



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORTH ATLANTIC DIVISION
FORT HAMILTON MILITARY COMMUNITY
302 GENERAL LEE AVENUE
BROOKLYN NY 11252-6700

CENAD-PD-PP

SEP 10 2016

MEMORANDUM FOR Commander, Baltimore District, (CENAB-PL/Mark Chalecki)
10 S. Howard St. Baltimore, MD 21201

SUBJECT: Review Plan Approval for Curwensville Lake, Clearfield County,
Pennsylvania, Modification to Water Release Operation Plan Letter Report

1. Reference CENAB-PL-P memorandum dated 2 Aug 2016, subject as above.
2. The Water Management and Reallocation Studies Planning Center of Expertise of the Southwestern Division is the lead office to execute the referenced Review Plan. The Review Plan does not include Independent External Peer Review, as it is not required.
3. The enclosed Review Plan is approved for execution and 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 require new written approval from the NAD Commander.
4. The point of contact is Mr. Larry Cocchieri, NAD Planning Program Manager, 347-370-4571, Lawrence.J.Cocchieri@usace.army.mil.

Encl


WILLIAM H. GRAHAM
Brigadier General, USA
Commanding



DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
10 S. HOWARD STREET
BALTIMORE, MD 21201

AUG 02 2016

CENAB-PL

MEMORANDUM FOR Commander, US Army Corps of Engineers, North Atlantic Division, (CENAD-PD-X/Lawrence J. Cocchieri), 302 General Lee Avenue, Fort Hamilton Military Community, Brooklyn, NY 11252-6700

SUBJECT: Recommended Approval of the Review Plan for the Curwensville Lake, Clearfield County, Pennsylvania, Modification to Water Release Operation Plan Letter Report and Environmental Assessment

1. Enclosed for your review is the Review Plan for the Curwensville Lake Water Supply Releases to West Branch Susquehanna and Susquehanna Rivers, Pennsylvania Letter Report and Environmental Assessment (Enclosure 1).
2. The Review Plan has received District Quality Control review and has been reviewed and endorsed by the Water Management and Reallocation Studies Planning Center of Expertise (PCX) on 27 April 2016 (Enclosure 2) and is recommended for your approval.
3. If you have any questions regarding the review, please contact Mr. Mark Chalecki, CENAB-PL, at 410-962-4710.

2 Encls

A handwritten signature in black ink, appearing to read "E. Chamberlayne".

EDWARD P. CHAMBERLAYNE, P.E.
COL, EN
Commanding

REVIEW PLAN

Curwensville Lake, Clearfield County, Pennsylvania Modification to Water Release Operation Plan Letter Report and Environmental Assessment

Baltimore District

July 2016



**US Army Corps
of Engineers ®**

Review Plan

Curwensville Lake, Clearfield County, Pennsylvania Water Supply Releases to West Branch Susquehanna and Susquehanna Rivers Environmental Assessment

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1. PURPOSE AND REQUIREMENTS

This Review Plan defines the scope and level of peer review of the **Letter Report and Environmental Assessment (EA) for the Curwensville Lake Water Supply Releases to West Branch Susquehanna and Susquehanna Rivers, Pennsylvania.**

a. Reference

- (1) ER 1105-2-100 "Planning Guidance Notebook & Appendices D, F, G and H"
- (2) SMART Planning Principles
- (3) EC 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
- (4) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (5) Project Management Plan for the Curwensville Lake, PA Project
- (6) EC 1165-2-214 Water Resources Policies and Authorities Civil Works Review, 15 December 2012, expires 15 December 2014
- (7) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

Requirements

This review plan 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).

According to the guidance set out in EC 1165-2-214, the Curwensville Lake Letter Report and Environmental Assessment will not require an Independent External Peer Review (IEPR).

