



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORTH ATLANTIC DIVISION, US ARMY CORPS OF ENGINEERS
FORT HAMILTON MILITARY COMMUNITY
BROOKLYN, NEW YORK 11252-6700

OCT 05 2012

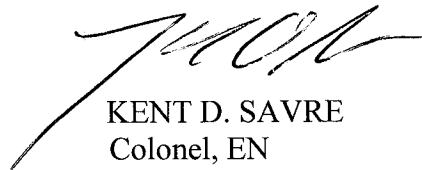
CENAD-PD-PP

MEMORANDUM FOR Commander, Baltimore District, ATTN: CENAB-PP-C

SUBJECT: Review Plan Approval for Susquehanna River Basin Low Flow Management Study, Pennsylvania, New York and Maryland Watershed Assessment

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-209, Civil Works Review Policy.
2. The Review Plan has been coordinated with the Ecosystem Planning Center of Expertise of the Mississippi Valley Division, which is the lead office to execute this plan. For further information, contact Ms. Jodi Creswell at 309-794-5448. As no specific projects for construction will be evaluated for this Corps-led watershed assessment, the Review Plan does not include independent external peer review, as it is not applicable to this effort.
3. I hereby approve this Review Plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.

Encl
as


KENT D. SAVRE
Colonel, EN
Commanding

REVIEW PLAN

**Susquehanna River Basin Low Flow Management Study
Pennsylvania, New York, and Maryland
General Investigation – Watershed Assessment**

**Baltimore District
In partnership with:
Susquehanna River Basin Commission**

MSC Approval Date: October 5, 2012
Last Revision Date: August 2011



**US Army Corps
of Engineers®**

REVIEW PLAN

**Susquehanna River Basin Low Flow Management Study
Pennsylvania, New York, and Maryland**

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Susquehanna River Basin Low Flow Management Study, Pennsylvania, New York, and Maryland.

b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2010
- (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) EC 1105-2-411, Watershed Plans, 15 Jan 2010
- (6) Susquehanna River Basin Low Flow Management Study Project Management Plan, 19 Aug 2008
- (7) Planning Division, Civil Project Development Branch, Quality Management Plan, 7 October 2009

c. Requirements. This review plan was developed in accordance with EC 1165-2-209, 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 1165-2-209) 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 planning products is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the planning product. The RMO for the peer review effort described in this Review Plan is the Planning Center of Expertise for Ecosystem Restoration (ECO-PCX).

No feasibility level cost estimates are included in this watershed assessment. The RMO will not need to coordinate with the Cost Engineering Directory of Expertise (DX) to conduct ATR of cost estimates, construction schedules and contingencies.

3. STUDY INFORMATION

a. Management Study. The Susquehanna River Basin Low Flow Management Study, Pennsylvania, New York, and Maryland is being conducted under the authority of Section 729 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 202, WRDA of 2000 and Section 2010, WRDA of 2007. This authority is titled "Watershed and River Basin Assessments." The purpose of the low flow management study is to develop an understanding of how various flows affect the Susquehanna River basin ecosystem. There is particular interest in identifying scientifically-based flow thresholds at key locations along the river; thresholds below which ecological degradation becomes significant, especially during droughts. Alternatives are not being developed for the purpose of decision making as part of this assessment. The low flow management

study is not an implementation document since it will not directly lead to implementation of any project. As defined by EC 1165-2-209 the low flow management study is an “other work product”. No National Environmental Policy Act (NEPA) documentation will be produced with this study.

The Susquehanna River Basin Low Flow Management Study will result in summary and technical reports that could inform future decision making on water allocation and reservoir operation. The summary report will capture the following work products elucidated in the technical report: existing basin conditions, flow requirements for flow-dependent species, and flow recommendations for the Susquehanna River and tributaries.

This study does not directly lead to changes in operation at USACE projects. Based on the recommendations of the management study, further study may be necessary which could result in operational changes at USACE dams. A determination on the need for IEPR will be made for individual studies on USACE dam operational changes.

- b. Study/Project Description.** The Susquehanna River Basin Low Flow Management Study Project Management Plan (PMP) outlines components for a feasibility study which will result in a Section 729 report that identifies the flow needs of the aquatic ecosystem within subwatersheds of the Susquehanna River. The low flow management study will build on previous and on-going efforts in the Susquehanna River basin that are also concerned with management of low flows and the protection of critical aquatic habitat levels. The goal is to develop an approach for assessing the impacts of flow alteration on aquatic resources and establishing “ecological flow” criteria that will define acceptable levels of flow alteration at the subwatershed scale with particular emphasis on low flow conditions. This will establish ecosystem needs related to flow in the Susquehanna River Basin.

