WEST POINT DAM

ISSUE EVALUATION STUDY
REVIEW PLAN

CHATTAHOOCHEE RIVER, GEORGIA

FINAL 21 August 2015

Mobile District, South Atlantic Division

U.S. Army Corps of Engineers

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SOUTH ATLANTIC DIVISION
60 FORSYTH STREET SW, ROOM 10M15
ATLANTA GA 30303-8801

04 SEP 2015

CESAD-RBT

MEMORANDUM FOR COMMANDER, MOBILE DISTRICT

SUBJECT: Approval of the Review Plan for the Phase 1 Issue Evaluation Study, West Point Dam, Chattahoochee River, Georgia

1. References:

a. Memorandum, CESAM-EN, 26 May 2015, subject: Review Plan, West Point Dam Phase 1 Issue Evaluation Study (IES) , Chattahoochee River, Georgia (Encl 1).

b. Memorandum, CEIWR-RMC, 19 May 2015, Risk Management Center Endorsement – West Point Dam, Issue Evaluation Study, Review Plan (Encl 2).

c. EC 1165-2-214, Civil Works Review, 15 December 2012.

2. The Review Plan (RP) for the West Point Dam Phase 1 IES, submitted by the Mobile District via reference 1.a and endorsed by the Risk Management Center (RMC) via reference 1.b has been reviewed by this office. Based on our review and additional RMC coordination by the South Atlantic Division office, the enclosed RP is approved in accordance with reference 1.c above.

3. SAD has confirmed with the RMC that they will serve as the Review Management Organization (RMO) for this Phase 1 IES. It should be noted that this Review Plan requires a Quality Control and Consistency (QCC) Review separate from and occurring after the ATR. SAD has confirmed with the RMC that they will coordinate this QCC review as part of their RMO role. SAD concurs with the conclusion of the District Chief of Engineering and the RMC that an Independent External Peer Review (IEPR) is not required on this Phase 1 IES document.

4. The District should take steps to post the approved RP to its web site and provide a link to CESAD-RBT and the RMC Senior Review Manager (rmc.review@usace.army.mil). Before posting to the web site, the names of Corps/Army employees should be removed. Subsequent significant changes, such as scope changes or level of review, to this RP, should they become necessary, will require new written approval from this office.

CESAD-RBT
SUBJECT: Approval of the Review Plan for the Phase 1 Issue Evaluation Study, West Point Dam, Chattahoochee River, Georgia

5. The SAD point of contact is Mr. James Truelove, CESAD-RBT, 404-562-5121.

C. DAVID TURNER
Brigadier General, USA
Commanding

2 Encls
1. Memo, CESAM-EN, 26 May 15
2. Memo, CEIWR-RMC, 19 May 15

CF:
CESAM-EN /Mr. Douglas C. Otto
CESAM-EN-GG /Mr. Dennis E. Mekkers

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, MOBILE DISTRICT
PO BOX 2298
MOBILE, AL 36628

REPLY TO
ATTENTION OF

CESAM-EN

26 May 2015

MEMORANDUM THRU CESAD-RBT (James C. Truelove) 60 Forsyth Street SW, Room 10M15, Atlanta, GA 30303

FOR CESAD-DE (BG David C. Turner) 60 Forsyth Street SW, Room 10M15, Atlanta, GA 30303

SUBJECT: Review Plan, West Point Dam Phase 1 Issue Evaluation Study (IES), Chattahoochee River, Georgia.

1. The Review Plan for the West Point Dam Phase 1 IES is submitted for your approval.

2. The Review Plan has been prepared in accordance with EC 1165-2-214 and coordinated with and endorsed by the Risk Management Center of the Institute for Water Resources. This review plan does not include Independent External Peer Review.

3. The West Point Periodic Assessment was presented to the Dam Safety Senior Oversight Group on 29 January 2014. West Point Dam was assigned Dam Safety Action Classification 2 by CECW Memorandum dated 2 May 2014 with recommendation to initiate a Phase 1 IES. The Risk Management Center initiated the Phase 1 IES in March 2015. This Review Plan reflects the level of review required for the Phase 1 IES.