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The Project Delivery Team (PDT) within the Baltimore District, US Army Corps of Engineers (CENAB) has prepared this Review Plan for a Letter Report and Environmental Assessment of a proposed action at Curwensville Lake, Clearfield County, Pennsylvania. The RMO is responsible for managing the overall Agency Technical 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 document. The RMO for the peer review effort described in this Review Plan is the PCX for Water Management and Reallocation Studies at SWD. Once approved, CENAB will post the Review Plan on its public website.

3. STUDY INFORMATION

a. Review Document

The Letter Report and Environmental Assessment are titled: “**Curwensville Lake Water Supply Releases to West Branch Susquehanna and Susquehanna Rivers, Pennsylvania**”. Pursuant to the National Environmental Policy Act (NEPA) of 1969, the U.S. Army Corps of Engineers, Baltimore District (USACE) has prepared this Letter Report and Environmental Assessment (EA) to address the potential environmental and socioeconomic impacts associated with a modification of the water control plan for the USACE Curwensville Lake project in Clearfield County, PA. The Letter Report and EA evaluate and assess the environmental consequences associated with the optimization of existing water supply storage space within Curwensville Lake water for downstream consumptive use and to support ecological low flows.

The consequences of the proposed change to trigger flow values were initially investigated by the Susquehanna River Basin Commission (SRBC) using an ‘allowed for use’ planning model called Operational Analysis and Simulation of Integrated Systems (OASIS), calibrated specifically for the Susquehanna River Basin. Subsequently, CENAB prepared its own assessment, confirming that the proposed adjustment would be feasible, would have no significant impact on Curwensville Lake, and would support SRBC’s revised low flow protection policies for the Susquehanna River Basin. The findings are in the process of being coordinated with Federal, state, & local resource agencies and the public.

The proposed action would be a modification of project operations to alter the timing and duration of water supply releases made to mitigate for impacts of downstream consumptive use. The proposed action would require a modification of the water control plan for Curwensville Lake. Modifications to the plan would occur after finalization of the Letter Report and Environmental Assessment. The proposed action would not alter the existing storage allocation, would not raise the lake level, would not change the release rate, and there would not be any construction or O&M costs. The existing project is already authorized and used for water supply storage. The proposed change will merely alter the timing and duration of the water supply releases, with accompanying minor beneficial impacts to downstream reaches and potential minor adverse impacts to lake resources.

The North Atlantic Division, US Army Corps of Engineers (CENAD) is the approving authority for the Letter Report and Environmental Assessment. Once approved, the EA will be released for public review. Following finalization of the Letter Report and EA, CENAB will revise the Curwensville Lake Reservoir Regulation Manual and the revised Regulation Manual will undergo a separate review process in accordance with the requirements of EC 1165-2-214. Recent litigation, court decisions, and U.S. Army Corps of Engineers (USACE) Office of Counsel opinions have determined that reservoir regulation manuals have the force of law.

b. Project Description

Curwensville Lake is located in Clearfield County, PA, on the West Branch of the Susquehanna River approximately 1 mile upstream of the Borough of Curwensville, and 6 miles upstream of the Borough of Clearfield (Figure 1-1). Curwensville Lake was completed in 1965. It was formed by damming the West Branch Susquehanna River and lies in the West Branch Susquehanna sub-basin of the Susquehanna River Basin. At the normal pool elevation of 1162 feet Project Control Datum (PCD), the lake has a surface area of 770 acres and a length of about 5 miles.

Curwensville Lake is a multi-purpose project owned and operated by USACE. USACE operates the Curwensville Project in conjunction with other reservoirs (Stevenson, Bush, and Sayers) for the main purpose of providing flood protection for downstream communities along the West Branch Susquehanna River in central Pennsylvania. USACE, Baltimore District, is responsible for directing operations of all reservoir projects under its control in the Susquehanna River Basin, directly and indirectly regulating flow in downstream rivers. Project purposes also include providing in-lake recreation (boating, swimming, fishing), providing water storage to compensate for downstream consumptive use during times of low flows, and improving/maintaining downstream water quality (to maintain temperatures appropriate for a warm water fishery, and to compensate for degradation by acid-mine drainage).

