



DEPARTMENT OF THE ARMY
MISSISSIPPI VALLEY DIVISION, CORPS OF ENGINEERS
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39181-0080

REPLY TO
ATTENTION OF:

CEMVD-PD-SP

APR 24 2008

MEMORANDUM FOR Commander, Rock Island District

SUBJECT: Keith Creek Feasibility Study, Peer Review Plan (PRP)

1. References:

- a. EC 1105-2-408, 31 May 2005, Peer Review of Decision documents.
- b. Memorandum, CECW-CP, 30 March 2007, subject: Peer Review Process.
- c. Supplement to memorandum, CEMVD-PD-N, 30 March 2007, subject: Peer Review Process.
- d. Email, National Planning Center of Expertise for Flood Risk Management, 1 April 2008, subject: Final PRP Keith Creek FS PRP Backcheck2 (encl).

2. I hereby approve subject PRP and concur in the recommendation that external peer review of this project is not required for the following reasons: (1) the study will not produce influential scientific information, (2) the level of risk is low, and (3) the implementation costs are expected to be well below \$45 million. The proposed PRP has been coordinated with the National Planning Center of Expertise for Flood Risk Management (FRM-PCX) and concurred in by the FRM-PCX. The PRP complies with all applicable policy and provides an adequate independent technical review of the plan formulation, engineering and environmental analyses, and other aspects of the plan development. Non-substantive changes to this PRP do not require further approval.

CEMVD-PD-SP

SUBJECT: Keith Creek Feasibility Study, Peer Review Plan (PRP)

3. The District should post the PRP to its web site and provide a link to the FRM-PCX for posting on their web page, as well as providing a copy of the final approved PRP to the FRM-PCX for their use. Before posting to the web site, the names of Corps/Army employees should be removed in accordance with reference 1.b. above.

4. The MVD point of contact is Mr. Terry Smith, CEMVD-PD-SP, (601) 634-5840.

Encl



MICHAEL B. ROGERS, P.E.
Engineer in Charge

PEER REVIEW PLAN

**KEITH CREEK FEASIBILITY STUDY
CITY OF ROCKFORD, ILLINOIS**

ROCK ISLAND DISTRICT

MARCH 2008

Revision 2 – April 2008
FRM-PCX Concurrence

Revision 3 – April 24, 2008
CEMVD-PD-SP
Approval



**US Army Corps
of Engineers**®
Rock Island District

PEER REVIEW PLAN
KEITH CREEK FEASIBILITY STUDY
CITY OF ROCKFORD, ILLINOIS
ROCK ISLAND DISTRICT

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PEER REVIEW PLAN
KEITH CREEK FEASIBILITY STUDY
CITY OF ROCKFORD, ILLINOIS
ROCK ISLAND DISTRICT

1. PURPOSE AND REQUIREMENTS

A. Purpose. This document outlines the peer review plan for Keith Creek Feasibility Study. Engineering Circular (the Circular) *Peer Review of Decision Documents* 1105-2-408, dated 31 May 2005 1) establishes procedures to ensure the quality and credibility of Corps decision documents by adjusting and supplementing the review process and 2) requires that documents have a peer review plan. The Circular applies to all feasibility studies and reports and any other reports that lead to decision documents that require authorization by Congress. The feasibility level reports (PIRs) in this program will lead to Congressional Authorization and are therefore covered by the Circular.

B. Requirements. The Circular outlines the requirement of the two review approaches [independent technical review (ITR) and external peer review (EPR)] and provides guidance on Corps Planning Centers of Expertise (PCX) involvement in the approaches. This document addresses review of the decision document as it pertains to both approaches and planning coordination with the appropriate Center.

(1) 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. The Circular also requires that DrChecks (<https://www.projnet.org/projnet/>) be used to document all ITR comments, responses, and associated resolution accomplished.

(2) EPR. The Circular added external peer review to the existing Corps review process. This approach does not replace the standard ITR process. The external peer review approach applies in special cases where the magnitude and risk of the project are such that a critical examination by a qualified person outside the Corps is necessary. EPR can 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. The degree of independence required for technical review increases as the project magnitude and project risk increase.

- (a) Projects with low magnitude and low risk may use a routine ITR.
- (b) Projects with either high magnitude/low risk or low magnitude/high risk would require both Corps and outside reviewers on the ITR team to address the portions of the project that cause the project to rate high on the magnitude or risk scale.
- (c) Projects with high magnitude and high risk require a routine ITR as well as an EPR.

