



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DIVISION, GREAT LAKES AND OHIO RIVER
CORPS OF ENGINEERS
550 MAIN STREET
CINCINNATI, OH 45202

CELRD-PD-R

22 OCT 13

MEMORANDUM FOR Commander, U.S. Army Engineer District, Louisville, Attention, Mrs. Sharon Bond (CELRD-PM-P), Louisville District, U.S. Army Corps of Engineers, 600 Dr. Martin Luther King Jr. Place, Louisville, Kentucky 40202

SUBJECT: Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study Review Plan LRD Approval Memorandum

1. The attached Review Plan (RP) for the Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study was distributed for review at the Great Lakes and Ohio River Division in accordance with EC 1165-2-214 "Civil Works Review" on 13 September 2013.
2. The projects are located on the Green and Barren Rivers in Kentucky. Green River Locks and Dams 3 - 6 and Barren River Lock and Dam 1 are navigation facilities that are no longer in use. The facilities and the pools are no longer maintained by the U. S. Army Corps of Engineers. However, the Corps still has ownership of the properties and inspects the facilities periodically.
3. The Study will evaluate the formerly used navigation facilities at Locks and Dams 3 - 6 on the Green River and Lock and Dam 1 on the Barren River. The Study will evaluate whether to recommend
 - a. Possible deauthorization and/or
 - b. Disposal of facilities.

If deauthorization of the facilities is found to be most favorable, the sites could then be disposed of using the provisions regarding surplus government property administered by the General Services Administration (GSA).

4. The Green River Locks and Dams 3 - 6 and Barren River Lock and Dam 1 Disposition Study will produce a Disposition Report, including all activities involved during the Study. This Study was authorized by Section 216 of the Flood Control Act of 1970 (P.L. 91-611). This provides general authority for the Secretary of Army to review completed projects, when found advisable due to changed physical, economic or environmental conditions.
5. A study was done in the early 1990's to determine if it would be feasible to restore navigation to the upper reaches of the Green River. This study found that there would be insufficient benefits from commercial navigation operations to support restoration of navigation. Currently, the Corps of Engineers maintains the properties in a caretaker status. In 1998, a Phase 1 cultural

Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study
Review Plan LRD Approval Memorandum

resources examination was undertaken of property associated with Locks and Dams 3, 4, 5, and 6 along the Green River and Lock and Dam 1 on the Barren River in south-central Kentucky. No evidence of either prehistoric or undisturbed historic-era remains was encountered and no further archaeological studies are recommended on these parcels. An Environmental Baseline Survey (EBS) was performed in February 2000 to determine the possibility that the sites have been contaminated by HTRW or that the potential exists for contamination by such materials. Some indications of the presence, or potential presence, of hazardous or toxic materials were noted at almost all of the properties surveyed during the EBS. However, based on the information reviewed and physical observations, there is no evidence that significant amounts of hazardous materials were ever stored, handled, transported, disposed, or otherwise released at any of the locks and dams within the study area. A feasibility study was performed in 2004 recommending deauthorization and disposal of Green River Locks and Dams 3-6 and Barren River Lock and Dam 1. The recommended alternative consists of demolition of the dam at Green River Lock & Dam 6 (which will restore the Green River to its natural conditions at Mammoth Cave) and filling the lock chambers at Green River Locks & Dams 3-5 and Barren River Lock and Dam 1.

6. The Review Plan (RP) is the key to ensuring credibility and accountability for the Green River Locks and Dams 3 - 6 and Barren River Lock and Dam 1 Disposition Study through the definition of scope and level of peer review for the decision document. Additionally, this RP is the basis for compliance with the Information Quality Act requirement to ensure and maximize the quality, objectivity, utility and integrity of information provided in this report to be disseminated by the agency.

7. The USACE LRD Review Management Organization (RMO) has reviewed the attached RP and concurs that it describes the scope of review for work phases and addresses all appropriate levels of review consistent with the requirements described in EC 1165-2-214.

8. I concur with the recommendations of the RMO and approve the enclosed RP for the Green River Locks and Dams 3 - 6 and Barren River Lock and Dam 1 Disposition Study.

9. The District is requested to post the RP to its website. Prior to posting, the names of all individuals identified in the RP should be removed.

10. If you have any questions or need additional information, please contact Mrs. Adrienne Gordon, P.E., PMP, CELRD-PD-R, at (513) 684-6055.

