

PEER REVIEW PLAN

For

L-31N (L-30) SEEPAGE MANAGEMENT PILOT PROJECT DESIGN REPORT

A Component of the

COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)

21 FEBRUARY 2008

For questions or comments regarding this Peer Review Plan, please forward your comments to:

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1.0 PROJECT SCOPE

The L31N (L30) Seepage Management Pilot Project was included in the Comprehensive Everglades Restoration Plan (CERP) as a predecessor to the Everglades National Park Seepage Management Project.

The purpose of the L-31N (L-30) Seepage Management Pilot Project (SMPP) is to investigate seepage management technologies in order to recommend features to control groundwater flow and levee seepage from Everglades National Park (ENP) and Water Conservation Area 3B (WCA-3B). As a predecessor to the full scale Everglades National Park Seepage Management project, the SMPP will identify the appropriate amount of wet season groundwater flow to return to, or retain within ENP, and WCA 3B, which minimizes potential impacts to Miami-Dade County's West Wellfield and freshwater flows to Biscayne Bay. Additionally, the project will help determine the constructability of a seepage management barrier to various depths/lengths within the semi-confining unit of the aquifer and may yield results beneficial to the implementation of the "full-scale" ENP Seepage Management Project. The implementation cost is estimated to be about \$5 million.

In addition to serving as the initial phase on which to build future seepage management features, the project is anticipated to yield significant information related to the selected technology's constructability, costs, impacts on local hydrology, and impacts on local water quality. Additionally, the data collected from the pilot project will support calibration of a regional model that will improve the understanding of the regional impacts of seepage management used at a larger scale.

Refer to the Project Management Plans for both the pilot project and the seepage management project at the following hyperlink for additional information and project area mapping.

http://www.evergladesplan.org/pm/program_docs/mgmtplns.aspx

2.0 HIGHLY INFLUENTIAL SCIENTIFIC INFORMATION (HISI)

The pilot project will test a unique and novel project technology that will need to avoid potential impacts to Miami-Dade County's West Well Field and Biscayne Bay. In addition, there is significant interagency and stakeholder interest in both the Pilot Project and its successor, the Everglades National Park Seepage Management Project. Since the Seepage Management Pilot Project Design Report (SMPPDR) will disseminate Highly Influential Scientific Information, External Peer Review of the SMPPDR will be required.

Highly Influential Scientific Information is a scientific assessment which is considered "highly influential" if its dissemination could have a potential impact of more than \$500 million in any one year on either the public or private sector; or that the dissemination is novel, controversial, or precedent-setting; or that it has significant interagency interest. One of the ways information can exert economic impact is through the costs or benefits of a regulation based on the disseminated information.

3.0 PEER REVIEW PLAN PURPOSE AND REQUIREMENTS

This document includes the Peer Review and Independent Technical Review plan for L-31N (L-30) SMPPDR. This plan is in accordance with the following policy documents:

- Office of Management and Budget Bulletin “Final Information Quality Bulletin for Peer Review” dated December 16, 2004 (OMB Bulletin);
- EC 1105-2-408 dated 31 May 2005 “Peer Review of Decision Documents”;
- Peer Review Process Memorandum dated 30 Mar 2007;
- “Supplemental Information for the “Peer Review Process” Memo, dated March 2007 found on the Corps Planning CoP web site at: http://www.usace.army.mil/cw/cecw-cp/peer/revplan_23may07.pdf ; and
- Memo dated 25 October, 2005 (CESAD-RBT SOP 11-1-3).

EC 1105-2-408 and the OMB Bulletin

EC 1105-2-408, “Peer Review of Decision Documents” instituted requirements for compliance with the Office of Management and Budget Bulletin “Final Information Quality Bulletin for Peer Review” (OMB Bulletin). The Circular established those procedures to ensure the quality and credibility of Corps decision documents by adjusting and supplementing the review process, and requires that a peer review plan be prepared to address decision documents and supporting scientific analyses.

The Circular stipulates the requirement for two types of review -- independent technical review (ITR) and external peer review (EPR) -- and provides guidance on Corps Planning Centers of Expertise (PCX) involvement in the reviews. This document addresses both EPR and ITR for the Seepage Management PPDR, and required coordination with the Ecosystem Planning Center of Expertise (ECO PCX).