(3) **PCX Coordination.** The Circular outlines PCX coordination in conjunction with preparation of the review plan. Districts should prepare the plans in coordination with the appropriate PCX. The Corps PCX are responsible for the accomplishment and quality of ITR and EPR for decision documents 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 Project Review will consolidate the lists of all review plans and establish a mechanism for soliciting public feedback on the review plans.

2. PROJECT DESCRIPTION

A. Decision Document. The purpose of the study is to identify and evaluate Flood Risk Management (FRM) options in the Keith Creek Watershed. The decision document will present planning, engineering, and implementation details of the recommended plan to allow final design and construction to proceed subsequent to the approval of the plan. The project is a General Investigations study undertaken to evaluate structural and non-structural flood damage reduction measures including repairs/improvements to Alpine Dam for a local flood protection project on Keith Creek at Rockford, Illinois. The feasibility phase of this project is cost shared 50/50 with the project sponsor, the City of Rockford.

B. General Site Description. Keith Creek is located in the city of Rockford, Winnebago Co., IL. It has a 14.6 square-mile drainage area. The creek downstream of Alpine Dam traverses through a heavily developed urban area and has inadequate capacity to contain flood flows. Alpine Dam is an earth fill flood control dam constructed by the Works Project Administration (WPA) for the City of Rockford in 1942, and does not meet current Federal standards. The spillway is 66 years old and is in poor condition. The dam lacks capacity to safely pass the design flood and fails to adequately protect the urban areas downstream from flooding. The estimated property damage that could be caused by a dam failure is \$37,000,000. In 2006 and again in 2007, rain covered the Keith Creek watershed, causing flooding along the S. Branch of Keith Creek. More severe flooding of Keith Creek was avoided by the city's operation of Alpine Dam.

C. Project Scope. The study will focus on FRM alternatives along the North and South Branches of Keith Creek and will evaluate alternatives to reduce flood risk at Alpine Dam. The preliminary estimated total project cost is \$5 million to \$7 million.

D. Problems and Opportunities. The primary problems on Keith Creek are 1) the potential for dam failure and 2) flow restriction. Keith Creek has been significantly impacted by urbanization since the construction of Alpine Dam. The dam is considered a high hazard dam. The City is concerned that the dam does not provide adequate flood protection for downstream residents. It is in poor conditions due to its age and does not meet current Federal design standard. An assessment report prepared by the Corps in 1999 indicated that major repairs to the spillway and improved maintenance procedures were needed to ensure safe operation of the dam. In addition the reservoir behind the dam may not have adequate capacity to effectively prevent flooding and the spillway may not have the capacity to safely handle large flood events.

By applying the average population density to the area downstream of the dam, it is estimated that approximately 4,700 residential units and a population of 11,000 people are downstream of the Alpine Dam. Much of the natural floodplain has been developed, and flood flows in the lower reaches of Keith Creek are restricted by the 30 bridges and culverts along its length. This can result in flooding that may threaten the public health and safety of those residing along the stream. The City has estimated that a catastrophic failure of Alpine Dam could result in damage to properties with an assessed value of \$133 million. The Corps analysis of the dam failure indicated that low-lying areas of the watershed would be flooded to a depth of approximately 3.5 feet and property damage value of \$37.5 million. Opportunities exist to reduce the risk of dam failure and reduce areas of flow restriction.

E. Potential Methods. The following is a partial list of measures that will be considered during the feasibility study:

- regional storm water detentions
- removal of structural obstructions to flow (bridges and under-sized hydraulic structures)
- modifications to the Alpine Dam Spillway including but not limited to:
 - widening the spillway by a minimum of 125 feet
 - increasing the spillway crest and widening it to 180 feet
 - in kind repair of the spillway
- construction of a dam along the South Branch
- increased channel capacity
- bypass diversion culvert
- possible recreation and environmental enhancement features

Unit hydrographs and runoff hydrographs will be developed using HEC-HMS software. The team will review the 1979 Flood Insurance Study flow frequency values using the state regression equations adjusted for urbanization and consideration of hydrologic changes within the basin using the Flood Characteristics of Urban Watersheds in the United States paper (USGS, V.B. Sauer, 1983). Certification of the HEC-HMS software is anticipated at the National level so the District does not plan to request certification specifically for this project.

F. Product Delivery Team. The product delivery team (PDT) is comprised of those individuals directly involved in the development of the decision document. Individual contact information and disciplines are presented in appendix B.

G. Vertical Team. The Vertical Team includes District management, District Support Team (DST) and Regional Integration Team (RIT) staff as well as members of the Planning of Community of Practice (PCoP). Specific points of contact for the Vertical Team can be found in appendix B.