The permanent pool at Curwensville Lake (elevation 1162.0 feet) contains 7,483 acre-feet of storage volume. Of this amount, 7,413 acre-feet are designated as "conservation storage" made up of 4,240 acre-feet allocated to SRBC for water supply storage (to mitigate for downstream consumptive use) and 3,173 acre-feet of Federal conservation storage (reserved for USACE uses such as downstream low-flow regulation). The remaining 70 acre-feet of storage within the permanent pool is located beneath the sill of the outlet gate and cannot be released.

The Susquehanna River Basin Commission (SRBC) is an interstate compact commission charged with coordinating water resources efforts of Pennsylvania, New York, and Maryland, as well as the federal government in the Susquehanna River Basin. In 1994, the SRBC entered into a contract with USACE to purchase water supply storage that became available as a result of maintaining the pool at elevation 1162 feet year-round. SRBC purchased 4,240 acre-feet of storage, which is about 3.8% of Curwensville Lake's total storage capacity. SRBC requests water supply releases from its storage space during low flow periods to compensate for downstream consumptive uses throughout the Susquehanna River Basin. Currently, SRBC makes such requests whenever observed flows at key stream gages fall below the annual Q7-10 values (average 7-day low flow occurring once in 10 years). However, SRBC has recently revised its low flow protection policies throughout the Susquehanna River Basin and is now requiring that Downstream consumptive uses be offset when observed flows at the key stream gages fall below the monthly P95 values (average monthly flow that is exceeded 95 percent of the time).

At the request of SRBC, the current effort examines how to more effectively use SRBC-owned water storage at the lake through modifications to the current water release operations plan. The Letter Report and EA investigates the Basin's ecological flow needs (especially during low-flow periods) for the protection of species, natural communities, and key ecological resources and makes seasonal flow recommendations, but the recommendations would not alter the existing storage allocation, would not raise the lake level, would not change the release rate, and there would not be any construction or O&M costs.

c. Factors Affecting the Scope and Level of Review

- (1) The consequences of the proposed change to trigger flow values were initially investigated by SRBC using an 'allowed for use' planning model called Operational Analysis and Simulation of Integrated Systems (OASIS), calibrated specifically for the Susquehanna River Basin. Subsequently, CENAB prepared its own assessment, confirming that the proposed adjustment would be feasible, would have no significant impact on Curwensville Lake, and would support SRBC's low flow protection policies for the Susquehanna River Basin.
- (2) The proposed change would not alter the existing storage allocation, would not raise the lake level, would not change the release rate, and there would not be any construction or O&M costs.
- (3) The existing project is already authorized for water supply storage. The proposed change will merely alter the timing and duration of the water supply releases.
- (4) No life safety issues are anticipated.
- (5) It is expected that there will be no request by the Governor for an IEPR.
- (6) The public is not expected to dispute the environmental impacts of the proposed plan modification. However, there may be some recreational concerns regarding lake drawdowns that could be slightly greater and slightly longer with the proposed monthly P95 flow trigger than is presently experienced with the existing annual Q7-10 flow trigger.
- (7) No design will be recommended; therefore, it will not require novel construction methods or sequencing.
- (8) Total Federal project cost is expected to be limited to the cost of preparing the Letter Report, EA, and revising the reservoir regulation manual. No implementation costs are anticipated.

4. DISTRICT QUALITY CONTROL (DQC)

All decision 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. DQC documentation shall be provided to the ATR team prior to conducting each review. 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 includes documenting and maintenance of records for internal audits of proper DQC implementation. DQC comments shall be documented using DrChecks. The reviewers will make written comments, the respective team member will respond to comments noting concurrence or non-concurrence with an explanation of revised work and its location in the reviewed document. The review leader will compile all the comments and responses, note if the review and responses are comprehensive, note significant issues and responses and unresolved issues, before signing the DQC statement of technical review. The project manager will also sign and date the statement. Subsequently the Chiefs of Planning, Engineering, and Real Estate will describe the significant concerns and resolution and will sign a certification of Quality Assurance Review.

b. Products to Undergo DQC.