Encl
Review Plan


MARGARET W. BURCHAM
Brigadier General, USA
Commanding

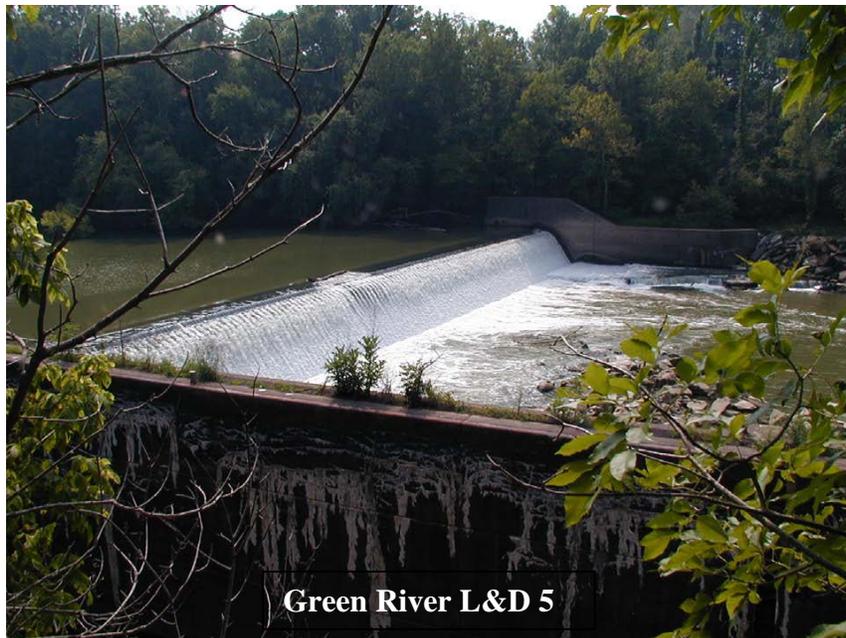
Decision Document Review Plan

Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study

Louisville District

MSC Approval Date: 22 October 2013

Last Revision Date: 9 October 2013



**US Army Corps
of Engineers®**

REVIEW PLAN

**Green River Locks and Dams 3, 4, 5 and 6
and
Barren River Lock and Dam 1
Disposition Study**

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study, Kentucky.

b. References

- (1) Engineering Circular (EC) 1165-2-214, Civil Works Review Policy, 15 Dec 2012.
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011.
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006.
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007.
- (5) Project Management Plan (PMP) for Green River Locks and Dams 3, 4, 5 and 6 And Barren River Lock and Dam 1 Disposition Study.
- (6) ISO Process; Document ID: 4282, Great Lakes and Ohio River Division, Preparation and Approval of Civil Works Review Plans, 12 Dec 2011.

c. Requirements. This review plan, a component of the quality control plan (QCP) of the project management plan (PMP) was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-214) and planning model certification/approval (per EC 1105-2-412).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Planning Center of Expertise for Inland Navigation (PCXIN). The Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study Review Plan was approved by the PCXIN on 29 August 2013. The PCXIN endorsement memorandum is located in Attachment 5.

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies.

3. STUDY INFORMATION

a. Decision Document. The Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study will produce a Disposition Report including all activities involved during the Study. This study was authorized by Section 216 of the Flood Control Act of 1970 (P.L. 91-611). This provides general authority for the Secretary of the Army to review completed projects, when found advisable due to changed physical, economic, or environmental conditions.

The purpose of this study is to evaluate the formerly used navigation facilities located on the Green and Barren Rivers in Kentucky. These facilities include Locks and Dams 3, 4, 5, and 6 on the Green River and Lock and Dam 1 on the Barren River. This evaluation will be used to make recommendations regarding the possible deauthorization and/or disposal of the facilities. The goal of the study is to provide data necessary to make recommendations as to possible deauthorization of the facilities at the five lock and dam sites. Upon a favorable finding regarding deauthorization of the facilities, the sites could then be disposed of using the provisions regarding surplus government property administered by the General Services Administration (GSA).

This report will include National Environmental Policy Act (NEPA) compliance activities. NEPA compliance includes all activities leading up to the assessment of environmental impacts related to the Study such as scoping and preparation of the Environmental Assessment (EA), public coordination and review, and notification of findings. Also included in this report will be any environmental compliance documentation, coordination of the study and results with all interested parties, initial and final review. This report will require a Chief's report and Congressional Authorization. The EA will be integrated into the final report.

b. Study/Project Description.

