation, and recreation.

Principal Investigator Annual Report means the report prepared annually by Principal Investigators conducting MAP monitoring activities that presents the first level of data analysis and interpretation for a specific MAP component (and relevant additional information). As part of this report, the Principal Investigator will estimate the ability to detect change, establish reference conditions, and measure change from reference condition.

Quality Review Board (QRB) means the periodic meetings chaired by the Jacksonville District Commander and the Executive Director of the South Florida Water Management District to discuss the status of the CERP program.

RECOVER System Status Report means that report prepared by RECOVER that provides a synthesis of findings across MAP modules and across years to provide a comprehensive description of the status of the system. This report will include an evaluation of progress toward achieving system-wide interim goals and interim targets to determine whether system responses are consistent or inconsistent with the system-level restoration goals and hypotheses.

Reference Condition means the hydrological, water quality, and/or ecological state of the system or a specific indicator, which encompasses spatial and temporal background variability, prior to implementation of a CERP project that may be modified by the condition.

Selected alternative plan means the plan selected by the USACE and the non-Federal sponsor for further design and presentation to the public as the result of completing technical analyses of the no-action alternative and other alternative plans formulated and evaluated for a PIR.

South Florida Water Management Model (SFWMM) means the regional hydrologic model developed by the SFWMD that is used to simulate hydrologic conditions in the South Florida ecosystem using a multi-year period of record.

Stage-duration curve means the curve that plots the estimate of the elevation that water reaches in a specific area or region as a function of the amount of time that that elevation is equaled or exceeded. The curve describes, in a graphical form, the water elevation that may be expected based on a range of hydrologic conditions as a result of a set of assumed conditions, projects, and operations.

Target means a measure of change by an indicator that is expected or desired as the result of implementation of the Plan.

Technical Report means the report prepared by RECOVER as part of the adaptive management program and provided to the USACE and the SFWMD for use in preparing the assessment report as required by the Programmatic Regulations. The technical report presents RECOVER's assessment of whether the goals and purposes of the Plan are being achieved, including whether the interim goals and interim targets are being achieved or are likely to be achieved.

Tentatively selected plan (TSP) means the plan selected by the District Engineer and the non-Federal sponsor for further design, pending approval of the plan at the AFB meeting held in accordance with USACE regulations and policies.

Volume-probability or flow-probability curve means the curve that plots the estimate of quantities of water produced in one or more water basins (usually expressed as acre-feet or million/billon gallons) as a function of the percentage of time the quantity is equaled or exceeded. The curve describes, in a graphical form, the water quantities that may be expected in one or more water basins for a range of hydrologic conditions as a result of a set of assumed conditions, projects, and operations.

Water control plan means the document that includes coordinated regulation schedules for project/system regulation and such additional provisions as may be required to collect, analyze and disseminate basic data, prepare detailed operating instructions, assure project safety and carry out regulation of projects in an appropriate manner.

Water basins means the major hydrologic regions that comprise the South Florida ecosystem.

Water shortage means the situation when insufficient water is available to meet the present and anticipated needs of the users, or when conditions are such as to require temporary reduction in total use within a particular area to protect water resources from serious harm. A water shortage typically occurs due to drought conditions.

EXHIBIT 9

APPENDIX B
ACRONYM LIST

AFB	Alternative Formulation Briefing
A&R	Authorities and Responsibilities
ASA(CW)	Assistant Secretary of the Army (Civil Works)
ASR	Aquifer Storage and Recovery
AT	Assessment Team
BA	Biological Assessment
BO	Biological Opinion
CAR	Coordination Act Report
CERP	Comprehensive Everglades Restoration Plan
CE/ICA	Cost Effectiveness/Incremental Cost Analysis
CFR	Code of Federal Regulations
cfs	Cubic feet per second
C&SF	Central and Southern Florida
CPMR	Comprehensive Plan Modification Report
CSOP	Combined Structural and Operating Plan
DCP	Drought Contingency Plan
DCT	Design Coordination Team
DOI	Department of the Interior
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EM	Engineering Manual
ENP	Everglades National Park
ER	Engineering Regulation
ERDO	Everglades Rainfall Driven Operations
ESA	Endangered Species Act
ETL	Engineering Technical Letter
FDEP	Florida Department of Environmental Protection
F.S.	Florida Statutes
FSM	Feasibility Scoping Meeting
ft	foot/feet
FWC	[Florida] Fish and Wildlife Conservation Commission
FWCA	Fish and Wildlife Coordination Act
FWS	[U.S.] Fish and Wildlife Service
GM	Guidance Memorandum[a]

HQ	Headquarters
HQUSACE	Headquarters, U.S. Army Corps of Engineers
IAG	Integrative Assessment Guidance
IAT	Integrative Assessment Team
ICA	Incremental Cost Analysis
IOP	Interim Operational Plan
IOR	Initial Operating Regime
IPR	In-Progress Review
ISOP	Interim Structural and Operational Plan
ITR	Independent Technical Review
LERRD	Lands, easements, rights-of-way, relocations, and disposal
MAGO	Maximum Allowable Gate Opening
MAP	Monitoring and Assessment Plan
M-CACES	Micro-Computer Aided Cost Engineering System
MFL	Minimum Flows and Levels
MISP	Master Implementation Sequencing Plan
MPMP	Master Program Management Plan
MRA	Miccosukee Reserved Area
MRAA	Miccosukee Reserved Act Area
MRP	Master Recreation Plan
NAI	Next-added increment
NEPA	National Environmental Policy Act
NER	National Ecosystem Restoration
NGVD	National Geodetic Vertical Datum
NHC	National Hurricane Center
NMFS	National Marine Fisheries Service
NRC	National Research Council
O&M	Operation and Maintenance
OASA(CW)	Office of the Assistant Secretary of the Army (Civil Works)
OMRR&R	Operation, Maintenance, Repair, Rehabilitation, and Replacement
OTMP	Operational Testing and Monitoring Phase
PAL	Planning Aid Report
PCA	Project Cooperation Agreement
PDT	Project Delivery Team
PIR	Project Implementation Report
ppm	parts per million
ppt	parts per thousand
POM	Project Operating Manual
QRB	Quality Review Board

RECOVER	Restoration Coordination and Verification
rpm	Revolutions per Minute
SAD	South Atlantic Division
SAP	Selected Alternative Plan
SDF	Standard Design Flood
SFWMD	South Florida Water Management District
SFWMM	South Florida Water Management Model
SOM	System Operating Manual
SPF	Standard Project Flood
SPS	Standard Project Storm
STA	Stormwater Treatment Area
TSP	Tentatively Selected Plan
USACE	United States Army Corps of Engineers
USGS	U.S. Geological Survey
WCA	Water Conservation Area
WCDSAP	Water Control Data Acquisition System Plan
WCDS	Water Control Data System
WCM	Water Control Manual
WRDA	Water Resources Development Act
WSE	Water Storage and Environmental
WQC	Water Control Certification

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APPENDIX C
LIST OF REFERENCES

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EXHIBIT 9

APPENDIX D
LETTERS OF CONCURRENCE

[To be provided]