4. Questions or comments regarding this plan should be directed to Dennis Mekkers PE, Dam Safety Program Manager at (251) 690-3055.

Encl

Douglas C. Otto, Jr. PE
Chief, Engineering Division

CF:
CESAD-RBT (C. Smith)
CESAM-OP (W. Fuller)
CESAM-EN-G (J. Krick)
CESAM-EN-GG (D. Mekkers)
CESAM-EN-H (R. Harvey)

Encl 1

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
RISK MANAGEMENT CENTER
12596 WEST BAYAUD AVE., SUITE 400
LAKEWOOD, CO 80228

REPLY TO
ATTENTION OF

CEIWR-RMC

19 May 2015

MEMORANDUM FOR: Commander, Mobile District, ATTN: CESAM-EN-GG

SUBJECT: Risk Management Center Endorsement – West point Dam, Issue Evaluation Study, Review Plan

1. The Risk Management Center (RMC) has reviewed the Review Plan (RP) for – West Point Dam, Issue Evaluation Study, dated 15 May 2015, and concurs that this RP complies with the current peer review policy requirements outlined in EC 1165-2-214 "Civil Works Review Policy", dated 15 December, 2012.

2. This review plan was prepared by Mobile District, reviewed by SAD, and the RMC, and all review comments have been satisfactorily resolved. For this project an IEPR will not be performed.

3. The RMC endorses this document to be approved by the MSC Commander. Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander's approval memorandum to the RMC Senior Review Manager (rmc.review@usace.army.mil).

4. Thank you for the opportunity to assist in the preparation of this RP. Please coordinate all aspects of the Agency Technical Review (as appropriate) efforts defined in the RP. For further information, please contact me at 601-631-5896

Sincerely,

Dustin C. Herr, P.E.
Review Manager
Risk Management Center

CF:
CEIWR-RMC (Mr. Snorteland)
CENAD-DQM (Division Quality Manager)

Encl 2

REVIEW PLAN

WEST POINT DAM
PHASE 1 ISSUE EVALUATION STUDY

Table of Contents

1. INTRODUCTION

1.1. Purpose

This Review Plan has been developed specifically for West Point Dam to ensure a quality-engineering Phase 1 Dam Safety Issue Evaluation Study (IES) is developed by the Corps of Engineers. The IES plan development, review, and approval process is described in Engineering Regulation (ER) 1110-2-1156, "Safety of Dams – Policy and Procedures" dated 13 March 2014. This review Plan was developed in accordance with EC 1165-2-214 dated 15 Dec 2012, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision and implementation documents through independent review. The Phase 1 IES is a study to determine the nature of a safety issue or concern at the dam, whether the existing authorized project purposes warrant continued Federal investment, and the degree of urgency for Federal action. The Phase 1 IES will determine whether or not to pursue a Phase 2 IES or a Dam Safety Modification Study (DSMS) by focusing on all significant potential failure modes when evaluating risk, verifying the current Dam Safety Action Classification (DSAC) and guiding the selection and gauging the effectiveness of the interim risk reduction measures (IRRMs). Phase 1 IES results are used to assist dam safety officials with making risk informed decisions and prioritizing dam safety studies and investigations within the context of the entire USACE inventory of dams.

1.2. Project Description

West Point Dam is located on the Chattahoochee River 201.4 miles above the mouth in the western-most part of Georgia approximately 3 miles north of West Point, Georgia and 12 miles southeast of LaGrange, Georgia. The dam is located between two non-USACE dams operated by Georgia Power. Morgan Falls Dam is located approximately 110 river miles upstream and Langdale Dam is approximately 10 river miles downstream. The reservoir is located in the Apalachicola-Chattahoochee-Flint (ACF) River Basin in Chambers and Randolph counties in Alabama and Troup and Heard counties in Georgia. Authorized project purposes include flood control, hydroelectric power, recreation, fish and wildlife development and stream flow regulation for downstream navigation. Recreational facilities and access to the reservoir are provided, but recreation is typically not considered in water control decisions.