Green River Locks and Dams 3 - 6 and Barren River Lock and Dam 1 are navigation facilities that are no longer in use. The facilities and the pools are no longer maintained by the Corps of Engineers; however, the Corps still has ownership of the properties and inspects the facilities periodically. A study was done in the early 1990's to determine if it would be feasible to restore navigation to the upper reaches of the Green River. This study found that there would be insufficient benefits from commercial navigation operations to support restoration of navigation. Currently, the Corps of Engineers maintains the properties in a caretaker status.

In 1998, a Phase 1 cultural resources examination was undertaken of property associated with Locks and Dams 3, 4, 5, and 6 along the Green River and Lock and Dam 1 on the Barren River in south-central Kentucky. No evidence of either prehistoric or undisturbed historic-era remains was encountered and no further archaeological studies are recommended on these parcels. The locks and dams themselves are considered eligible for the National Register of Historic Places and the required level of documentation needed on these navigation facilities remains to be coordinated with the Kentucky State Historic Preservation Officer. Prior to disposal of properties, and or removal of structures, appropriate documentation for each site including history and photographs of each lock, dam and associated structures may need to be provided for review to the Kentucky Heritage Council.

This effort will document the existing structures at these facilities and coordinate the results of these studies with the Kentucky Heritage Council (State Historic Preservation Officer). To date, the District has completed a brief historical overview of the Green and Barren rivers navigation system and prepared archival quality photo documentation of all existing structures. A report containing this information was completed in July 2000. The District expects that these facilities will be determined eligible for inclusion in the National Register of Historic Places and will require an as yet undetermined level of additional research and documentation.

Additionally, an environmental baseline survey (EBS) was performed in February 2000 to determine the possibility that the sites have been contaminated by HTRW; or, that the potential exists for contamination by such materials. Some indications of the presence, or potential presence, of hazardous or toxic materials were noted at almost all of the properties surveyed during the EBS. However, based on the information reviewed and physical observations, there is no evidence that

significant amounts of hazardous materials were ever stored, handled, transported, disposed, or otherwise released at any of the locks and dams within the study area.

A feasibility study was performed in 2004 recommending deauthorization and disposal of Green River Locks and Dams 3-6 and Barren River Lock and Dam 1. The recommended alternative consists of demolition of the dam at Green River Lock & Dam 6 (which will restore the Green River to its natural conditions at Mammoth Cave) and filling the lock chambers at Green River Locks & Dams 3-5 and Barren River Lock and Dam 1.