EPR. The Circular added external peer review to the existing Corps review process. EPR applies in special cases where Highly Influential Scientific Information (HISI) or Influential Scientific Information (IS) are disseminated and/or the magnitude and risk of the project are such that a critical examination by a qualified person outside the Corps is determined to be necessary to validate Corps analyses and project implementation recommendations. EPR will also be

used where the information is based on novel methods, presents complex interpretation challenges, contains precedent-setting methods or models, or is likely to affect policy decisions that have a significant impact.

ITR. Districts are responsible for reviewing the technical aspects of the decision documents through the ITR approach. ITR is a critical examination by a qualified person or team that was not involved in the day-to-day technical work that supports the decision document. ITR is intended to confirm that such work was done in accordance with clearly established professional principles, practices, codes, and criteria. In addition to technical review, documents should also be reviewed for their compliance with laws and policy.

PCX Coordination. The Circular outlines PCX coordination in conjunction with preparation of the review plan. Districts should prepare the review plans in coordination with the appropriate PCX. The Corps PCX are responsible for the accomplishment and quality of ITR and EPR for decision documents and supporting scientific analyses covered by the Circular. Centers may conduct the review or manage the review to be conducted by others. Reviews will be assigned to the appropriate Center based on business programs. The Circular outlines alternative procedures to apply to decision documents. Each Center is required to post review plans to its website every three months as well as links to any reports that have been made public. The Office of Water Policy Review (OWPR) will consolidate the lists of all review plans and establish a mechanism for soliciting public feedback on the review plans.

CECW-CP Memorandum (Subject: Peer Review Process) dated 30 Mar 2007

This memo included additional requirements, effective immediately, to strengthen the peer review process. These requirements include, among others:

- Extended applicability of the Circular requirements to all studies and reports needing authorization unless the final feasibility report package had already been forwarded to HQ prior to date of the memo;
- Commander's coordination with PCXs and incorporation of public comments on the peer review process;
- Expansion of EPR requirement to studies in which information:
 - Is based on novel methods
 - Presents complex challenges for interpretation
 - Contains precedent-setting methods or models
 - Presents conclusions that are likely to change prevailing practices
 - Addresses important public safety risks; or
 - Is likely to affect policy decisions that have a significant impact

- Complete, comprehensive and current review plans in PMPs
- Major Subordinate Command (MSC) review and determination on the level and appropriateness of EPR.

Supplemental Information

The Supplemental Information posted on the Corps Planning Community of Practice (CoP) website has no date or author identified. It expands on applicability, peer review plan posting process, review plan content, the review plan approval process, update of review plans, EPR considerations, tracking and reporting requirements and FAQ's. Items of note include:

- Decision to conduct an EPR is made by the vertical team, including the PCX, and
- Approval of the peer review plan is the responsibility of the MSC.
- Allusion to but no identification of a specific cost trigger for EPR, along with statement that “big studies will have EPR.”

4.0 SEEPAGE MANAGEMENT PILOT PROJECT PROBLEMS and OPPORTUNITIES

The problems included in L-31N (L-30) SMPP are summarized below:

- Uncertainty in Seepage Management – Unique Geology
- Limited Understanding of Large Scale Seepage Management Technologies
- Seepage from the Everglades

Uncertainty in Seepage Management (Unique Geology) – The karst limestone of the Biscayne aquifer, which underlies these historical everglades, has been the subject of numerous investigations, several of which were directly funded by this project. The cycle stratigraphy which formed the alternating subaquifers and semiconfining units is unique in the world, and has resulted in an extremely heterogeneous aquifer which simultaneously demonstrates porous, non-porous, and vuggy porous flow characteristics. The complexity of this geology and unpredictability of how the aquifer will respond to various seepage management measures represents a tremendous project uncertainty.