1.3. Dam Safety Action Classification

The Mobile District received a memorandum dated 2 May 2014 from HQUSACE Dam Safety Officer that officially changed the Dam Safety Action Classification (DSAC) from a DSAC 3 to a DSAC 2. The Periodic Assessment (PA) for West Point Dam was completed and presented to the Senior Oversight Group (SOG) on 29 January 2014 which resulted in the DSAC change because the risks due to dam breach are higher than originally thought. The following dam safety recommendations were approved by the Dam Safety Oversight Group (DSOG): initiate a Phase I IES; immediate consideration should be given by the District Dam Safety Officer (DSO)

to red-tag the powerhouse in the power plant as a life-safety risk due to the condition of the bulkhead; and to update the inflow design flood for current methodology.

The following O&M Actions were approved by the DSOG: consider immediately submitting an Interim Risk Reduction Measure Plan (IRRMP) work package to acquire O&M surplus funding to replace the bulkhead with a permanent structure; develop a means to provide redundancy or permanently close unit #4 of the powerhouse; add weirs downstream of the west embankment to measure flows to compare against precipitation and reservoir levels; and conduct a table top exercise on routine schedule with downstream communities in accordance with ER 1110-2-1156.

Based on the results of the PA, the consistency review and DSOG recommendations the dam was reclassified from a DSAC 3 to a DSAC 2.

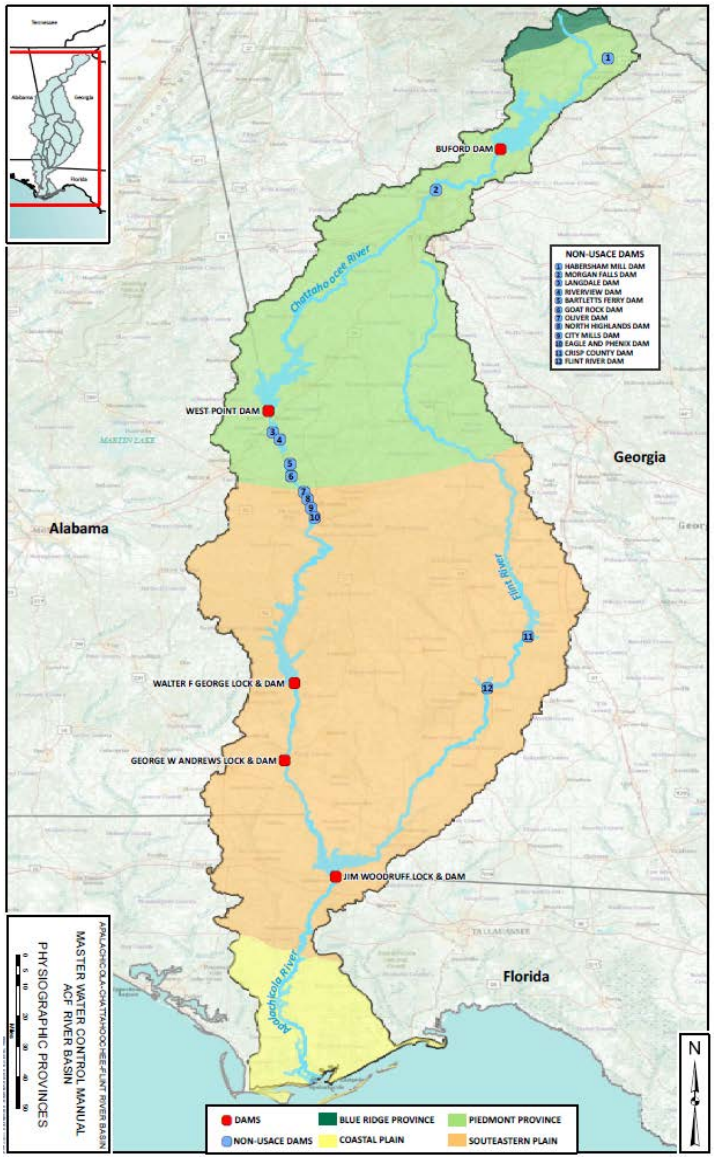

Figure 1: ACF River Basin and Project Location Map

1.4. Interim Risk Reduction Measures Plan (IRRMP)

An IRRMP was completed and approved in October 2014. Powerhouse closure was not considered a reasonably practicable measure to reduce risk. The following items are approved IRRMs for West Point Dam:

- Structural solutions to permanently reduce, or eliminate, risk associated with failure of the unit 4 bulkheads are being pursued using O&M funding in accordance with the DSAC change memorandum. The upstream, or intake, bulkheads are to be supplemented with a structural wall. Measures to reduce the risk associated with the downstream bulkheads, including bulkhead replacement, or operational procedures and/or personnel restrictions, are also being considered through the bulkhead replacement project. Bulkhead project design funds were obtained in March 2014, plans and specifications have been completed and are awaiting funds for construction. Once the construction is completed the risk of failure will be permanently reduced or eliminated.
- A lighting and video camera have been installed in the unit four space. Two monitors are in the powerhouse that provides live, continuous views of the bulkheads and space. A float-activated alarm has also been installed in the unit four space. These monitoring tools are tied into the SCADA and project alarm systems and the staff is trained to evaluate and respond accordingly.
- Weekly safety meetings are conducted on site.
- Site specific dam safety training to project personnel and contractors. This measure was completed by district Dam Safety personnel on-site on 8 May 2014.
- A weir, to be used to measure seepage at the west embankment was installed in December 2014.
- A drill, involving the District Commander, Readiness Branch, Operations Division, EN Division, Regulatory and Contracting Divisions, and field personnel, was held on 20 March 2014. Drills and TTX will alternate annually thereafter until an improved DSAC is obtained. A table top exercise is scheduled for 29 May 2015.
- The Emergency Action Plan (EAP) was updated, and distributed to state and local EMA officials on 25 April 2014. Final inundation maps were received from the Modeling, Mapping, and Consequence Center on 16 June 2014 and incorporated into the EAP.
- Local officials will be briefed on the implications of the risk driving failure modes and inundation scenarios so that they might improve their emergency preparedness.
- Risk communication strategies have been developed and are documented in Appendix B of the IRRMP.

1.5. References

1. ER 1110-2-1156, Safety of Dams – Policy and Procedure, dated 31 March 2014.

2. EC 1165-2-214, Civil Works Review Policy, 15 Dec 2012.
3. ER 1105-2-100, Planning Guidance Notebook.
4. EC 1165-2-203, Implementation of Technical Policy Compliance Review.
5. ER 1110-1-12, Quality Management for Engineering and Design.
6. ES 08085, Certification of CoP Members for Agency Technical Reviews, Engineering and Construction Community of Practice.

2. LEVELS OF REVIEWS

This Review Plan describes the scope of review for the West Point Dam Phase I IES. The level of reviews required for the West Point Dam Phase I IES includes:

- District Quality Control (DQC),
- Agency Technical Review (ATR),
- Quality Control and Consistency (QCC) Review
- Dam Safety Oversight Group Review, and
- Quality Assurance and Policy Compliance Review.

All four reviews are addressed in this document and discussed individually. Independent External Peer Review (IEPR) is applied in cases that meet certain criteria. This Phase I IES is not a decision document and does not cover work requiring a Type I or Type II IEPR. A Phase I IES is used to justify a Phase 2 IES or Dam Safety Modification Studies. If West Point Dam requires a Dam Safety Modification Study, both a Type I and Type II IEPR will be conducted.

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 South Atlantic Division (SAD), the Major Subordinate Command (MSC). The RMC Advisory Team will provide technical oversight and guidance, as necessary, to the PDT during the Phase I IES. The RMC Advisory Team will also facilitate coordination between the Mobile District PDT, NAP Risk Cadre and RMC Staff. In-Progress reviews (IPR) will be scheduled on an “as needed” basis to discuss programmatic, policy, and technical matters. The Study Manager, Marci Jackson, will be the point of contact for vertical team coordination. This review plan is a living document and will be updated for each new phase of the project. All reviews will be conducted and documented using the Projnet Dr. Checks software. National Environmental Policy Act (NEPA) documents are not anticipated for the West Point Dam Phase 1 IES efforts.

