



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

CENAD-RBT

MAY 31 2013

MEMORANDUM FOR Commander, Baltimore District, US Army Corps of Engineers, ATTN: Dam Safety Officer (Mr. Maj), P.O. Box 1715 Baltimore, MD 21203-1715

SUBJECT: Review Plan Approval for the Issue Evaluation Study, Howard Protective Works, Foster Joseph Sayers Dam, PA (NID #PA00005-AS1)

1. References:

a. Review Plan for the Issue Evaluation Study, Howard Protective Works, Foster Joseph Sayers Dam, PA (NID #PA00005-AS1).

b. EC 1165-2-214, Water Resources Policies and Authorities - Civil Works Review, 15 December 2012.

2. The enclosed Review Plan for the Issue Evaluation Study (IES) of the Howard Protective Works has been prepared in accordance with Reference 1.b.

3. The USACE Risk Management Center (RMC) will be the Review Management Organization (RMO) for the Agency Technical Review (ATR). As the IES will not lead to a modification report, the Review Plan does not include an Independent External Peer Review (IEPR).

4. In 2009 the Howard Protective Works was rated a Dam Safety Action Class 2 (DSAC 2) by the Dam Safety Senior Oversight Group. Subsequent to the DSAC 2 rating the project underwent a Potential Failure Mode Analysis (PFMA) in July 2011 and an Expert Opinion Elicitation (EOE) in October 2011. The District has completed the IES report and it is currently undergoing District Quality Control (DQC) review.

5. The Review Plan for the IES of the Howard Protective Works is approved. The Review Plan is subject to change, as 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

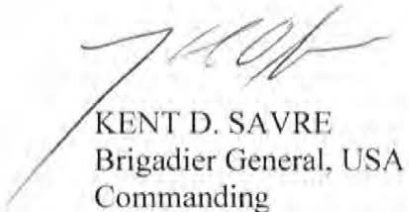
6. In accordance with Reference 1.b, Appendix B, Paragraph 6, this approved Review Plan shall be posted on your district website for public review and comment.

CENAD-RBT

SUBJECT: Review Plan Approval for the Issue Evaluation Study, Howard Protective Works,
Foster Joseph Sayers Dam, PA (NID #PA00005-ASI)

7. The Point of Contact in Business Technical Division for this action is Daniel Rodriguez,
347-370-7095 or Daniel.J.Rodriguez@usace.army.mil

Encl
as



KENT D. SAVRE
Brigadier General, USA
Commanding

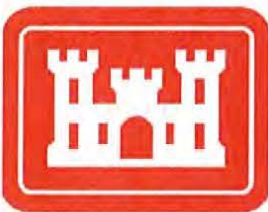
CF (w/ encl):
CENAB-EC-G (Mr. J. Snyder)

**Review Plan
U.S. Army Corps of Engineers
CENAB District
CENAD Division**

**Howard Protective Works NID#
PA00005AS1**

Part of Foster Joseph Sayers Dam Project

Issue Evaluation Study



**US Army Corps
of Engineers®**

April 2013

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1. Introduction

a. Purpose

This Review Plan is intended to ensure a quality-engineering Dam Safety Issue Evaluation Study developed by the Corps of Engineers. ER 1110-2-1156, "Dam Safety Policy and Procedures" dated 28 Oct 2011, Chapter 8 describes the Issue Evaluation Study (IES) Plan development, review, and approval process. This Review Plan has been developed for Howard Protective Works (aka Howard Levee) NID# PA00005AS1. This Review Plan was prepared in accordance with EC 1165-2-209, "Civil Works Review Policy", and covers the review process for the Howard Protective Works Phase I IES Report. The IES is a study that may lead to additional studies, modeling, or NEPA consultation. NEPA compliance would occur during the Dam Safety Modification Study Phase. Because the Phase 1 IES is used to justify a Phase 2 Issue Evaluation Studies and potentially Dam Safety Modification (DSM) studies, it is imperative that the vertical teaming efforts are proactive and well coordinated to assure collaboration of the report findings, conclusions, and recommendations, and that there is consensus at all levels of the organization with the recommended path forward.

b. Project Description and Information

Project Description.

The functioning of the Howard levee is closely associated with the Foster Joseph Sayers Dam. Foster Joseph Sayers Dam (formerly named Blanchard Dam) is located on the Bald Eagle Creek, in Centre County in central Pennsylvania. It is located about 1 mile upstream of Blanchard and Eagleville, Pennsylvania. The dam was constructed over the period from 1966 through September 1969, when it was placed into operation. The reservoir has a drainage area of 339 square miles and a flood control storage capacity of 71,290 acre-feet. The summer pool at elevation 630 feet has a surface area of 1,820 acres. Top of dam elevation is 683. The maximum pool experienced to date was elevation 658.41 on 25 June 1972.