Limited Understanding of Large Scale Seepage Management Technologies – Although a great deal is known about individual seepage management technologies, significant uncertainty exists related to the use of these technologies at very large scales, particularly within the unique geology which underlies the L-30 and L-31N region. Large scale seepage management presents a situation somewhat analogous to that faced by the builders of the original C&SF project. Namely that some of the project components have had far-reaching, unintended consequences. Implementation of technologies to control

seepage shares the potential to create unintended consequences. Consequences which must be thoroughly investigated prior to full-scale implementation of individual Everglades Seepage Management project features.

Seepage from the Everglades – It is anticipated that implementation of the Modified Water Deliveries (MWD) Project, and the Combined Structural and Operational Plan (CSOP) (see Section 1.5, Related Projects in the Project Management Plan), have the potential to increase seepage rates into the South Dade Conveyance System (SDCS) which is in the vicinity of the L-31N (L-30) Seepage Management Pilot project area..

The opportunities of the L-31N (L-30) SMPP are summarized below:

- Test seepage technology before implementing it on a full-scale project
- Provide the first step in reducing seepage from the Everglades

Test a technology before implementing it on a full-scale project. - The L-31N (L-30) Seepage Management Pilot Project (SMPP) will alleviate some of the uncertainties associated with large scale seepage management projects and unique geological subsurface profiles within the project region. The L-31N (L-30) SMPP will investigate technologies needed to control seepage from Everglades National Park (ENP) and WCA-3B across their respective eastern boundaries.

Reduce seepage from the Everglades. – During the Comprehensive Everglades Restoration Plan (CERP) feasibility study, hydrologic modeling indicated that controlling seepage from Everglades areas would improve their hydrologic condition. Construction of a seepage management pilot feature along the L-30 could be the first increment towards reducing seepage losses from Water Conservation Area (WCA) 3B and, will to a very small degree, begin to mitigate the anticipated seepage increases associated with the MWD and CSOP projects.

5.0 SEEPAGE MANAGEMENT PILOT PROJECT GOALS, OBJECTIVES AND CONSTRAINTS

The goal of the L-31N (L-30) Seepage Management Pilot Project is to investigate seepage management technologies in order to recommend features to control groundwater flow and levee seepage from Everglades National Park (ENP), and WCA 3B, at significantly larger scales.

The objectives of the L-31N (L-30) Seepage Management Pilot Project are to:

- Establish baseline data in order to compare seepage management effectiveness;
- Evaluate effectiveness and flexibility of seepage management technologies;
- Improve understanding of the impacts on groundwater demands for well fields;

- Improve understanding of the water quality impacts of seepage management alternatives;
- Evaluate cost effectiveness of seepage management alternatives;
- Improve understanding of the effects of seepage management alternatives on flood protection; and
- Improve understanding of the effects of seepage management on the ecosystem.

Constraints include:

- Maintain a level of flood protection
- Maintain a level of freshwater flows to Miami-Dade County’s West Wellfield and to Biscayne Bay.

6.0 EXTERNAL PEER REVIEW

EPR Method

EPR will be conducted by a panel exterior to the Corps of Engineers, Department of Interior National Park Service (DOI) and the South Florida Water Management District (SFWMD). It is initially envisioned the panel will be composed of 3-5 members. DOI and SFWMD will be offered the opportunity to nominate potential panel members for the EPR panel.

The ECO PCX will follow EC-1105-2-408 in managing the EPR. EPR will be conducted outside the Corps of Engineers. The purpose of this peer review plan is to provide the project specific peer review information needed to identify external resources, to execute EPR and to inform the public that peer review will be conducted. The ECO PCX will use Battelle to manage and execute EPR external to the Corps of Engineers. Battelle (Battelle Memorial Institute) is a private not-for-profit applied science and technology development company. Battelle information can be obtained from their website at <http://www.battelle.org/>.

Management tasks will include executing and managing a contract with Battelle to conduct EPR. Battelle will be responsible for identifying, contacting, and selecting reviewers; preparing scopes of work and procuring contracts with reviewers; compiling review comments and preparing the EPR Report. The Jacksonville District (SAJ) will be responsible for compiling responses to comments.

Proposed ERP Panel Disciplines and Descriptions.