The PDT and risk cadre reviews are performed by members of the PDT and risk cadre to ensure consistency and effective coordination across all project disciplines. Additionally, the PDT and risk cadre are responsible for a complete reading of any reports and accompanying appendices prepared by or for the PDT and risk cadre to assure the overall coherence and integrity of the report, technical appendices, and the recommendations before approval by the District Commander.

PDT and review team member lists will be redacted as necessary in keeping with federal information security requirements.

3.1. District Quality Control Review

DQC is the backbone of the Corps' quality process. It 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). Reliance on subsequent levels of review by external teams is not an acceptable substitute for DQC. Basic quality control tools include quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, risk cadre reviews, review comment attribution, review document and comment archiving, etc.

All work products and reports, evaluations, and assessments will undergo DQC. The Mobile District will manage the DQC Review. Documentation of DQC activities will be in accordance with the Quality Manual of the Mobile District and South Atlantic Division and product issues identified during DQC will be resolved prior to ATR. The DQC requires the following fields of expertise for the review activities: geotechnical engineering, geology, hydraulic engineering, hydrology, structural engineering, water management, civil engineering, and a consequence specialist. The Section Chiefs representing each of the technical disciplines will provide in-progress design checks, advice, and supervisory review (as well as Quality Assurance) of the products.

Quality checks and reviews occur during the development process and are carried out as a routine management practice. Quality checks may be performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. However, they should not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts.

DQC efforts will include the necessary expertise to address compliance with published Corps policy. When policy and/or legal concerns arise during DQC efforts that are not readily and mutually resolved by the PDT, risk cadre, and the reviewers, the district will seek immediate issue resolution support from the South Atlantic Division and HQUSACE in accordance with the procedures outlined in Appendix H, Amendment #1, ER 1105-2-100 or other appropriate guidance.

South Atlantic Division and Mobile District quality manuals prescribe specific procedures for the conduct of DQC including documentation requirements and maintenance of associated records for internal audits to check for proper DQC implementation. For each Agency Technical Review (ATR) event, the ATR team will examine, as part of its ATR activities, relevant DQC records

and provide written comment in the ATR report as to the apparent adequacy of the DQC effort for the associated product or service.

3.1.1. PDT, Risk Cadre, and DQC Team

The PDT and Risk Cadre Teams are provided in the table below.

PDT Members	Discipline	District

Risk Cadre Members	Discipline	District

DQC Members	Discipline	District

3.2. Agency Technical Review

Agency Technical Review (ATR) is required to "ensure the quality and credibility of the government's scientific information" in accordance with EC 1165-2-214, and the Quality Management of SAD. The management of ATR review will be conducted by professionals outside of SAM. ATR team will be assigned by the RMC and comprised of senior USACE

personnel, preferably recognized subject matter experts with the appropriate technical expertise such as regional technical specialists (RTS), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team will be assigned by the RMC and will be from outside SAD. As the RMO, the RMC will issue a charge to reviewers to structure and guide the ATR team.

The West Point Phase I IES requires several fields of expertise for ATR review activities. These fields include geotechnical engineering, geology, hydraulic engineering, hydrology, structural engineering, water management, civil design, and consequence specialist. Consistency checks between all engineering concerns/documents will be included in all reviews by the ATR and will be a responsibility of the review members. The ATR will also examine relevant DQC records and provide written comment on the adequacy of the DQC effort.

During project development, seamless review by the ATR team is encouraged for all aspects of the project. The PDT members will initiate seamless reviews at appropriate times in order to reach a common understanding with their ATR counterparts, thereby minimizing significant comments/impacts during final ATR.

ATR will be conducted by a qualified team from outside SAM that is not involved in the day-to-day production of the project/product. There will be appropriate consultation throughout the review with the allied Communities of Practice (CoPs), other relevant CXs, and other relevant offices to ensure that a review team with appropriate expertise is assembled and a cohesive and comprehensive review is accomplished. The RMC, PDT, and risk cadre will coordinate with the Dam Safety Modification Mandatory Center of Expertise (DSMMCX) located in the Huntington District as necessary.