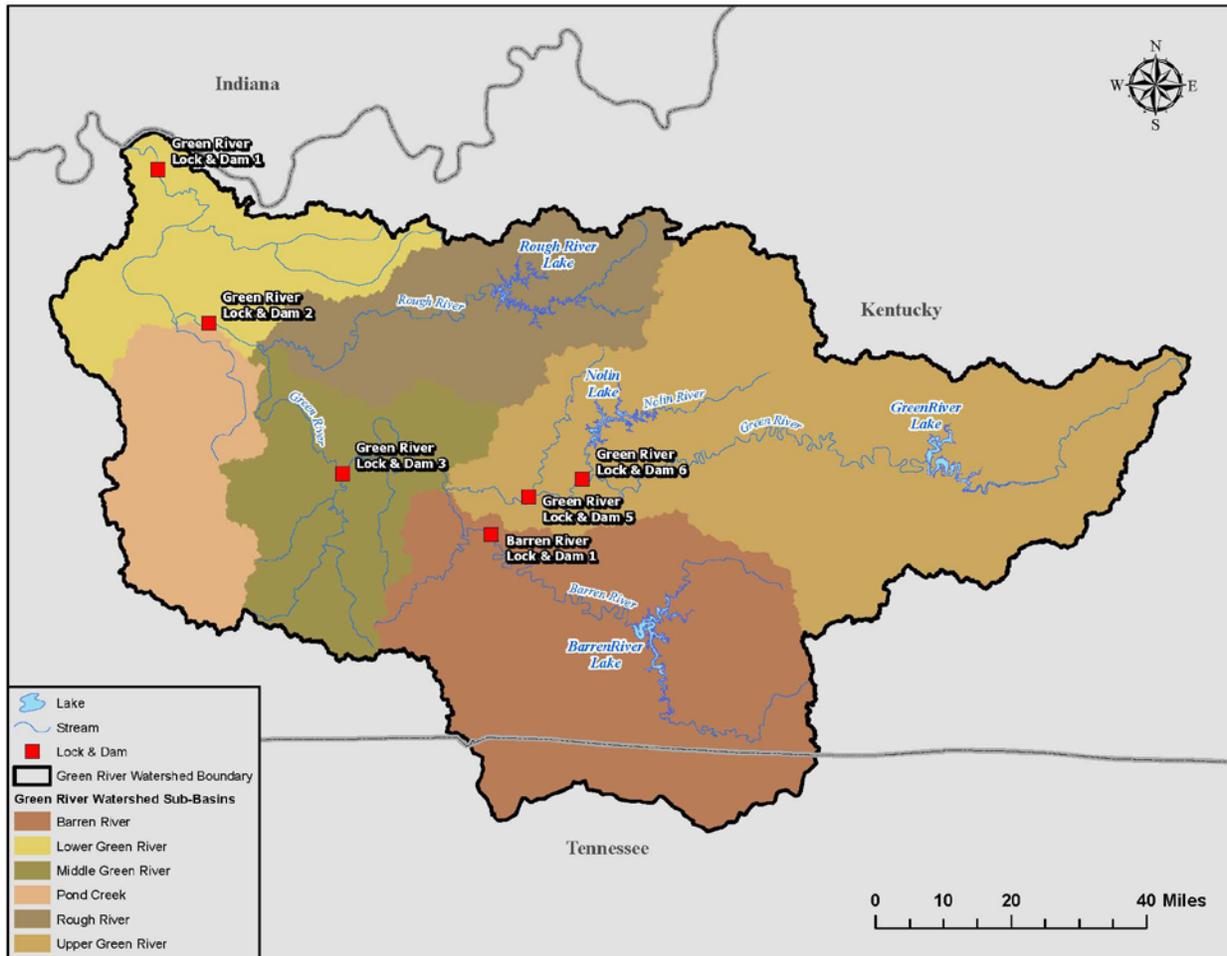
Regarding the removal of Dam 6, prior to any disturbance of bottom sediments upstream of the dams, sediment samples will be obtained and analyzed in accordance with state and Federal requirements. Any further testing or remedial action will also be performed in accordance with those same requirements.

Removal of Lock & Dam 6 would return 17 miles of natural river habitat to its natural condition. Species composition would change to the more natural community present above Pool 6 on the Green River. As recolonization by pre-project fish species occurs, those fish species that serve as hosts for glochida of freshwater mussels would increase the potential for recolonization of restored riverine habitats by mussels. There would likely be long-term beneficial impacts to threatened and endangered mussels and their habitat. Although some Federally endangered mussels appear to have adapted to the pooling conditions, this habitat is not considered preferred. The endangered aquatic species present in the project area appear to prefer the habitat of free flowing streams to that of impounded streams. Removal of the dam and flushing of accumulated sediments would re-expose gravel bars within the channel, which could then be recolonized by mussels.

Because Federally endangered mussels are found within the project area, a mussel survey would be conducted in the areas proposed for construction of the temporary embankment/access road. Results of the survey will be forwarded to the USFWS for review and concurrence.

A decision on how to proceed with the recommendations in the 2004 feasibility study referenced above was not reached until 2008 and project funding was not available until 2013. Consequently, the 2004 feasibility study requires updating of project cost estimates, NEPA compliance activities, public coordination and study reviews.

Figure 1 – Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1



c. Factors Affecting the Scope and Level of Review. This review plan will describe the anticipated review process and levels of review for the Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study.

- There is regional interest in the future use of these Locks and Dams following disposal. Currently, the pools maintained by these facilities support municipal, agricultural, and industrial water intakes, boat ramps and other recreational facilities. Incorporating these diverse interests into planning recommendations consistent with Corps of Engineers policy and guidance could potentially prove challenging.
- The risks of significant loss of life due to failure of one of the navigation dam components are unlikely. Moreover, this study recommends filling the lock chambers at Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 to prevent accidents resulting from falls into the abandoned chamber. By not taking action on study recommendations increases the exposure of these Federal properties to safety concerns.
- The study will not be justified by life safety and is not likely to involve significant threat to human life/safety assurance.
- There has been no formal or informal request by the Governor of Kentucky to conduct any detailed reviews of the results of this disposition study.