- (1) Draft Letter Report
- (2) Draft Environmental Assessment and FONSI
- (3) Reservoir Regulation Manual (following approval/finalization of the Letter Report and NEPA document)

c. Required DQC Expertise.

DQC Team Members/Disciplines	Expertise Required
Planning – Water Supply Specialist	The Planning reviewer should be a senior water resources planner with experience in water supply.
Water Management	This reviewer shall be an expert in the field of water management, with a particular emphasis on daily operations at USACE multi-purpose reservoirs. This expertise shall include a thorough understanding of hydrology and hydraulics as it pertains to reservoir systems, especially systems containing contracted water supply storage.
Aquatic Ecologist	The reviewer shall be an expert in the NEPA process. The reviewer shall be familiar with the impacts from water management systems and trade-offs of water supply releases vs aquatic and social impacts.

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. 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 reviewers will be selected from the approved Communities of Practice rosters. The ATR team lead will be from outside the home MSC.

a. Products to Undergo ATR.

- (1) Draft Letter Report
- (2) Draft Environmental Assessment and FONSI
- (3) Reservoir Regulation Manual (following approval/finalization of the Letter Report and NEPA Document)

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, water management, environmental resources, etc).
Planning – Water Supply Specialist	The Planning reviewer should be a senior water resources planner with experience in water supply.
Water Management	This reviewer shall be an expert in the field of water management, with a particular emphasis on daily operations at USACE multi-purpose reservoirs. This expertise shall include a thorough understanding of hydrology and hydraulics as it pertains to reservoir systems, especially systems containing contracted water supply storage.
Aquatic Ecologist	The reviewer shall be an expert in the NEPA process. The reviewer shall be familiar with the impacts from water management systems and trade-offs of water supply releases vs aquatic and social impacts.

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:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- (3) 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
- (4) 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, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

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.

Decision on IEPR. IEPR exclusion is requested.

1. This project does not contain any of the mandatory triggers described in EC 1165-2-214, 11.d.
 - i. There is no public safety component of the project.
 - ii. The total project cost is less than \$45 million.
 - iii. We do not expect the governor to request IEPR.
 - iv. We do not expect the DCW or the Chief of Engineers to determine this project is controversial due to significant public dispute over the size, nature, or effects of the project or the economic or environmental costs or benefits of the project.

2. This project does not contain any of the discretionary triggers described in EC 1165-2-214, 11.d. (2).
 - i. We do not expect a request to conduct IEPR from a head of a Federal or state agency charged with reviewing the project.

3. This project is eligible for exclusion from IEPR because:
 - i. This proposed modification of project operations does not require an Environmental Impact statement
 - ii. It is not controversial
 - iii. It has no more than negligible adverse impacts on scarce or unique tribal, cultural, or historic resources, and
 - iv. It has no substantial adverse impacts on fish and wildlife species and their habitat prior to the implementation of mitigation measures.
 - v. It has, before implementation of mitigation measures, no more than a negligible adverse impact on a species listed as endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) or the critical habitat of such species designated under such Act.

4. Per EC 1165-2-214, when a decision document does not trigger a mandatory Type I IEPR, a risk-informed recommendation will be developed. The process shall consider the consequences of non-performance on project economics, the environment, and social well-being (public safety and social justice), as well as indicate whether the product is likely to contain influential scientific information or be a highly influential scientific assessment, or involve other issues that provide a rationale for determining the appropriate level of review. Furthermore, the recommendation must make a case that the study is so limited in scope or impact that it would not significantly benefit from IEPR.