This study will be conducted under the authority of Section 729 of the Water Resources Development Act (WRDA) of 1986, as amended by Section 202, WRDA of 2000 and Section 2010, WRDA of 2007. This authority is titled “Watershed and River Basin Assessments.”

Although the assessment area will encompass the entire Susquehanna River basin the approach used to develop ecological flow recommendations may vary from subwatershed to subwatershed depending on the availability of flow records and habitat data, and depending on the magnitude of water use in the watershed relative to the natural flow and existing habitats.

This work under Section 729 will provide essential information for use in considering long-term changes to flow release schemes for basin reservoirs, ecological restoration, flows to sustain aquatic habitat, and conservation strategies to offset the rising demands. The study findings may be used in subsequent work under a new phase of this project to study operations of USACE dams with the aim of restoring and protecting natural flow regimes. Study findings may also be used by the study non-federal sponsor to draft updated water management regulations for the Susquehanna Basin. The goal of updated regulations would also be to restore and protect natural flow regimes in the basin.

The Susquehanna River Basin Low Flow Management Study will be carried out with significant contribution from The Nature Conservancy (TNC). The Susquehanna River Basin Commission (SRBC) has agreed to partner with the U.S. Army Corps of Engineers, Baltimore District as the non-Federal sponsor and has executed a feasibility cost-sharing agreement for the effort. They are contributing 25% of the cost of the study in cash and in-kind services.

- c. Factors Affecting the Scope and Level of Review.** The Susquehanna River Basin Low Flow Management Study is anticipated to be challenging and beneficial, but it will not be novel, controversial or precedent-setting. The watershed assessment focuses on a major tributary to the

Chesapeake Bay, a nationally significant estuary, and the Susquehanna River has been identified as a priority river system for assessment. The study will provide information for use in considering long-term changes to flow release schemes for basin reservoirs, ecological restoration, flows to sustain aquatic habitat, and conservation strategies, but the study will not directly lead to project construction. The study will not lead directly to USACE action. There are no human life/safety issues that will be addressed in the study due to the study scope and questions addressed.

Project challenges will arise from synthesizing current scientific understanding of basin ecology with the current understanding of basin hydrology. The approaches to be used have been formulated and published in peer-reviewed journals by The Nature Conservancy, and have been used in numerous basin evaluations across the nation. The process to be followed was outlined by Richter et al. (2006) and elaborated upon by Poff et al. 2009. No new scientific information is expected to be generated; rather, existing scientific information and expert analysis will be synthesized using existing models and methods.

Other Federal and State agencies have expressed an interest in the study, both for its implications in protecting ecosystems function, as well as for its implications for water use planning and permitting by SRBC.

While this study will not result in USACE action, ATR will be conducted. As outlined in section 5, a risk-based assessment was conducted for the study and ATR is appropriate. The technical analyses that the study is based on have been reviewed by many regional and national experts on hydrology and ecology. Flow recommendations were based on technical analyses and a collaborative social process in a workshop setting by regional and national experts. Implementation of these recommendations will be documented in subsequent studies, as appropriate, and will be subjected to the appropriate reviews for those studies.

- d. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR as appropriate. The in-kind products and analyses to be provided by the non-Federal sponsor include: a technical report including a summary of the hydrological characterization of the basin with a synthesis of existing reports, relevant studies and available data, flow recommendations, and data gaps. These in-kind contributions will be included as Appendices with the final Section 729 report.

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 in accordance with the Quality Manual of the District and the home MSC.

- a. Documentation of DQC.** DQC is documented in a Quality Control Review Report (QCRR), which summarizes the reviewed product, review process, and major issues and their resolution. This QCRR, signed by the PDT and DQC team, will be provided to the ATR team at each review. The DQC process is outlined in the “Planning Division, Civil Project Development Branch, Quality Management Plan” from Baltimore District, dated 7 October, 2009.
- b. Products to Undergo DQC.** Draft and final low flow management study documents, products and analyses provided by non-Federal sponsors as in-kind services, as well as all read-ahead material will

undergo DQC, as outlined in the Baltimore District Planning Division Quality Management Plan of 2009.

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 reasonably clear manner for the public and decision makers.