- At this time, it is also not anticipated that any request for project authorization from Congress would involve a project of a complex, controversial, or excessively costly nature. It is not expected that implementation costs will exceed the \$45 million cutoff for IEPR requirement.
- Based on the previous feasibility work, there is expected to be broad public interest in the study recommendations. However, there is not expected to be any public dispute, assuming project recommendations do not deviate from those described in the 2004 report.
- The information developed in this study is not expected to require any novel methods, precedent-setting methods, innovative techniques or require use of any uncertified analysis models.
- This study consists of the removal of Green River Dam 6 and filling the lock chamber with stone to prevent accidents resulting from falls into the abandoned chamber. The work at the remaining projects consists of filling the chambers with large size rock for safety concerns. These activities do not present any additional threat to safety beyond typical risks during demolition and construction. Consequently, there is no need to incorporate redundancy or robustness into the study methodology.

d. In-Kind Contributions. Not applicable - this feasibility study is conducted at 100% Federal funding.

4. DISTRICT QUALITY CONTROL (DQC)

All documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be accomplished in accordance with the Quality Manual of the home District and MSC.

- a. Documentation of DQC.** DQC is documented in a Quality Control Plan (QCP), which summarizes the reviewed product, review process, and major issues and their resolution. This QCP, signed by the Project Delivery Team (PDT) and DQC team, will be provided to the Agency Technical Review Team (ATR) team at each review. The DQC process is outlined as an Appendix in the feasibility report. Each member of the PDT will ensure a quality product in their functional area through internal design checks, seamless reviews, and interaction with the ATR. Only quality products will be released for use by other PDT members.
- b. Products to Undergo DQC.** The feasibility study materials will undergo DQC consistent with the District/MSD Quality Management plans.
- c. Required DQC Expertise.** DQC checks will be performed by qualified staff within each discipline to include engineering, geotechnical, operations, environmental, economics, plan formulation, real estate, cost engineering and legal. Supervisors within each area of responsibility will assign appropriate qualified staff to perform QC on their respective products. Personnel performing QC shall have the necessary expertise to address compliance with published Corps policy.
- d. The final DQC will be provided to the ATR team prior to their review.**

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically

correct and comply with published USACE guidance, and that the document explains the analyses and results in a clear format for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR. The Green River Locks and Dams 3, 4, 5 and 6 And Barren River Lock and Dam 1 Disposition Study, Kentucky, will be subject to ATR. This will include updated cost estimates, as well as NEPA compliance activities.

b. Required ATR Team Expertise.

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning - Navigation	The Planning reviewer should be a senior water resources planner with experience in inland navigation including water supply issues.
Environmental and Cultural Resources	The environmental and cultural resources reviewer will have an extensive background in evaluating environmental quality and cultural and historic resource issues related to inland navigation. In addition, this reviewer will have expertise in in endangered species compliance.
Economics	The Economics reviewer should be experienced with economic factors influencing natural resource use and projects that ensure both economic and environmental stewardship.
Civil / Structural Engineering	The Engineering reviewer should be experienced in the operation and maintenance of navigation locks and dams including structural and mechanical components, potential failures at navigation structures and knowledge of failure modes and risks of failure at these structures.
Real Estate	The Real Estate reviewer should be a reviewer with experience in inland navigation and the issues related to Corps of Engineers and GSA property disposal procedures.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- a) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- b) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;

- c) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- d) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work reviewed to date, for the draft report and final report. A sample Statement of Technical Review is included in Attachment 2. Team members and expertise are identified in Attachment 1.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- Type I IEPR. Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and

environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.

- Type II IEPR. Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare. Type II IEPR is not required for this study.
- a. **Decision on IEPR.** A Type I IEPR will not be performed on this study. The factors informing this decision are described in paragraph 2.C. of this document and outlined below:
- a) Federal action is not justified by life safety or failure of the project would not pose a significant threat to human life and life safety consequences and risks of non-performance of a project are not greater than under existing conditions;
 - b) The estimated project cost is below the \$45 million threshold;
 - c) There is no request from the Governor of Kentucky for a peer review by independent experts;
 - d) The project does not require an EIS;
 - e) The project/study is not likely to involve significant public dispute as to the size, nature, or effects of the project;
 - f) The project/study is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project;
 - g) The information in the decision document or anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices;
 - h) The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule; and
 - i) There are no other circumstances where the Chief of Engineers or Director of Civil Works determines Type I IEPR is warranted.
 - j) The Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study Review Plan was endorsed by the PCXIN on 29 August 2013. The

Review Plan states that the Disposition Study would be subjected to DQC and ATR but not considered a Type I IEPR due to the fact the project did not meet any of the “trigger” criteria for a Type I IEPR.