ATR efforts will include the necessary expertise to address compliance with applicable published policy. When policy and/or legal concerns arise during ATR efforts that are not readily and mutually resolved by the PDT, and the reviewers, the district will seek issue resolution support from SAD, RMC, DSMMCX and HQUSACE in accordance with the procedures outlined in ER 1105-2-100 (Appendix H), or other appropriate guidance.

ATR review comments, responses, and associated resolution of comments will be documented in DrChecks. The ATR documentation in DrChecks includes ATR comments, the PDT responses, comment resolution, and back check. The ATR team will prepare a report which includes a summary of each unresolved issue. Each unresolved issue will be raised to the vertical team for resolution. The Review Report will be considered an integral part of the ATR documentation.

ATR will be certified when all ATR comments are either resolved or referred to RMC and HQUSACE for resolution and the ATR documentation is complete. Certification of ATR shall be completed for each phase of work. The RMC will certify that the risk assessment was completed in accordance with the USACE current guidelines and best risk management practices.

After the ATR comments have been resolved, the Risk Cadre and PDT will present the technical findings of the risk assessment to the RMC and District DSO to achieve final consensus on conclusions, recommendations, and follow-on actions.

3.2.1. ATR Team

The ATR reviewers will be chosen based on each individual's qualifications and experience with similar projects and in accordance with civil works review policy and Enterprise Standard 08085. For the disciplines that play a crucial part in the project, Subject Matter Experts (SMEs) are preferred for filling the ATR roster.

ATR Lead: The ATR lead is a senior professional with extensive experience in preparing Civil Works documents and conducting ATRs. 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, e.g. Geotechnical Engineering.

Geotechnical Engineer - shall have experience in the field of geotechnical engineering, analysis, design, and construction of earthen 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.

Engineering Geologist - shall have experience in assessing internal erosion (seepage and piping) beneath earthen dams constructed on bedrock formations. 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 theology, concrete mix designs, and other materials used in foundation seepage barriers.

Hydraulic Engineer – shall have experience in the analysis and design of hydraulic structures related to dams including the design of hydraulic structures (e.g., spillways, outlet works, and stilling basins). 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.

Structural Engineer – shall have experience and be proficient in performing stability analysis, finite element analysis, seismic time history studies, and external stability analysis including foundations on structural components of concrete and steel structures. The structural engineer shall have specialized experience in the design, construction and analysis of concrete and steel dam features.

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.

ATR Members	Discipline	District

3.3. Quality Control and Consistency Review

After the ATR, the PDT will present the Phase 1 IES to the Quality Control and Consistency (QCC) Panel for review. The district and the risk cadre will present the Phase I 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.

QCC Panel Members	Role

3.4. Dam Safety Oversight Group Review

Upon satisfactory completion of the ATR and certification of the review effort, the District DSO will present the final report to the DSOG Panel. The District Dam Safety Officer (DSO), the MSC DSO, and the SOG Chairman will jointly approve the final IES after all comments are resolved. The DSOG will recommend the DSAC rating and whether the project warrants further study and investigation to HQ DSO.

3.5. Quality Assurance and Policy Compliance Review

All revisions resulting from the DSOG review must be completed prior to the report being forwarded to SAD and HQUACE for quality assurance and policy compliance review. Upon completion of SAD and HQ review efforts, all comments must be resolved and the document updated prior to final submittal for approval by USACE DSO.

4. REVIEW SCHEDULE

The review schedule will be developed once the scope of the IES has been developed. The IES cadre is meeting with SAM personnel at the project the last week of June 2015 for briefings, discovery, and exchange. The SOW will be completed shortly thereafter and this review plan and the review schedule be updated accordingly. Estimated review costs will be added at that time.