H. Certification. The *computational models* to be employed in the Keith Creek Feasibility Study have either been developed by or for the USACE. More specifically, the models to be employed in the completion this feasibility study are:

- MCACES: This is a cost estimating model that was developed by Building Systems Design Inc. The Army Corps of Engineers began using this model in 1989.

- HEC-FDA: This model, developed by the Corps' Hydrological Engineering Center, will assist the PDT in applying risk analysis methods for flood damage reduction studies as required by, EM 1110-2-1419. This program:
 - Provides a repository for both the economic and hydrologic data required for the analysis
 - Provides the tools needed to understand the results
 - Calculates the Expected Annual Damages and the Equivalent Annual Damages
 - Computes the Annual Exceedence Probability and the Conditional Non-Exceedence Probability
 - Implements the risk-based analysis procedures contained in EM 1110-2-1619

- HEC-RAS: The function of this model is to complete one-dimensional hydraulic calculations for a full network of natural and man made channels. HEC-RAS major capabilities are
 - User interface
 - Hydraulic Analysis
 - Data storage and Management
 - Graphics and reporting

- HEC-HMS: By applying this model the PDT is able to:
 - Define the watersheds' physical features
 - Describe the metrological conditions
 - Estimate parameters
 - Analyze simulations
 - Obtain GIS connectivity

- GMS
 - Seepage analysis

- Utexas4
 - Slope stability Analysis

Model certification and approval for all identified planning models will be coordinated through the PCX as needed. Project schedules and resources will be adjusted to address this process for certification and PCX coordination.

3. INDEPENDENT TECHNICAL REVIEW PLAN

As outlined above in paragraph 1.B. (1), the District is responsible for ensuring adequate technical review of decision documents. The responsible PDT District of this decision document is Rock Island (MVR). It is recommended that the Flood Risk Management PCX nominate individuals to serve as the review team.

A. General. An ITR Manager shall be designated for the ITR process. The proposed ITR Manager for this project is To Be Determined (TBD). The ITR Manager is responsible for providing information necessary for setting up the review, communicating with the Study Manager, providing a summary of critical review comments, collecting grammatical and editorial comments from the ITR team (ITRT), ensuring that the ITRT has adequate funding to perform the review, facilitating the

resolution of the comments, and certifying that the ITR has been conducted and resolved in accordance with policy.

B. ITR Team (ITRT). The ITRT will be comprised of individuals that have not been involved in the development of the decision document and will be chosen based on expertise, experience, and/or skills. The members will roughly mirror the composition of the PDT. It is anticipated that the team will consist 9-11 reviewers. The ITRT members will be identified at the time the review is conducted and will be presented in appendix B.

C. Communication. The communication plan for the ITR is as follows:

(1) The team will use DrChecks to document the ITR process. The Study Manager will facilitate the creation of a project portfolio in the system to allow access by all PDT and ITRT members. An electronic version of the document, appendices, and any significant and relevant public comments shall be posted in Word format at: <ftp://ftp.usace.army.mil/pub/> at least one business day prior to the start of the comment period.

(2) The PDT shall send the ITR manager one hard copy (with color pages as applicable) of the document and appendices for each ITRT member such that the copies are received at least one business day prior to the start of the comment period.

(3) The PDT shall host an ITR kick-off meeting virtually to orient the ITRT during the first week of the comment period. If funds are not available for an on-site meeting, the PDT shall provide a presentation about the project, including photos of the site, for the team.

(4) The Study Manager shall inform the ITR manager when all responses have been entered into DrChecks and conduct a briefing to summarize comment responses to highlight any areas of disagreement.

(5) A revised electronic version of the report and appendices with comments incorporated shall be posted at <ftp://ftp.usace.army.mil/pub/> for use during back checking of the comments.

(6) Team members shall contact ITRT members or leader as appropriate to seek clarification of a comment's intent or provide clarification of information in the report. Discussions shall occur outside of DrChecks but a summary of discussions may be provided in the system.

(7) Reviewers will be encouraged to contact PDT members directly via email or phone to clarify any confusion. DrChecks shall not be used to post questions needed for clarification.

(8) The ITRT, the PDT, and the vertical team shall conduct an after action review (AAR) no later than 2 weeks after the policy guidance memo is received from HQUSACE for the for the AFB and draft reports.