- k) The District is submitting a Request for Exclusion from Independent External Peer Review (IEPR). Once a determination has been made on the Exclusion Request, the review plan will be revised accordingly.

- a. **Products to Undergo Type I IEPR.** Not-Applicable.
- b. **Required Type I IEPR Panel Expertise.** Not-Applicable.
- c. **Documentation of Type I IEPR.** Not-Applicable.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

9. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

- a. **Planning Models.** No planning models are to be used in the performance of this study. Study findings are based on literature review, best professional judgment, and expert consultation.
- b. **Engineering Models.** The following engineering model(s) may be used in the development of the disposition study:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
HEC-RAS 4.0 (River Analysis System)	The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions along the Green River and its tributaries .	HH&C CoP Preferred Model
MCACES 2nd Generation (MII) Version 3.01	Developed by Project Time and Cost, Inc. (PT&C), MII is a detailed cost estimating application used by the USACE and its A-E contractors for military, civil works and hazardous, toxic and radioactive waste (HTRW) projects. MII was first released in June 2003 and replaced the MCACES and MCACES for Windows programs.	Approved
HEC-FDA Version 1.2.4	This model, developed by the Corps' Hydrological Engineering Center (HEC), will assist the PDT in applying risk analysis methods of flood risk management studies as required by EM 1110-2-1419.	Approved

10. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** ATR costs for the disposition study are not yet determined but have been budgeted at \$10,000. The District shall provide labor funding by cross charge labor codes. Funding for travel will be provided through government order, if needed. The Project Manager will work with the ATR team leader to ensure that adequate funding is available and is commensurate with the level of review needed. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

The ATR team leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers shall monitor individual labor code balances and alert the ATR team leader to any possible funding shortages.

<u>ATR</u>	<u>Status</u>	<u>Date</u>
Initiate ATR	Not Started	March 2014
Complete ATR	Not Started	April 2014

- b. **Type I IEPR Schedule and Cost.** Not-Applicable.

c. Model Certification/Approval Schedule and Cost. Not-Applicable.

11. PUBLIC PARTICIPATION

State and Federal resource agencies may be invited to participate in the study covered by this review plan as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments.

Throughout the original disposition study, multiple public meetings were conducted in communities adjacent to the Green and Barren Rivers, including the City of Brownsville, Butler County and Edmondson County. In addition, the study was originally coordinated with the U.S. Fish and Wildlife Service pursuant to the requirements of the Fish and Wildlife Coordination Act.

Since so much time has elapsed since the original public and agency coordination, additional coordination has been and will be conducted. The Louisville District has held meetings with local city and county officials. Also, as part of the updates to the environmental documentation, a revised environmental assessment will be circulated to the appropriate resource agencies and to the general public for review and comment.

There have been numerous opportunities for public input during the development of the 2004 report and associated NEPA process. The public was invited to comment on the conceptual designs of the project's features during the Environmental Assessment (EA).

12. REVIEW PLAN APPROVAL AND UPDATES

The Great Lakes and Ohio River Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. REVIEW PLAN POINTS OF CONTACT

Public questions and/or comments on this review plan can be directed to the following points of contact:

- [REDACTED], Project Manager, Louisville District
502-315-6776
- [REDACTED], Chief, Planning and Policy Division, Great Lakes and Ohio River Division
513-684-3488
- [REDACTED], Co-Technical Director, Planning Center of Expertise for Inland Navigation
304-399-6938

ATTACHMENT 1: TEAM ROSTERS

The disciplines below will not change, but individual PDT members may change based on availability.

Project Delivery Team				
Name	Role	Office Symbol	Telephone	Email
[REDACTED]	Project Manager	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Environmental Resources/HTRW	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Cultural Resources	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Hydrology & Hydraulic Design	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Real Estate	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Geotechnical	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	GIS	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Civil Engineering	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Economics	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Legal Counsel	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Public Affairs	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Cost Engineering	USACE-Louisville	[REDACTED]	[REDACTED]
[REDACTED]	Operations	USACE-Louisville	[REDACTED]	[REDACTED]

At this time only the ATR Lead is identified. The names of additional team members will be added as they are identified. This will be documented during the first update of the Review Plan.