The Baltimore District has considered the criteria above and is recommending an exclusion of this action from an IEPR. A draft Letter Report, environmental assessment (EA) and Finding of No Significant Impacts (FONSI) has been prepared in compliance with the National Environmental Policy Act (NEPA). If a

FONSI is ultimately determined to be appropriate for signature by the District Commander, impacts to the environment are, by definition, determined to be not significant. Accordingly, analysis of environmental impacts does not involve a large degree of uncertainty or high risk for underestimation. Health and safety would not be impacted through the recommended plan. Social justice considerations are being addressed through determination of low income eligibility determinations in accordance with Section 322 of Water Resources Development Act (WRDA) 1990. Given these considerations, the risk of non-performance with regard to matters pertaining to social well-being would be anticipated as minimal.

This standard relocation study does not involve novel, untested, or influential scientific information or methods. The study analyses is within the typical scope of similar studies. Methodology and required data and analyses are well-established in USACE guidance for such studies.

The limited scope of this action, use of well-established criteria, minimal anticipated environmental impacts, and low uncertainty, are all indicative of an action that would benefit little from further review by IEPR. While providing little benefit, a requirement for IEPR would, however, result in the delay in delivery of a reliable water supply.

Finally, the recommended plan would not significantly affect project operations in terms of flood risk reduction, dam safety, fish and wildlife, water quality, recreation or hydropower. Environmental impacts will be addressed in the draft EA/FONSI for the project.

The Baltimore District requests that the RMO and Division Commander endorse the request for exclusion from IEPR and forward a request to the Regional Integration Team (RIT) for their endorsement and approval by the Director of Civil Works per guidance in EC 1165-2-214.

Type II IEPR, the Safety Assurance Review, are conducted on design and construction activities for any hurricane and storm risk management and flood risk management projects, as well as other projects where existing and potential hazards pose a significant threat to human life. Reallocation of storage does not meet the criteria for Type II IEPR.

- 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 MANDATORY CENTER OF EXPERTISE (MCX) REVIEW AND CERTIFICATION

Cost MCX involvement is not expected due to the current scope of the study. The RMO or PCX will coordinate as needed.

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. SRBC used the OASIS planning model during its earlier low flow investigations for the Susquehanna River Basin. The OASIS model is an "Allowed for Use" model on the HH&C CoP software list. SRBC used the OASIS model to evaluate both the in-lake and downstream effects of various water supply

release scenarios from its contracted water supply storage space in Curwensville Lake. CENAB reviewed the input, output, and results of the OASIS model, and concurred in its application.

b. Engineering Models. None used.

10. REVIEW SCHEDULES AND COSTS

a. DQC Cost and Schedule. CENAB will conduct the District Quality Control /Quality Assurance review. The review team will be assembled using in-house staff members who are not directly involved in preparing the EA. See Attachment 1 for an overview of tasks, costs, and schedules. The DQC review is currently estimated to cost \$10,000. The current schedule indicates that the DQC review will occur in December 2015.

b. ATR Cost and Schedule. The Agency Technical Review will be managed within USACE by the PCX for Water Management and Reallocation Studies at SWD. The PCX will set up and facilitate the conduct of the Agency Technical Review. CENAB will work with the ATR Team Leader to ensure that adequate funding is available and is commensurate with the level of review needed. 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. Any funding shortages will be negotiated on a case-by-case basis and in advance of a negative charge occurring.

See Attachment 1 for an overview of tasks, costs, and schedules. The ATR is currently estimated to cost \$12,000. The preliminary schedule indicates that ATR activities will occur in February and March 2016.