D. Funding

(1) The PDT district shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Study Manager will work with the ITR manager to ensure that adequate funding is available and is commensurate with the level of

review needed. The current cost estimate for this review is \$20,000. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

(2) The team leader shall provide organization codes for each team members and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes.

(3) Reviewers shall monitor individual labor code balances and alert the ITRT Study Manager to any possible funding shortages.

E. Timing and Schedule

(1) Throughout the development of this document, the team will hold planning charrettes to ensure planning quality. Senior staff and subject matter experts from the PDT District and members of the vertical team (DST, Planning CoP, and RIT as needed) will attend the charrettes and provide comments on the product to date.

(2) The ITR will begin once a recommended plan has been selected, the preliminary design is complete, and the environmental assessment has been performed.

(3) The PDT will hold a “page-turn” session to review the draft report to ensure consistency across the disciplines and resolve any issues prior to the start of ITR. Writer/editor services will be performed on the draft prior to ITR as well.

(4) The ITR process for this document will follow the timeline below. Actual dates will be scheduled once the period draws closer. It is estimated that review of the report will be begin in the 4th Quarter of FY 2009.

Task	Date
ITR of Draft Report Comment Period	Begin Week 1
Kickoff meeting	Week 1
ITR Comments	Due Week 4
PDT Responses	Due Week 6
Responses Backcheck	Week 8
Alternative Formulation Briefing (AFB)	Week 14
AFB Policy Memo Issued	Week 18
ITR Interim Certification	Week 18
Draft Report Complete	Week 20
ITR After Action Review	NLT Week 20
Public Review of Draft Report	Begin Week 25
ITR Certification/Completion	Week 32
Final Report	Completed Week 40

F. Review

- (1) ITRT responsibilities are as follows:
 - (a) Reviewers shall review the draft report to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments on the report shall be submitted into DrChecks.
 - (b) Reviewers shall pay particular attention to one's discipline but may also comment on other aspects as appropriate. Reviewers that do not have any significant comments pertaining to their assigned discipline shall provide a comment stating this.
 - (c) Grammatical and editorial comments shall not be submitted into DrChecks. Comments should be submitted to the ITR manager via electronic mail using tracked changes feature in the Word document or as a hard copy mark-up. The ITR manager shall provide these comments to the Study Manager.
 - (d) Review comments shall contain these principal elements:
 - a clear statement of the concern
 - the basis for the concern, such as law, policy, or guidance
 - significance for the concern
 - specific actions needed to resolve the comment
 - (e) The "Critical" comment flag in DrChecks shall not be used unless the comment is discussed with the ITR manager and/or the Study Manager first
- (2) PDT Team responsibilities are as follows:
 - (a) The team shall review comments provided by the ITRT in DrChecks and provide responses to each comment using "*Concur*", "*Non-Concur*", or "*For Information Only*". *Concur* responses shall state what action was taken and provide revised text from the report if applicable. *Non-Concur* responses shall state the basis for the disagreement or clarification of the concern and suggest actions to negotiate the closure of the comment.
 - (b) Team members shall contact the PDT and ITRT managers to discuss any "Non-Concur" responses prior to submission.

G. Resolution

- (1) Reviewers shall back check PDT responses to the review comments and either close the comment or attempt to resolve any disagreements. Conference calls shall be used to resolve any conflicting comments and responses.
- (2) Reviewers may "agree to disagree" with any comment response and close the comment with a detailed explanation. If reviewer and responder cannot resolve a comment, it should be brought to the attention of the ITR manager and, if not resolved by the ITR manager, it should be brought to the attention of the planning chief who will need to sign the certification. ITRT members shall keep

the ITR manager informed of problematic comments. The vertical team will be informed of any policy variations or other issues that may cause concern during HQ review.

H. Certification

To fully document the ITR process, a statement of technical review will be prepared. Certification by the ITR manager and the Study Manager will occur once issues raised by the reviewers have been addressed to the review team's satisfaction and the final report is ready for submission for HQ review. Indication of this concurrence will be documented by the signing of a certification statement (Appendix A). A summary report of all comments and responses will follow the statement and accompany the report throughout the report approval process. An interim certification will be provided by the ITR team lead to indicate concurrence with the report to date until the final certification is performed when the report is considered final.

I. Alternative Formulation Briefing (AFB)

The AFB for this project will occur after the majority of the ITR comments have been resolved. It is possible that the briefing will result in additional technical or policy comments from high level reviewers for resolution. The resolution of significant policy comments may result in major changes to the document. Therefore, the ITR team lead will perform a brief review of the report to ensure that technical issues are resolved.