Agency Technical Review Team				
Name	Role	Office	Telephone	Email
	ATR Lead	USACE-MVD-MVP		
TBD	Planning			
TBD	Civil Engineering			
TBD	Economics			
TBD	Environmental			
TBD	Real Estate			

ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the Final Watershed Assessment for the Green River Watershed Section 729 Analysis, Pennsylvania, West Virginia, and Maryland. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, 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 results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

Name
ATR Team Leader
Office Symbol/Company

Date

SIGNATURE

Name
Project Manager
Office Symbol

Date

SIGNATURE

Name
Review Management Office Representative
Office Symbol

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

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

SIGNATURE

Name
Chief, Engineering Division
Office Symbol

Date

SIGNATURE

Name
Chief, Planning Division
Office Symbol

Date

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	MSC	Major Subordinate Command
ASA(CW)	Assistant Secretary of the Army for Civil Works	NED	National Economic Development
ATR	Agency Technical Review	NER	National Ecosystem Restoration
CSDR	Coastal Storm Damage Reduction	NEPA	National Environmental Policy Act
DPR	Detailed Project Report	O&M	Operation and maintenance
DQC	District Quality Control/Quality Assurance	OMB	Office and Management and Budget
DX	Directory of Expertise	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
EA	Environmental Assessment	OEO	Outside Eligible Organization
EC	Engineer Circular	OSE	Other Social Effects
EIS	Environmental Impact Statement	PCX	Planning Center of Expertise
EO	Executive Order	PDT	Project Delivery Team
ER	Ecosystem Restoration	PAC	Post Authorization Change
FDR	Flood Damage Reduction	PMP	Project Management Plan
FEMA	Federal Emergency Management Agency	PL	Public Law
FRM	Flood Risk Management	QMP	Quality Management Plan
FSM	Feasibility Scoping Meeting	QA	Quality Assurance
GRR	General Reevaluation Report	QC	Quality Control
Home District/MSD	The District or MSC responsible for the preparation of the decision document	RED	Regional Economic Development
HQSACE	Headquarters, U.S. Army Corps of Engineers	RMC	Risk Management Center
IEPR	Independent External Peer Review	RMO	Review Management Organization
IHA	Indicators of Hydrologic Alteration	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
IWRM	Integrated Water Resource Management	USACE	U.S. Army Corps of Engineers
LRR	Limited Reevaluation Report	WRDA	Water Resources Development Act

ATTACHMENT 5: PCXIN REVIEW PLAN ENDORSEMENT MEMORANDUM



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHT STREET
HUNTINGTON, WEST VIRGINIA 25701-2035

CELRH-PX

29 August 2013

MEMORANDUM FOR Commander, Louisville District

SUBJECT: Review Plan for Green River Lock and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study, Kentucky

1. The enclosed Review Plan (RP) has been presented to the Planning Center of Expertise for Inland Navigation (PCXIN) for its review and endorsement in accordance with EC1165-2-214 "Civil Works Review Policy" dated, 15 Dec 2012
2. The Green River Locks and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study, Kentucky will produce a Disposition Report to evaluate the formerly used navigation facilities located on the Green and Barren Rivers. The goal of the study is to provide data necessary to make recommendations for possible de-authorization of the facilities at the five lock and dam sites. An Environmental Assessment (EA) will be integrated into the final report.
3. PCXIN staff has reviewed the plan for technical sufficiency and policy compliance. The projected cost is estimated to be below the \$45 million threshold for a Type I IEPR and it does not require an EIS. The District is preparing an IEPR exclusion request. No planning models are to be used in this study.
4. I concur with the findings of the PCXIN technical staff and endorse the enclosed review plan for the Green River Lock and Dams 3, 4, 5 and 6 and Barren River Lock and Dam 1 Disposition Study. Following approval by Great Lakes and Ohio River Division, the District is requested to post the RP to its web site and provide the link to the PCXIN for their use. Prior to posting, the names of the individuals in the RP should be removed.
5. If you have any questions or need additional information, please contact Beth Cade at 304.399.5848.

Encl

A handwritten signature in black ink, appearing to read "Wesley W. Walker", written over a horizontal line.

WESLEY W. WALKER
Co-Technical Director
Planning Center of Expertise for Inland
Navigation