The Howard Levee is located along the right (southeast) side of the Foster Joseph Sayers Reservoir approximately 3.8 miles above the dam to protect the town of Howard, Pennsylvania. The protective system is owned and operated by the Baltimore District Corps of Engineers. The levee is 6,704 feet long, has a top elevation of 667 feet NGVD (National Geodetic Vertical Datum), has a maximum height of 47 feet above the lowest elevation at the reservoir toe, and is approximately 37 feet above the lowest elevation at the inside levee toe. The levee section was constructed of impervious fill with a 10-foot

deep inspection trench also backfilled with impervious material. A toe trench installed along the critical reaches of the levee alignment was backfilled with pervious fill materials for seepage control. The top width of the levee is 10 feet. The slopes on the reservoir side of the levee are 1V (vertical) on 3H (horizontal) above elevation 660 and 1V on 5.5H below that elevation. The slopes on the interior (protected) side of the levee are 1V on 2.5H above elevation 660, and 1V on 3.5H below that elevation. The base width at the maximum section is 410 feet. The reservoir side slopes are protected with riprap for the full height of the slope along the upstream and downstream ends of the levee all the way to the tie-ins at high ground. The center section of the reservoir side slope and the entire top and interior side slopes are grassed. Interior drainage for the dike is provided using ponding areas, one at each end of the levee, with 48-inch corrugated metal outflow pipes, each fitted with flap valves and manually operated sluice gates located in reinforced concrete control manholes extending to the levee crest.

Project Background.

The Howard Protective Works (also referred to as the Howard Levee) was constructed in 1965 as part of the Foster Joseph Sayers Dam project. Howard Levee protects the Borough of Howard, PA from high reservoir levels up to 10 feet above the spillway crest at Sayers Dam, but not to the top of the dam which is 26 feet above the spillway crest. The levee was subjected to the record pool (8.6 feet below the levee crest) during Tropical Storm Agnes in June 1972 and performed with no apparent deficiencies. The levee has continued to perform without problems during flood conditions during the 40 years since the record event in 1972. The primary concerns for the project are associated with the potential for overtopping by an unusual reservoir event (the top of the levee is equivalent to approximately a 4000-year event), and eventual deterioration of the two corrugated metal drainage conduits which are currently still in good condition.

Risk Assessment Background.

Howard Levee was subjected to a Screening Portfolio Risk Assessment (SPRA) in April 2009 and was subsequently assigned a DSAC rating of II indicating an *urgent* and *unsafe or potentially unsafe* condition. An Interim Risk Reduction Measures (IRRM) plan was approved in April 2010 and many of the recommended measures have been implemented. An Issue Evaluation Study (IES) was initiated with a facilitated Probable Failure Mode Analysis (PFMA) in July 2011 and an Expert Opinion Elicitation (EOE) in October 2011. The initial draft of the IES report will be completed by late May 2012 and will be subjected to an internal review by the Baltimore District using qualified technical

personnel familiar with civil works projects. The District review will be conducted and comments resolved by 30 June 2012. The completed IES report will be available for Agency Technical Review (ATR) and Quality Control and Consistency (QCC) Review beginning 1 July 2012.



Howard Protective Works

c. Levels of Review

IES Reviews shall include:

- District Quality Control (DQC)
- Agency Technical Review (ATR)
- RMC Reviews shall include:
- Quality Control and Consistency Review (RMC staff and/or external experts)

Independent External Peer Review (IEPR) is applied in cases that meet certain criteria. This IES is not a decision document and does not cover work requiring a Type I

or Type II IEPR. Issue Evaluation Studies are used to justify Dam Safety Modification Studies. If this project requires a Dam Safety Modification Study, both Type I and Type II IEPR will be conducted.

d. Review Team

Review Management Office: The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for dam safety related work, including this IES. Contents of this review plan have been coordinated with the RMC and the North Atlantic Division, the Major Subordinate Command (MSC). Informal coordination with NAD will occur throughout the IES development, including briefings to the NAD Dam Safety Committee and Program Review Board updates. In-Progress Review (IPR) team meetings with the RMC, NAD, and HQ will be scheduled on an "as needed" basis to discuss programmatic, policy, and technical matters. The NAD Dam Safety Program Manager will be the POC for vertical team coordination. This review plan will be updated for each new project phase.