4. EXTERNAL PEER REVIEW PLAN

This decision document will present the details of a feasibility study undertaken to evaluate structural and non-structural flood damage reduction measures including repairs/improvements to Alpine Dam for a local flood protection project on Keith Creek at Rockford, Illinois as described in paragraph 2 above. This project does not meet the EPR standards outlined in the Circular.

A. Project Magnitude. The magnitude of this project is determined as low. The cost of the project will not exceed \$5 million. It is assumed that the amount of benefits accrued by the project will be worth the cost because the cost benefit ratio from the reconnaissance study was 1.3 with net NED benefits of \$36,200. The scale of the project is limited because the project construction footprint will be limited because many of the features involve removal of obstructions and repairs to existing structures. The project is not considered complex and involves implementation of standard concepts. It is anticipated that the report will not present influential scientific information or influential scientific assessments, thus only an ITR is anticipated to be required.

B. Project Risk. This project is considered low risk overall. The potential for failure is low because the project involves straight forward concepts with numerous successful national applications. The potential for controversy regarding project implementation is low because the recommended plan will take into account the public concerns. A socio-economic analysis will be prepared and at least one public meeting will be held. The uncertainty of success of the project is low because the methods used for evaluating the project are standard and the concept of implementing proposed project features is not innovative.

C. Vertical Team Consensus. This peer review plan will serve as the coordination document for to obtain vertical team consensus. Subsequent to PCX approval, the plan will be provide to the vertical team for approval. MSC approval of the plan will indicate vertical team consensus.

A separate EPR will not be conducted on the decision document and external members will not be part of the ITR team. The ITR, Public and Agency Review will serve as the main review approaches.

5. PUBLIC AND AGENCY REVIEW

- Public review of the draft report will occur after issuance of the AFB policy guidance memo and concurrence by HQUSACE that the document is ready for public release. As such, public comments other than those provided at any public meetings held during the planning process will not be available to the review team.
- Public review of the draft report will begin approximately 1 month after the completion of the ITR process and policy guidance memo. The period will last 30 days as required.
- The public review of necessary state or Federal permits will also take place during this period.
- A formal State and Agency review will occur concurrently with the public review. However, it is anticipated that intensive coordination with these agencies will have occurred concurrent with the planning process.
- 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 document.

6. PCX COORDINATION

The appropriate PCX for this document is the National Flood Risk Management Center of Expertise located at SPD. This review plan will be submitted to the PCX Director, Eric Thaut, for approval. Since it was determined that this project is low magnitude and low risk, an EPR will not be required. As such, the PCX will not be asked to manage the review, but is requested to nominate the ITR team as discussed in paragraph 3.b. above. The approved review plan will be posted to the PCX website. Any public comments on the review plan will be collected by the Office of Water Project Review (OWPR) and provided to the PDT District for resolution and incorporation if needed.

7. APPROVALS

The PDT will carry out the review plan as described. The Study Manager will submit the plan to the PDT District Planning Chief for approval. Coordination with PCX will occur through the PDT District Planning Chief. Signatures by the individuals listed in Appendix A indicate approval of the plan as proposed.

PEER REVIEW PLAN

**KEITH CREEK FEASIBILITY STUDY
CITY OF ROCKFORD, ILLINOIS**

ROCK ISLAND DISTRICT

**APPENDIX A
STATEMENT OF TECHNICAL REVIEW**

**COMPLETION OF INDEPENDENT TECHNICAL REVIEW
KEITH CREEK PROJECT
FEASIBILITY STUDY
WITH INTEGRATED ENVIRONMENTAL ASSESSMENT
AND APPENDICES**

The Rock Island District has completed the project implementation report (feasibility report) with integrated environmental assessment and appendices of the Keith Creek Project. Notice is hereby given that an independent technical review, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses; alternatives evaluated; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The ITR was accomplished by an independent team composed of staff from multiple districts. All comments resulting from the ITR have been resolved.

TBD _____

NAME
Team Leader, Keith Creek Project
Independent Technical Review Team

Date

REMOVED
Program Manager, Keith Creek Project

Date

CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW

A summary of all comments and responses is attached. Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact and resolution)

As noted above, all concerns resulting from the independent technical review of the project have been fully resolved.

REMOVED
Chief, Planning and Policy Branch
Rock Island District

Date

PEER REVIEW PLAN

**KEITH CREEK FEASIBILITY STUDY
CITY OF ROCKFORD, ILLINOIS**

ROCK ISLAND DISTRICT

APPENDIX B

PEER REVIEW PLAN TEAMS