- a. **Decision on ATR.** The PDT has performed a risk assessment for this study and for the reasons stated below, determined that ATR is appropriate for this low flow management study.
- (1) There is no design with this study, and the study does not directly lead to construction.
 - (2) The low flow management study considers a variety of alternative flow regimes for various river types. Flows are evaluated for their effects on aquatic ecology. Other flow effects are considered (i.e. consumptive use, assimilative capacity), but ecological flow needs are the primary consideration in choosing recommended flows.
 - (3) Recommendations for flows that support ecological health are generated as part of a social process backed by scientific analysis. This social process is conducted as a series of collaborative workshops involving technical experts, stakeholders, and policymakers. These workshops involve the identification of species and ecological groups that are sensitive to flow alterations, identification of societal values and management needs, consensus on acceptable ecological conditions, and finally the development of recommendations for environmental flow standards – based on the other technical work done in the study. Implementation of these recommendations involves further study and the review requirements for those studies would be determined study by study.
 - (4) There is no formal cost estimate because there are no recommendations for project implementation
 - (5) The low flow management study does not require NEPA documentation. If subsequent studies are undertaken in which flow recommendations are implemented through management actions, NEPA documentation will be undertaken during those study processes.
 - (6) The low flow management study does not impact a structure or feature of a structure whose performance involves potential life safety risks. The low flow management study identifies flows necessary to support ecological health. Study products may inform future feasibility or implementation documents that impact structures whose performance involves potential life safety risks. A determination on necessary review requirements for those studies will be made when their review plans are drafted.
 - (7) This low flow management study will not lead directly to project implementation. The recommended flow regimes are a recommendation only. If the study is not completed, there is a risk that USACE and other agencies will have an incomplete understanding of the ecological needs of aquatic communities in the Susquehanna River Basin. Study products will be based upon the best science and data available, and non-performance within the science process and within the backing data would lead to an incomplete understanding of flows and flow relationships in the Susquehanna River Basin. However, as science and data collection advances, the conclusions reached in the study can be revisited and revised.
 - (8) This low flow management study has a study cost of \$381,000 and no investment of public monies are required beyond the study cost.

- (9) This low flow management study will not directly lead to project implementation and therefore does not support a budget request.
- (10) This low flow management study will not directly lead changes in operation at USACE projects. Further study may be necessary, based on the recommendations of the watershed assessment, resulting in operational changes at Corps' dams. A determination on the need for ATR will be made for individual studies on Corps' dam operational changes.
- (11) This low flow management study does not involve ground disturbances.
- (12) The low flow management study does not affect any special features.
- (13) The low flow management study does not involve activities that trigger regulatory permitting.
- (14) The low flow management study does not involve activities that could potentially generate hazardous wastes and/or disposal of hazardous materials.
- (15) The low flow management study does not reference the use of or reliance on manufacturers' engineers and specifications.
- (16) The low flow management study does not involve utility systems and therefore does not rely on local authorities for inspection/certification.
- (17) There is not expected to be any controversy surrounding Federal actions associated with this work product. The low flow management study relies on the best available scientific information, opinion, and consensus to determine flows necessary for ecological health.

Other Considerations

- (18) The technical analyses were undertaken by experts on Susquehanna River Basin hydrology and ecology and were reviewed by stakeholders, other Susquehanna River experts, and experts on the scientific methodology used in the analysis. Experts included practitioners who had been involved and contributed directly to other sustainable flow projects undertaken by USACE such as the Connecticut River Watershed Study.

b. Products to Undergo ATR. Not-Applicable.

c. Required ATR Team Expertise. Not-Applicable.

d. Documentation of ATR. Not-Applicable.

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 1165-2-209, 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 1165-2-209.