Agency Technical Review Team: (List any additional project specific required technical specialties in this section)

Required ATR Team Expertise: The ATR team will be chosen based on each individual's qualifications and experience with similar projects.

ATR Lead: The ATR team is a senior professional with extensive experience in preparing Civil Works documents and conducting ATRs (or ITRs). The lead has 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, in this case, Structural Engineering, Geotechnical Engineering, or Geologist.

2. **Geotechnical Engineer** - shall have experience in the field of geotechnical engineering, analysis, design, and construction of embankment dams. The geotechnical engineer shall have experience in subsurface investigations, rock and soil mechanics, internal erosion (seepage and piping), slope stability evaluations, erosion protection design, and earthwork construction. The geotechnical engineer shall have knowledge and experience in the forensic investigation of seepage, settlement, stability, and deformation problems associated with high head dams and appurtenances constructed on rock and soil foundations.
3. **Engineering Geologist** - shall have experience in assessing internal erosion (seepage and piping) beneath embankment dams constructed on various types of bedrock formations as well as glacial deposits. The engineering geologist shall be familiar with identification of geological hazards, exploration techniques, field

and laboratory testing, and instrumentation. The engineering geologist shall be experienced in the design of grout curtains and must be knowledgeable in grout methodology, concrete mix designs, and other materials used in foundation seepage barriers.

4. **Hydraulic Engineer** – shall have experience in the analysis and design of hydraulic structures related to dams including the design of hydraulic structures including outlet works. The hydraulic engineer shall be knowledgeable and experienced with the routing of inflow hydrographs through multipurpose flood control reservoirs utilizing multiple discharge devices, Corps application of risk and uncertainty analyses in flood damage reduction studies, and standard Corps hydrologic and hydraulic computer models used in drawdown studies, dam break inundation studies, hydrologic modeling and analysis for dam safety investigations.
5. **Mechanical Engineer** – shall have experience in machine design, machine rehabilitation and familiarity with design of mechanical gates and controls for flood control structures.
6. **Structural Engineer** – shall have experience and be proficient in performing stability analysis, finite element analysis, seismic time history studies, and external stability analysis. The structural engineer shall have specialized experience in the design, construction and analysis of concrete structures.
7. **Economist (or Consequence Specialist)** – shall be knowledgeable of policies and guidelines of ER 1110-2-1156 as well as experienced in analyzing flood risk management projects in accordance with ER 1105-2-100, the Planning Guidance Notebook. The economist shall be knowledgeable and experienced with standard Corps computer models and techniques used to estimate population at risk, life loss, and economic damages.

8. Requirements

a. Reviews

The review of all work products will be in accordance with the requirements of EC 1165-2-209 by following the guidelines established within this review plan. All engineering and design products will undergo District Quality Control Reviews.

i. District Quality Control (DQC)

DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements. DQC will be performed for all district engineering products by staff not involved in the work and/or study. Basic quality control tools

include a plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc.

ii. Agency Technical Review (ATR)

ATR is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assure that all the parts fit together as a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists, etc.), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home Major Subordinate Command (MSC).

iii. Independent External Peer Review (IEPR)

IEPR is the most independent level of review, and is applied in cases that meet certain criteria. This IES is not a decision document and does not cover work requiring a Type I or Type II IEPR. Issue Evaluation Studies are used to justify Dam Safety Modification Studies. If this project requires a Dam Safety Modification Study, both Type I and Type II IEPR will be conducted.

iv. Policy and Legal Compliance Review

Policy and Legal Compliance Review is required for decision documents. Since this IES is not a decision document it does not require a Policy and Legal Compliance Review. If this project requires a Dam Safety Modification Study, a Policy and Legal Compliance Review will be conducted.

v. Peer Review of Sponsor In-Kind Contributions

There will be no in-kind contributions for this IES.

b. Approvals

i. Review Plan Approval and Updates

The MSC for this IES is the North Atlantic Division. The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving the Baltimore District, MSC, RMC and HQUSACE members) as to the appropriate scope and level of review for the study and endorsement by the RMC. Like the PMP, the Review Plan is a living document and may change as the study progresses. The District is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval will be documented in an Attachment to this plan. Significant changes to the Review Plan (such

as changes to the scope and/or level of review) should be re-endorsed by the RMC and 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, will be posted on the District's webpage and linked to the HQUSACE webpage.