Hydrogeology Panel Member. The Hydrogeology Panel Member should be a registered professional from academia, a public agency, or an Architect-Engineer or consulting firm with 10 years experience in conducting and evaluating subsurface

geologic data including hydraulic conductivity, groundwater modeling, computational analysis, and other groundwater design/management activities. Panel member should be familiar with karst geology, the Floridan Aquifer and the hydrogeological aspects of Consumptive Use Permitting in the State of Florida. Active participation in related professional societies is encouraged.

Cost Engineering/Construction Management Panel Member. The Cost Engineering/Construction Management Panel Member should be an Engineer from academia, related public agency or an Architect-Engineer or Consulting Firm with a minimum 10 years demonstrated experience in performing cost engineering/construction management for all phases of subsurface geosystem projects including deep cut off walls. Team member should be familiar with similar projects across US and related Cost Engineering. Experience in associated contracting procedures, total cost growth analysis and related cost risk analysis is desired. Panel member should be familiar with construction industry and practices used in Florida and/or the Southeastern United States. Active participation in related professional societies is encouraged.

Geosystems Panel Member. The Geosystems Panel Member should be a registered professional from academia, public agency, or Architect-Engineer or Consulting firm with 10 years experience in the design and construction of cut-off walls specifically, care and diversion of water in deep trenches up to 100 ft. deep and successful implementation of such projects. Panel member should be familiar with karst geology. Active participation in related professional societies is encouraged.

DOI Panel Member Nomination

SFWMD Panel Member Nomination

EPR Charges.

Final Peer Review Charges will be developed prior to the selection of panel members. There is significant interagency and stakeholder interest in the SMPP. The Project Delivery Team, DOI and SFWMD will be afforded the opportunity to offer charges for the EPR.

Peer reviewers will be asked not to provide advice on USACE Policy. Instead, the charge to the reviewers will be to review the science relevant to PPDR decisions and the use of said science, focusing their review on identifying and characterizing scientific uncertainties.

The Reviewer's will offer the following as part of their general review:

- General Observations – Overall reaction to the report and comments not associated with a specific chapter, paragraph, or line.

- Report Recommendations - Suggestions on topics or issues that could improve the value of the report.
- Specific Report Comments – Comments listed by page and line number focusing on clarity, logic, completeness, accuracy, and tone.

SMPP Peer Reviewers are also tasked to address the following charges and to provide supporting commentary:

1. Does the report adequately support the pilot feature recommended to address seepage management within this unique geology?
2. Does the report adequately address how information gained from the pilot scale project will support the full scale Everglades Seepage Management Project.?
3. Does the report adequately address the feasibility of constructing a 1000 ft. long by 100 ft. deep Slurry Cut-off wall and the associated costs including cost growth?
4. Does the report adequately demonstrate that the pilot project will not adversely affect existing levels of flood protection, and/or existing legal users of water?
5. Were other pilot project goals, objectives and constraints adequately addressed?

Schedule

The EPR will be conducted Spring 2008. It is envisioned that each reviewer will be afforded approximately 40 hours of review time plus 20 hours for coordination. Following is the draft schedule for the EPR:

Submit EPR plan	February 2008
Battelle NTP to Execute EPR	14 March 2008
Finalize Peer Review Panel and Charges	16 April 2008
EPR Kickoff	29 April 2008
Complete EPR Commenting	26 May 2008
Final EPR Report	24 June 2008
SAJ Submits Clarifying Questions	14 July 2008
Battelle Submits Responses to Questions, ERP Complete	31 July 2008

8.0 PUBLIC REVIEW, AGENCY REVIEW AND PEER REVIEW PLAN POSTING

Public Review.

Public review of the draft PPDR and EA will be conducted concurrently with the External Peer Review. Public comments on review of the draft report and EA and at any public meetings held during the planning process will be included in the Final Report. Upon completion of the review period, comments will be consolidated in a matrix and addressed, if needed. A comment resolution meeting will take place if needed to decide upon the best resolution of comments. A summary of the comments and resolutions will be included in the final report.

Agency Review

State, Agency and Public Review of the Draft PPDR will begin after the completion of the ITR. The public review of necessary State or Federal permits will also take place during this period.

Peer Review Plan Posting

The Seepage Management Pilot External Peer Review Plan will be placed on the project's web page located on the CERP website, www.evergladesplan.org. In addition, it will be provided for posting on the appropriate page of the Planning CoP web site.