- 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.
- a. **Decision on IEPR.** This study does not meet any mandatory trigger for Type 1 IEPR: there is no threat to human life, there will be no construction and the total project cost is \$381,000 - well under the \$45 million ceiling, the study is not controversial and its project recommendations are intended to preserve and enhance ecological health and resilience. EC 1165-2-209 states that “Meeting the specific conditions identified for possible exclusions is not, in or of itself, sufficient grounds for recommending an exclusion. A deliberate, risk-informed recommendation whether to undertake IEPR shall be made and documented by the project delivery team (PDT).” The PDT has performed a risk assessment for this study, and for the reasons stated below IEPR is not applicable for this low flow management study.
- (1) There is no design with this study, and the study does not directly lead to construction.
 - (2) The low flow management study considers a variety of alternative flow regimes for various river types. Flows are evaluated for their effects on aquatic ecology. Other flow effects are considered (i.e. consumptive use, assimilative capacity), but ecological flow needs are the primary consideration in choosing recommended flows.
 - (3) Recommendations for flows that support ecological health are generated as part of a social process backed by scientific analysis. This social process is conducted as a series of collaborative workshops involving technical experts, stakeholders, and policymakers. These workshops involve the identification of species and ecological groups that are sensitive to flow alterations, identification of societal values and management needs, consensus on acceptable ecological conditions, and finally the development of recommendations for environmental flow standards – based on the other technical work done in the study. Implementation of these recommendations involves further study and the review requirements for those studies would be determined study by study.
 - (4) There is no formal cost estimate because there are no recommendations for project implementation
 - (5) The low flow management study does not require NEPA documentation. If subsequent studies are undertaken in which flow recommendations are implemented through management actions, NEPA documentation will be undertaken during those study processes.
 - (6) The low flow management study does not impact a structure or feature of a structure whose performance involves potential life safety risks. The low flow management study identifies flows necessary to support ecological health. Study products may inform future feasibility or implementation documents that impact structures whose performance involves potential life safety risks. A determination on necessary review requirements for those studies will be made when their review plans are drafted.
 - (7) This low flow management study will not lead directly to project implementation. The recommended flow regimes are a recommendation only. If the study is not completed, there is a risk that USACE and other agencies will have an incomplete understanding of the ecological needs of aquatic communities in the Susquehanna River Basin. Study products

will be based upon the best science and data available, and non-performance within the science process and within the backing data would lead to an incomplete understanding of flows and flow relationships in the Susquehanna River Basin. However, as science and data collection advances, the conclusions reached in the study can be revisited and revised.

- (8) This low flow management study has a study cost of \$381,000 and no investment of public monies are required beyond the study cost.
- (9) This low flow management study will not directly lead to project implementation and therefore does not support a budget request.
- (10) This low flow management study will not directly lead changes in operation at USACE projects. Further study may be necessary, based on the recommendations of the watershed assessment, resulting in operational changes at Corps' dams. A determination on the need for IEPR will be made for individual studies on Corps' dam operational changes.
- (11) This low flow management study does not involve ground disturbances.
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- (15) The low flow management study does not reference the use of or reliance on manufacturers' engineers and specifications.
- (16) The low flow management study does not involve utility systems and therefore does not rely on local authorities for inspection/certification.
- (17) There is not expected to be any controversy surrounding Federal actions associated with this work product. The low flow management study relies on the best available scientific information, opinion, and consensus to determine flows necessary for ecological health.

b. Products to Undergo Type I IEPR. Not-Applicable.

c. Required Type I IEPR Panel Expertise. Not-Applicable.

d. 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. This watershed study only includes technical analysis and there are no policy or legal issues to be addressed.

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. This watershed study will not include any cost estimates, thus no cost certification is required.

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.** The following planning models are anticipated to be used in the development of the watershed assessment: No planning models are to be used in the performance of this study. Study findings are based on literature review, best professional judgment, expert consultation, and analysis of hydrology. The analysis of hydrology is being done through an engineering model which returns a variety of flow statistics. The flow statistics were analyzed to determine which flow statistics are appropriate for generation of flow recommendations and to analyze their ability to detect change in flows.
- b. Engineering Models.** The following engineering models are anticipated to be used in the development of the low flow management study:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Approval Status
Indicators of Hydrologic Alteration (IHA) v 7.1	<p>The Indicators of Hydrologic Alteration (IHA) is a software program, developed by the Nature Conservancy that assesses 67 ecologically-relevant statistics derived from daily hydrologic data. For instance, the IHA software can calculate the timing and maximum flows of each year's largest flood or lowest flows, and then calculates the mean and variance of these values over some period of time. Comparative analysis can then help statistically describe how these patterns have changed for a particular river or lake, due to abrupt impacts such as dam construction, or more gradual trends associated with land- and water-use change.</p> <p>IHA will be used to analyze index gauges to produce recommended flow statistics.</p> <p>Richter, B.D., J.V. Baumgartner, J. Powell, and D.P. Braun 1996. "A Method for Assessing Hydrologic Alteration Within Ecosystems". Conservation Biology 10:1163-1174.</p>	HH&C CoP Preferred Model

