DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

22 JAN 2021

CESWF-PMC

MEMORANDUM FOR Commander, U.S. Army Corps of Engineers (CESWD-RBT), Southwestern Division, 1100 Commerce Street, Suite 831, Dallas, Texas 75242-1317

SUBJECT: Canyon Dam Issue Evaluation Study Review Plan

1. Enclosed for your approval is the Canyon Dam, Issue Evaluation Study Review Plan (RP). This RP was developed in accordance with EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products. This RP has undergone quality control reviews for technical accuracy by the Southwestern Fort Worth District (SWF), Southwestern Division (SWD) and Risk Management Center (RMC). All comments stemming from these reviews have been addressed and/or implemented. The RMC has endorsed this RP.

2. Any questions should be addressed to Ms. S. Vandi Leheny, Project Manager, Civil Works Branch, (817) 886 1563 or Mr. Paul Szempruch, Dam Safety Program Manager, Geotechnical Branch, (817) 886-1698.

Encl

KENNETH N. REED, PMP
Colonel, EN
Commanding

US Army Corps of Engineers®

Prepared by:

Southwestern Division
Fort Worth District

Canyon Dam (TX00004)

Review Plan – IES

PREPARED BY:

LEHENY.SHARON.VANDI.1014392609 Digitally signed by LEHENY.SHARON.VANDI.1014392609 Date: 2020.09.02 22:00:15 -05'00'

(signature)

Sharon Vandi Leheny
Fort Worth District, Project Management-Civil
Project Manager

ENDORSED BY:

Digitally signed by CARLSON.DAVID.ERIC.1228954302 Reason: RMO Endorsement of Review Plan Date: 2020.09.10 11:50:18 -04'00'

(signature)

David E. Carlson, P.E
Chief, Eastern Division
USACE, Risk Management Center

APPROVED BY:

BOCK.JOHN.R.1230461569 Digitally signed by BOCK.JOHN.R.1230461569 Date: 2021.01.29 09:27:35 -06'00'

(signature)

John R. Bock, P.E.
Interim Director, Regional Business Directorate

MSC Approval Date: 29 January 2021

Last Revision Date: None

NOTE: *All elevations in this document refer to NGVD29 unless otherwise noted to be in NAVD88. The conversion between datums is NGVD29 + 0.3 feet = NAVD88.*

Section 1
Purpose and Requirements

1.1 Purpose

This Review Plan (RP) for Canyon Dam Issue Evaluation Study (IES) (P2 490044), (TX00004) will ensure a quality-engineering product is developed by the U.S. Army Corps of Engineers (USACE) in accordance with EC 1165-2-217, "Review Policy for Civil Works". The Review Plan shall layout a value-added process and describe the scope of review for the IES.

1.2 References

- EC 1165-2-217, Review Policy for Civil Works, 20 February 2018
- ECB 2019-15, Interim Approach for Risk-Informed Designs for Dam and Levee Projects, 08 October 2019
- ER 1110-1-12, Quality Management, 31 Mar 2011
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 31 Mar 2014
- Project Management Plan (PMP) for study
- Canyon Dam (NID TX00004, CWIS 002590) and Canyon Dam Dike A (NID TX00004S-001, Guadalupe River, Texas; Embankment, Outlet Works, and Spillway; Periodic Assessment No. 01 Report

1.3 Requirements

This RP was developed in accordance with EC 1165-2-217, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products. This RP will be provided to Project Delivery Team (PDT), District Quality Control (DQC), Hydrologic Hazards and Loading Curve Reviewer, Agency Technical Review (ATR), and Quality Control and Consistency Review (QCC) Teams.

1.4 Review Management Organization

The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for this project. This Review Plan will be updated for additional project phases.

Section 2
Project Background and Information

2.1 Project Background

Authority and Purpose

Congressional authority for the construction of Canyon Dam is contained in the River and Harbor Act of 1945 (House Document 14, 79th Congress, 1st Session), which was modified in the Flood Control Act approved in 1954 (Public Law 780, 83rd Congress, 2nd Session). Construction of the dam began in April 1958, and deliberate impoundment began in June 1964. The lake filled to conservation pool level by 1968. The pool of record (POR)

was established in 2002 when the water crested the spillway and rose to reach a maximum elevation of 950.32 ft-msl. It is estimated that about two times the lakes volume in water went over the spillway during this flood event. Without the dam, every city between Canyon Lake and the Gulf of Mexico would have had severe flooding damage. The primary purposes of Canyon Lake and Dam are flood control (now referred to as flood risk management [FRM]) and recreation. The Project Business Line is FRM.