ATR Schedule and Cost. Actual Cost for ATR was \$8,613

CURRENT CURWENSVILLE NEPA SCHEDULE (as of 20 July 2016)				
Start Date (NLT)	Completion Date (NLT)	Who	Task	Status
27-May-15	30-Jun-15	PL	Compile & Update Draft Final Mailing List	Complete
1-Jun-15	10-Jun-15	PL	Prepare Draft EA Preparation Notice	Complete
10-Jun-15	12-Jun-15	PDT/Mgt	Review EA Preparation Notice	Complete
17-Jun-15	7-Jul-15	PL	EA Preparation Notice Printing and Distribution	Complete
22-Jun-15	21-Aug-15	PL/PDT	Analyze & Recompile SRBC/EA Hydrologic Engineering Report	Complete
22-Jun-15	5-Oct-15	PL	Prepare EA Existing Conditions	Complete
3-Aug-15	5-Oct-15	PL	Prepare EA Environmental Consequences	Complete
	5-Oct-15	PL	Complete Draft EA	Complete
6-Oct-15	30-Oct-15	PDT	PDT Review of Draft EA	Complete
21-Oct-15	6-Nov-15	PL	Prepare EA Responses and Incorporate PDT Comments	Complete
10-Nov-15	25-Nov-15	PDT	PDT Backcheck Review of EA	Complete
23-Nov-15	10-Dec-15	PL	Incorporate EA PDT Backcheck Comments	Complete
14-Dec-15	31-Dec-15	DQC Team	DQC Team Review of EA	Complete
4-Jan-16	15-Jan-16	PL	Prepare EA Responses and Incorporate DQC Comments	Complete
19-Jan-16	29-Jan-16	DQC Team	DQC Team EA Backcheck Review and Initial Letter Report (LR) Review	Complete
1-Feb-16	22-Feb-16	PL	Incorporate DQC Team EA Backcheck Comments and LR Review Comments	Complete
22-Feb-16	7-Mar-16	DQC Team	Draft DQC Review Documentation	Complete
29-Feb-16	18-Mar-16	DQC Team	DQC Certification - DQC Team	Complete
	14-Mar-16	PL/PDT/ATR Reviewers	ATR Kickoff Meeting/Webinar	Complete
14-Mar-16	25-Mar-16	ATR Reviewers	ATR Review of EA and LR	Complete
28-Mar-16	8-Apr-16	PL/PDT	PDT Prepare Responses	Complete
11-Apr-16	11-Apr-16	ATR Reviewers	Backcheck Review	Complete
18-Apr-16	22-Apr-16	PL/PDT/ATR Reviewers	Resolution of Comments (if required)	N/A
12-Apr-16	29-Apr-16	ATR Reviewers	ATR Review Report/Certification	Complete
13-Apr-16	22-Apr-16	CPD Branch Chief	CPD Branch Chief Review	Complete
25-Apr-16	29-Apr-16	PL	Incorporate CPD Branch Chief Review Comments	Complete
2-May-16	6-May-16	CPD Branch Chief	CPD Branch Chief Backcheck Review	Complete
6-May-16	25-May-16	OC	Office of Counsel Review	Complete
20-May-16	17-Jun-16	PL	Incorporate OC Comments	Complete
21-Jun-16	1-Jul-16	OC	Office of Counsel Backcheck Review	Complete
5-Jul-16	8-Jul-16	PL	Address any OC Backcheck Comments	Complete
11-Jul-16	22-Jul-16	PL Chief	PL Division Chief Review	
25-Jul-16	29-Jul-16	PL	Incorporate PL Division Chief Review Comments	
1-Aug-16	5-Aug-16	PL Chief	PL Division Chief Backcheck & Signature	
	8-Aug-16	PL	Submit LR, EA, & FONSI Package to NAD for Review	
15-Aug-16	14-Sep-16	NAD	NAD Review	
19-Sep-16	18-Oct-16	PL	Incorporate NAD Comments	
19-Oct-16	28-Oct-16	PL	DQC Review	
31-Oct-16	30-Nov-16	Public	Public Review	
1-Dec-16	8-Dec-16	PL	Incorporate Public Review Comments	
9-Dec-16	14-Dec-16	PL	DQC Review	
15-Dec-16	22-Dec-16	PL	Distribute FONSI for Signature	
	22-Dec-16	PL	Signed FONSI	

c. Type I IEPR Schedule and Cost. Not applicable

d. Model Certification/Approval Schedule and Cost. Not applicable.