	<p>Richter, B.D., J.V. Baumgartner, R. Wigington, and D.P. Braun, "How Much Water Does a River Need?" <i>Freshwater Biology</i> 37, 231-249.</p> <p>Richter, B.D., J.V. Baumgartner, D.P. Braun, and J. Powell. 1998. "A Spatial Assessment of Hydrologic Alteration Within a River Network." <i>Regulated Rivers</i> 14:329-340.</p>	
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10. REVIEW SCHEDULES AND COSTS

a. ATR Schedule and Cost. ATR will be completed prior to submission of documentation to the MSC. ATR costs for the watershed management study are not yet determined but have been budgeted at \$24,000. These costs are cost-shared with the study’s non-federal sponsor. ATR will be completed on the following documentation:

<u>ATR</u>	<u>Status</u>	<u>Date</u>
Management Study	Scheduled	Aug/Sept 11

- b. Type I IEPR Schedule and Cost.** Not-applicable.
- c. Model Certification/Approval Schedule and Cost.** Not-applicable.

11. PUBLIC PARTICIPATION

As part of the public involvement process, the SRBC Commissioners’ quarterly meetings will be a prime vehicle for dissemination of information to the public and opportunity for public comment on the study process. In addition to the SRBC quarterly meetings, there are quarterly Federal agency conference calls and Water Resource Management Advisory Committee (WRMAC) and Water Quality Advisory Committee (WQAC) meetings which have also been used for information delivery and solicitation of input. Numerous scientists, professionals, and others have been solicited directly for input and opinion in developing flow recommendations. Three workshops were also held, as well as many smaller meetings within the basin that involved public agencies, academic researchers, and stakeholder groups. The final watershed assessment and review reports will be made available through District and SRBC websites.

12. REVIEW PLAN APPROVAL AND UPDATES

The North Atlantic 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 watershed assessment. 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.

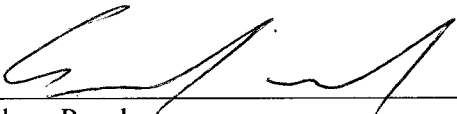
13. REVIEW PLAN POINTS OF CONTACT

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

- Andrew Roach, Study Manager, Baltimore District
410-962-8156, Andrew.A.Roach@usace.army.mil
- Joseph Vietri, Chief, Planning and Policy Division, North Atlantic Division
718-765-7070, Joseph.R.Vietri@usace.army.mil
- Jodi Staebell, Operations Director, Ecosystem Restoration Planning Center of Expertise
309-794-5448, Jodi.k.staebell@usace.army.mil

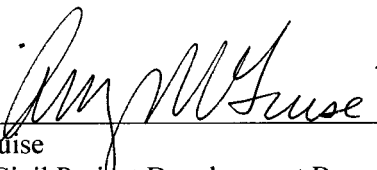
14. APPROVALS

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 the PCX will occur through the District Planning Chief. Signatures by the individuals below indicate approval of the plan as proposed.



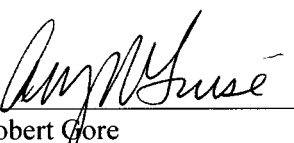
Andrew Roach
Study Manager
Project Delivery Team

19 Apr 2011
Date



Amy Grise
Chief, Civil Project Development Branch
Baltimore District

19 Apr. 2011
Date



for Robert Gore
Assistant Chief, Planning Division
Baltimore District

19 Apr 2011
Date

Joseph Vietri
Chief, Planning and Policy Division
North Atlantic Division

Date

ATTACHMENT 1: TEAM ROSTERS

PDT

Discipline	Name	Email	Phone Number
Project Manager	Steve Garbarino	Steve.D.Garbarino@usace.army.mil	410-962-6114
Study Manager	Andrew Roach	Andrew.A.Roach@usace.army.mil	410-962-8156
Biologist	Kate O'Mara	Kathryn.J.Omara@usace.army.mil	410-962-6141
Hydrologist	Bill Haines	James.W.Haines@usace.army.mil	410-962-6768

Vertical Team

Title	Name	Email	Phone Number
District Planning Coordinator	Dan Bierly	Daniel.M.Bierly@usace.army.mil	410-962-4458
Operations Director, PCX Ecosystem Restoration	Jodi Staebell	Jodi.K.Staebell@usace.army.mil	309-794-5448
DST	Paul Sabalis	Paul.Sabalis@usace.army.mil	718-765-7089
NAD Planning Chief	Joe Vietri	Joseph.R.Vietri@usace.army.mil	718-765-7070

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 Watershed Assessment for the Susquehanna River Basin Low Flow Management Study, Pennsylvania, New York, 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
Architect Engineer Project Manager¹
Company, location

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: Describe the major technical concerns and their resolution.

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

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

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