ii. IES Report

The IES Report shall undergo a DQC and formal ATR. After the ATR, the PDT will present the IES to the Quality Control and Consistency (QCC) Panel for review. The district and the risk assessment cadre present the IES risk assessment, IES findings, conclusions, and recommendations for review. After the QCC meeting, the Risk Cadre and RMC will certify that the risk estimate was completed in accordance with the Corps' current guidelines and risk management best practices. The IES will then be presented to the Senior Oversight Group (SOG). The SOG generally consists of the following members: Special Assistant for Dam Safety (Chair); CoP & Regional Representatives to include Geotechnical and Materials CoP Leader, Structural CoP Leader, and Hydraulics and Hydrologic CoP Leader; Regional representatives determined by Special Assistant for Dam Safety; Corps Business Line & Program Representatives to include DSPM, Flood Damage Reduction, Navigation, Programs, and Director, Risk Management Center; and any other Representatives determined by the Special Assistant for Dam Safety. The District Dam Safety Officer (DSO), the MSC DSO, and the SOG Chairman will jointly approve the final IES after all comments are resolved.

9. Guidance and Policy References

- ER 5-1-11, USACE Business Process
- EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 28 Oct 2011
- ER 1110-1-12, Quality Management, 31 Mar 2011

10. Summary of Required Levels of Review

The dam safety program follows the policy review process described in EC1165-2-209, Civil Works Review Policy. The RMC will be the review management office for the ATR, and the RMC must certify that the risk assessment was completed in accordance with the USACE current guidelines and best risk management practices. A Quality Control and Consistency (QCC) review will be conducted including the district, MSC, and RMC. The district and the risk assessment cadre will present the IES risk assessment, IES findings, conclusions, and recommendations for review. After resolution of QCC review

comments, the MSC and HQUSACE will complete quality assurance and policy compliance review.

11. Models

a. General

The use of certified or approved models for all planning activities is required by EC 1105-2-407. The EC defines planning models 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 EC does not cover engineering models. Engineering software is being addressed under the Engineering and Construction (E&C) Science and Engineering Technology (SET) initiative. Until an appropriate process that documents the quality of commonly used engineering software is developed through the SET initiative, engineering type models will not be reviewed for certification and approval. 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.

b. List

(List any planning models expected to be used in developing recommendations and the model certification/acceptance status.)

Model	Status
None anticipated	

12. Review Schedule

Project Phase / Submittal	Review Start	Review Complete
DQC Review	29 May 2012	8 June 2012
ATR Review	July 2012	9 November 2012
Report Revisions and Backcheck	13 November 2012	30 April 2013
Submit Report to QCC	3 May 2013	
QCC Review	3 May 2013	13 June 2013

Report Revisions	17 June 2013	20 July 2013
Submit Report to SOG	TBD	
SOG Review	TBD	
Report Revisions	TBD	

13. Public Participation

Public participation will not take place until the IES phase is completed. Findings of the Final IES will be shared with appropriate stakeholders. If this project results in a Dam Safety Modification Study (DSMS), future public coordination will occur for NEPA compliance.

14. Cost Estimate

Task Description	Review Start	Review Cost
DQC Review	29 May 2012	\$25,000
ATR Review	July 2012	\$25,000
QCC Review	May 2013	\$25,000
SOG Review	TBD	\$10,000

15. Execution Plan

Reviews will be documented using MSWord.

a. District Quality Control

i. General

DQC will be conducted after completion of the final draft IES. DQC requires both supervisory oversight and District technical experts. The district will conduct a robust DQC in accordance with EC 1165-2-209, Civil Works Review Policy, the District's Quality Management Plan, and ER 1110-2-12, Quality Management. Documentation of DQC activities is required and will be in accordance with the District and MSC Quality manuals. The DQC and ATR will be concurrent.

DQC Review and Control

The District DSAC Project Manager will schedule DQC review meetings. The in progress review meetings should include PDT members from Geotechnical, Dam Safety, Hydrology & Hydraulics, Structures, Mechanical, General Engineering, Cost Engineering, Project Management, Planning, and Operations as applicable. DQC Review will be conducted on the completed final draft IES including all Sections and Appendixes and will include comments, backcheck and IES revisions. MSWord will be used to document reviewer comments, responses and associated resolutions.