11. PUBLIC PARTICIPATION

a. Prior Activities. Federal, state, and local resource agencies as well as the general public were all involved the 2010 study entitled "Ecosystem Flow Recommendations for the Susquehanna River Basin". Following this effort, SRBC involved many of the same organizations and individuals in the

development of its "Low Flow Protection Policy" that established new flow values as triggers for consumptive use mitigation and then later in its own detailed investigation of potential impacts on its contracted water supply storage at Curwensville Lake. In June 2011, SRBC held a public workshop in Clearfield, PA, to present information on the alternative plans under consideration. SRBC sent out a letter on August 4, 2011 informing resource agencies of their proposed study and requested information. SRBC coordinated with the USFWS as part of this effort. These coordination efforts were adopted by USACE for use in this EA to meet requirements of NEPA and the Fish and Wildlife Coordination Act.

On 9 July 2015, CENAB issued a Public Notice indicating that USACE was investigating a revised plan for the water supply storage owned by SRBC at Curwensville Lake, Pennsylvania.

- b. Current Activities. CENAB has prepared a draft Letter Report, Environmental Assessment and FONSI concerning the in-lake, lake-side, and downstream impacts of changing the water supply release triggers from the current annual Q7-10 values to the proposed monthly P95 values. The SRBC has participated on the PDT reviewing the draft EA. These documents will be coordinated with the resource agencies and general public as well. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. Copies of resource agency and public comments on CENAB's Environmental Assessment will be provided to the ATR team. All the public involvement requirements for NEPA have been and will continue to be met. Significant and relevant public comments will be provided to reviewers before they conduct their review.

12. REVIEW PLAN APPROVAL AND UPDATES

The PCX for Water Management and Reallocation Studies at SWD recommends approval of the Review Plan and is responsible for ensuring that this Review Plan is appropriate for the Letter Report and EA for the planned revisions to the Curwensville Lake Reservoir Regulation Manual. The MSC Commander has the authority to approve and re-approve the Review Plan. The Review Plan is a living document and may change as revisions to the Letter Report and EA progress. CENAB is responsible for keeping the Review Plan up-to-date. 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 MSC's approval memorandum, will be posted on CENAB's public webpage.

13. REVIEW PLAN POINTS OF CONTACT

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

- District Contact, Project Manager: Phil Cwiek, 410-962-6010
- District Contact, Study Manager: Mark Chalecki, 410-962-4998
- MSC Contact: Ralph LaMoglia, 347-370-4599
- Review Management Organization: Cherilyn Plaxco, 501-324-5036

ATTACHMENT I: TEAM ROSTER

Project Delivery Team	
Project Manager	Phil Cwiek, CENAB, OP-FC
Study Manager	Mark Chalecki, CENAB-PL-P
Water Manager	J. William Haines, CENAB-EN-WW
Environmental	Chris Spaur, CENAB-PL-P
Water Manager	John Balay, SRBC
H&H	George Lazorchick, SRBC

District Quality Control (DQC) Team	
NEPA Specialist	Michele Gomez
Plan Formulation	Andrew Roach
Water Management	Julia Fritz

Agency Technical Review (ATR) Team	
NEPA Specialist/Environmental	Jesse Granet, CENWK-PM-PR
ATR Team Lead, Plan Formulation	John Grothaus, CENWK-PM-PF
Water Management	Edward Parker, CENWK-ED-HC

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 Environmental Assessment (EA) for the Curwensville Lake Water Supply Releases to West Branch Susquehanna and Susquehanna Rivers, Pennsylvania.

The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-214. 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

Date

Office Symbol

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: ACRONYNS AND ABBREVIATIONS

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