Project Phase/Submittal	***Review Start***	***Review Complete***
DQC Review	TBD	TBD
ATR Review	TBD	TBD
QCC Review	TBD	TBD
Report Revisions and Backcheck	TBD	TBD
Submit Report to DSOG	TBD	TBD
DSOG Review	TBD	TBD
Report Revisions	TBD	TBD
Policy Compliance Review	TBD	TBD

5. PUBLIC REVIEW AND PARTICIPATION

To ensure that the review approach is responsive to the wide array of stakeholders and customers, both within and outside the Federal Government, this Review Plan will be published on the district's public internet website here:

http://www.sam.usace.army.mil/Missions/PlanningEnvironmental/ProjectReviewPlans.aspx

The opportunity for public comment remains open as there is no formal comment period and no set closure date at this time. If and when comments are received, the PDT will consider them and decide if revisions to the review plan are necessary. The public is invited to review and submit comments on the plan as described on the web site.

6. MODELS

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.

7. REVIEW DOCUMENTATION

The work products will be reviewed using an interdisciplinary team approach. The products will be reviewed for scope and adequate level of detail; compliance with guidelines, policy, and customer needs; and consistency, accuracy, and comprehensiveness. Review comments will be identified with author and affiliation, and are expected to be constructive and relevant to the product. Review comments will contain the following elements: (a) a clear statement of the concern, (b) the basis for the concern, (c) the significance of the concern, and (d) the specific actions needed to resolve the concern. Reviewers must identify any significant deficiency; however, comments should be limited to those required to ensure adequacy of the product in meeting the stated objectives. Typographic errors and other minor stylistic changes should not be part of the formal technical review comments. Such comments will be provided separately to the PDT for their use and to the ATR team leader.

The RMO, Risk Management Center, will issue the charge to reviewers to the ATR review team. Mobile District will manage and document DQC review. All reviews will take place using the Projnet Dr. Checks software for documenting the comment, evaluation, and backchecks.

7.1. Comment Resolution

Review comments do not necessarily have to be complied with, but each comment must be addressed and resolved. If a PDT member disagrees with a comment, the PDT member will try to resolve the comment through discussions with the Review team member. The Review team leader will help facilitate those discussions as needed. When this does not result in resolution, the issue will be elevated through the PDT member's chain of command as necessary. If this level of interaction does not resolve the issue, the responsible Functional Chief will make the final decision. The Functional Chief may consult with the Branch Chief, the CESAD (Corps of Engineers South Atlantic Division) staff, SMEs, or other appropriate sources. Resolution of disputes will be documented in Dr. Checks as appropriate.

7.2. Technical and Policy Issue Resolution

Issues involving technical and policy interpretation shall be brought to the attention of the chief of the functional element for resolution. In some cases the chief of the responsible functional element may request that CESAD hold an issue resolution conference to resolve major policy or technical issues. CESAD may also arrange for HQUSACE participation in the issue resolution conference.

7.3. Certification

7.3.1. DQC Certification

For final products, a certification will be signed stating that issues raised by the DQC team have been resolved. The DQC certification will be signed by the review team leader, the SAM Dam Safety Program Manager, and the SAM Engineering Division Chief.

7.3.2. ATR Certification

For final products, a certification will be signed stating that issues raised by the ATR team have been resolved. The ATR certification will be signed by: the ATR Lead, the Project Manager, The RMO representative, SAM Engineering Division Chief and SAM Planning Division Chief. Current standard Corps certification forms will be used in alignment with EC 1165-2-214.

8. POINTS OF CONTACTS

Questions about this Review Plan may be directed to the IES Study Manager.

9. REVIEW PLAN APPROVAL

The Mobile District requests that the Risk Management Center (RMC) endorse the above recommendations described in this Review Plan and as described in Appendix B of EC 1165-2-214. The approval from the South Atlantic Division Commander will be requested once RMC endorsement is received.

Attachment 1 – ATR Certification Template

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the [product type & short description of item] for [project name and location]. 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 DrChecks$_{sm}$.

SIGNATURE

SIGNATURE

SIGNATURE

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:
[Describe the major technical concerns and their resolution and specifically list any agreed-upon deferrals to be completed in the next phase of work.]

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

SIGNATURE
[Name] Date
Chief, Engineering Division (home district)
[Office Symbol]