Comments should be limited to those that are required to ensure the adequacy of the product.

b. Agency Technical Review

i. General

Draft ER 1110-2-1156, Chapter 8 describes the purpose, process, roles and responsibilities for an IES in addition to the submittal, review, and approval process. The Risk Management Center (RMC) is responsible for coordinating and managing agency technical review of the IES Report in accordance with EC 1165-2-209. The ATR Lead will be an RMC team member unless otherwise approved by the RMC Director. The ATR Lead in cooperation with the PDT, MSC, and vertical team will determine the final make-up of the ATR team.

ii. ATR Review and Control

Reviews will be conducted in a fashion which promotes dialogue regarding the quality and adequacy of the IES and baseline risk assessment necessary to achieve the purposes of the IES. The ATR team will review the IES report which includes supporting risk and stability analysis documentation. A QCC of the baseline risk estimate and supporting documentation will be performed under the leadership of the RMC. Therefore, the level of effort for each ATR reviewer is expected to be between 16 and 32 hours. MSWord will be used to document reviewer comments, responses and associated resolutions. Comments should be limited to those that are required to ensure the adequacy of the product. The RMC in conjunction with the MSC, will prepare the charge to the reviewers, containing instructions regarding the objective of the review and the specific advice sought.

The four key parts of a 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 been 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.
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the PDT 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 will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical coordination, and lastly the agreed upon resolution. The ATR team will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution. Review Reports will be considered an integral part of the ATR documentation and shall also:

- (1) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer.
- (2) Include the charge to the reviewers prepared by the RMC in accordance with EC 1165-2-209, 7c.
- (3) Describe the nature of their review and their findings and conclusions.
- (4) Include a verbatim copy of each reviewer's comments and the PDT's responses.

ATR may be certified when all ATR concerns are either resolved or referred to HQUSACE for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date, for the final report. A draft certification is included in Attachment 1.

16. Review Plan Points of Contact

Name/Title	Organization	Email/Phone
James Snyder DSPM	NAB	james.r.snyder@usace.army.mil
Michael Snyder Lead Engineer	NAB	michael.r.snyder2@usace.army.mil
Mark Pabst, RMC Cadre Leader	RMC-WD	mark.w.pabst@usace.army.mil
Tom Bishop / Review Manager	CEIWR-RMC	thomas.w.bishop@usace.army.mil

ATTACHMENT I

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the IES for Howard Protective Works. 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

James R. Snyder, PE
Project Manager (DSPM)
Office Symbol

Date

SIGNATURE

Name
Architect Engineer Project Manager¹
Company, location

Date

SIGNATURE

Nathan Snorteland
CEIWR-RMC

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

Ronald J. Maj, PE
Chief, Engineering Division
Office Symbol

Date

SIGNATURE

Name
Dam Safety Officer² (home district)
Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

² Only needed if different from the Chief, Engineering Division.

ATTACHMENT 2: TEAM ROSTERS

Include rosters and contact information for the current PDT, Risk Cadre, DQC team, ATR team, vertical team and RMC points of contact.

Issue Evaluation Study – Risk assessment -PDT

Name	Office	Discipline
Mark Pabst	Risk Management Center	Facilitator - Geotechnical
Cadre Members		
Jeff McGrath	St. Paul District	Consequences
Chris Hogan	Risk Management Center	Geotechnical – Co-Author
Yong Rhee	Northwest Division	DAMRAE
Michael Nield	Huntington District	Geologist
Christopher Myers	Philadelphia District	Geotechnical
Tim Paulus	St. Paul District	Mechanical
David Williams	Tulsa District (via telecom)	H&H
Dan Hernandez	Tulsa District	H&H
Dave Schaaf	Risk Management Center	Structural
Jacob Davis	Risk Management Center	Geotechnical and Project
Tom Terry	Risk Management Center	Geologist
District Members		
Mike Snyder	Baltimore District	Geotechnical – Co-Author
Megan Garrett	Baltimore District	Geologist
James Snyder	Baltimore District	DSPM & Geotechnical
Ron Maj	Baltimore District	Chief of Engineering (DSO)
Preston Jacka	Baltimore District	Structural
Donald Ruhl	Baltimore District	Mechanical
Ali Sharif	Baltimore District	H&H
Dennis Seibel	Baltimore District	H&H
Claire O'Neill	Baltimore District	Financial Project Manager

DQC Review Team

Review Team Member	Organization	Technical Role
Brian Glock, PE	Foundations & Dams Section, Geotechnical Branch	Geotechnical Engineer
Megan Garrett, PG	Geology & Investigations Section, Geotechnical Branch	Geologist
Dennis Seibel, PE	Water Resources Section, Civil Works Branch	Hydrology & Hydraulics Engineer
Yohannes Assefa, PE	Structural Section, Design Branch	Structural Engineer
Thomas Rossbach, PE	Ch. Geotechnical Branch	Geotechnical Engineer

RMC Consistency Review Team

Chris Hogan, PE (RMC)

Kevin Richards, PhD, PE (RMC)