7.0 MODEL CERTIFICATION

SAJ submitted to the appropriate entities and communicated with USACE HQ to determine the acceptability of numerous models used in the Seepage Management PPDR process. The models include: MIKE11, MIKESHE, SEEP/W, SFWMM, SLOPE/W, and Watershed Assessment Model. Certification processes for planning and engineering models are currently undergoing refinement, but the SAJ has used due diligence and coordinated with PCX and HQ pending finalization of the certification process.

8.0 INDEPENDENT TECHNICAL REVIEW (ITR)

ITR will be conducted by a team external to the Jacksonville District Corps of Engineers and external to the PDT member offices for those team members for the Department of Interior National Park Service (DOI) and the South Florida Water Management District (SFWMD). It is initially envisioned the panel will mirror the PDT. DOI and SFWMD

will be offered the opportunity to participate in the ITR process and it is expected that they will offer 1-2 ITR Team (ITRT) Members.

The ECO PCX will manage ITR in accordance with EC-1105-2-408. Management tasks will include identifying, contacting, and selecting reviewers; preparing scopes of work; facilitating ITR, and executing ITR Certification. The ITR process will use the DrChecks software for comment and evaluation documentation. ITR of the Public Review Process is not a requirement. ITR will be conducted prior to EPR.

PDT Disciplines.

Planner/Plan Formulation
Biologist - NEPA and Water Quality Certification Professional
Hydrogeologist
Geosystems Engineer
Cost Engineer
Civil Engineer
Real Estate

Proposed ITRT Disciplines and Descriptions.

Hydrogeology ITRT Member. The Hydrogeology ITRT member should be a registered professional with experience in conducting and evaluating subsurface geologic data including hydraulic conductivity, groundwater modeling, computational analysis, and other groundwater design/management activities. ITRT member should be familiar with karst geology, the Floridan Aquifer and the hydrogeological aspects of Consumptive Use Permitting in the State of Florida including related Florida Department of Environmental Regulation rules and regulations. Active participation in related professional societies is encouraged.

Cost Engineering/Construction Management ITRT Member. MVR will coordinate with Cost Engineering Center of Expertise for the Cost Engineering/Construction Management ITRT Member. The Cost Engineering ITRT Member should be a Cost Engineer with demonstrated experience in performing cost engineering activities for all phases of subsurface geosystem projects such as cut-off walls. Team member should be familiar with similar projects across US and related Cost Engineering. Experience in associated contracting procedures, total cost growth analysis and related cost risk analysis is desired.

Geosystems ITRT Member. The Geosystems Panel Member should be a registered professional with experience in the design and construction of cut-off walls specifically, care and diversion of water in deep trenches up to 100 ft. deep and successful implementation of such projects. Knowledge of similar projects across US is

desired. Panel member should be familiar implementing projects in karst geology. Active participation in related professional societies is encouraged.

Biologist/NEPA and State Water Quality Certificate ITRT Member. The ITRT environmental compliance team member will be a degreed professional with demonstrated NEPA and EIS preparation experience for complex civil works projects that address groundwater usage. Team member will have experience with State Water Management District Consumptive Use Permitting and related Florida Department of Environmental Regulation drinking water and well permitting rules and regulations.

Planner/Plan Formulation ITRT Member. The Planner/Plan Formulation team member will be a degreed professional with demonstrated experience in performing plan formulation activities and report preparation for complex civil works projects. Team member will have experience with Corps of Engineers Planning Guidance.

Civil Engineer and Real Estate Specialist ITRT Members. The Civil Engineer and Real Estate Specialist will be senior level personnel with demonstrated project Pre-Construction, Engineering and Design Phase experience.

Schedule

The ITR will be conducted during Spring 2008. It is envisioned that each reviewer will be afforded 32 hours review plus 10 hours for coordination. Following is the draft schedule for the ITR:

ITRT Selected and Resourced	29 February 2008
ITR Kickoff and ITR Start	14 March 2008
ITRT Completes Comments	2 April 2008
PDT Completes Evaluations	9 April 2008
ITRT Completes Back Checks	14 April 2008
ITR Certification	16 April 2008