Water releases from Canyon Lake support an economically critical regional recreation and tourism industry, which includes canoe and kayak livery, inner tube rental, and advertising or promotional activities. In FY 2019 over 1,151,000 recreation visits occurred. Recreation lease partners include Comal County, Joint Base San Antonio, and the GBRA. Additionally, volunteers provided over 10,221 hours of labor to the project valued at over $259,000. Canyon provides 354,600 acre-feet of flood storage capacity. The lake has more than $703,245,000 in cumulative flood damages prevented.

Location

Canyon Dam is located at river mile 303.0 on the Guadalupe River, about 12 miles northwest of New Braunfels, Texas (see Figure 2-1). The entire project is located in Comal County, Texas.

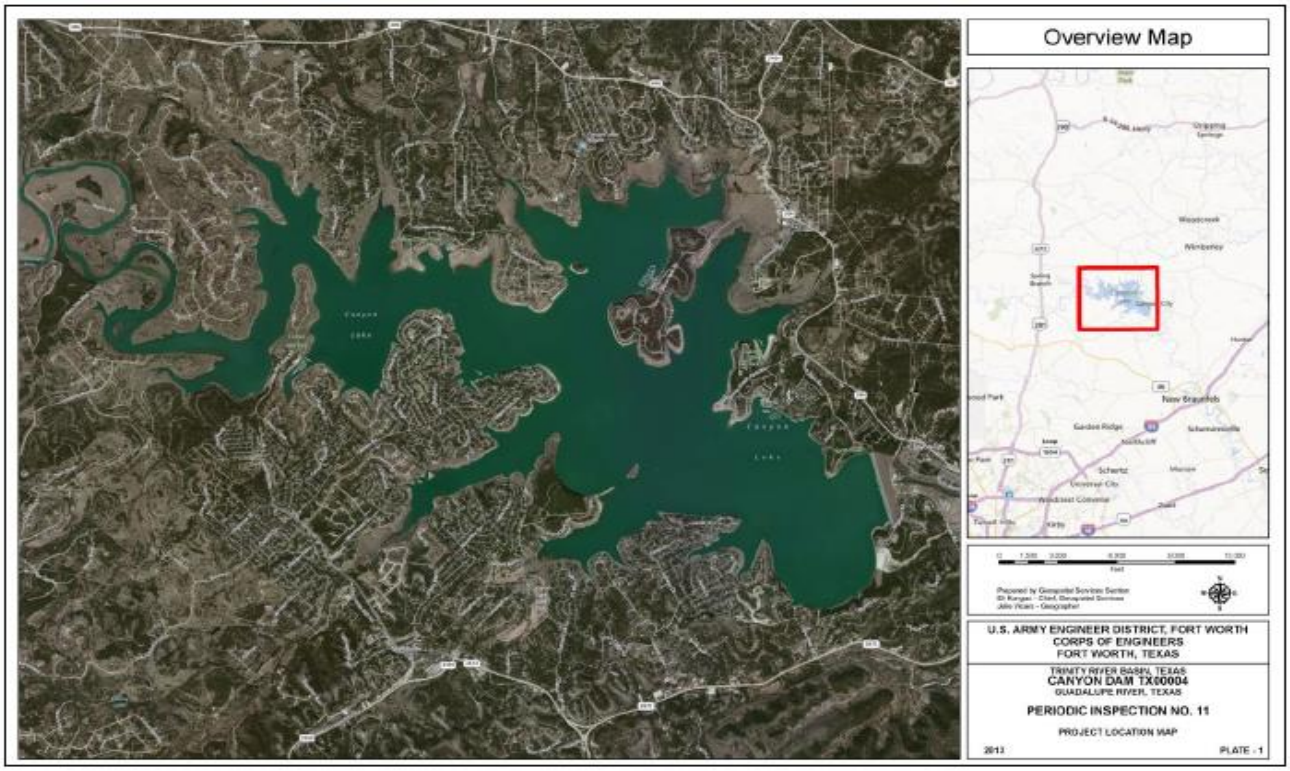

Figure 2-1: Project Location Map

Project Description and Pertinent Data

As depicted in Figure 2-2 below, Canyon Lake and Dam consists of a rolled earthfill embankment, two dikes, an uncontrolled broad crested spillway on the right abutment, and a gated outlet works near the center of the main embankment with a control tower and a Service Bridge. The GBRA hydropower facility is located just downstream and to the left of the outlet works stilling basin. It consists of a steel conduit liner, a gated takeout structure with slide gate, a penstock trifurcation, a penstock, a powerhouse, and an aeration weir. In addition, there are eight recreation areas that include 1,544 acres.

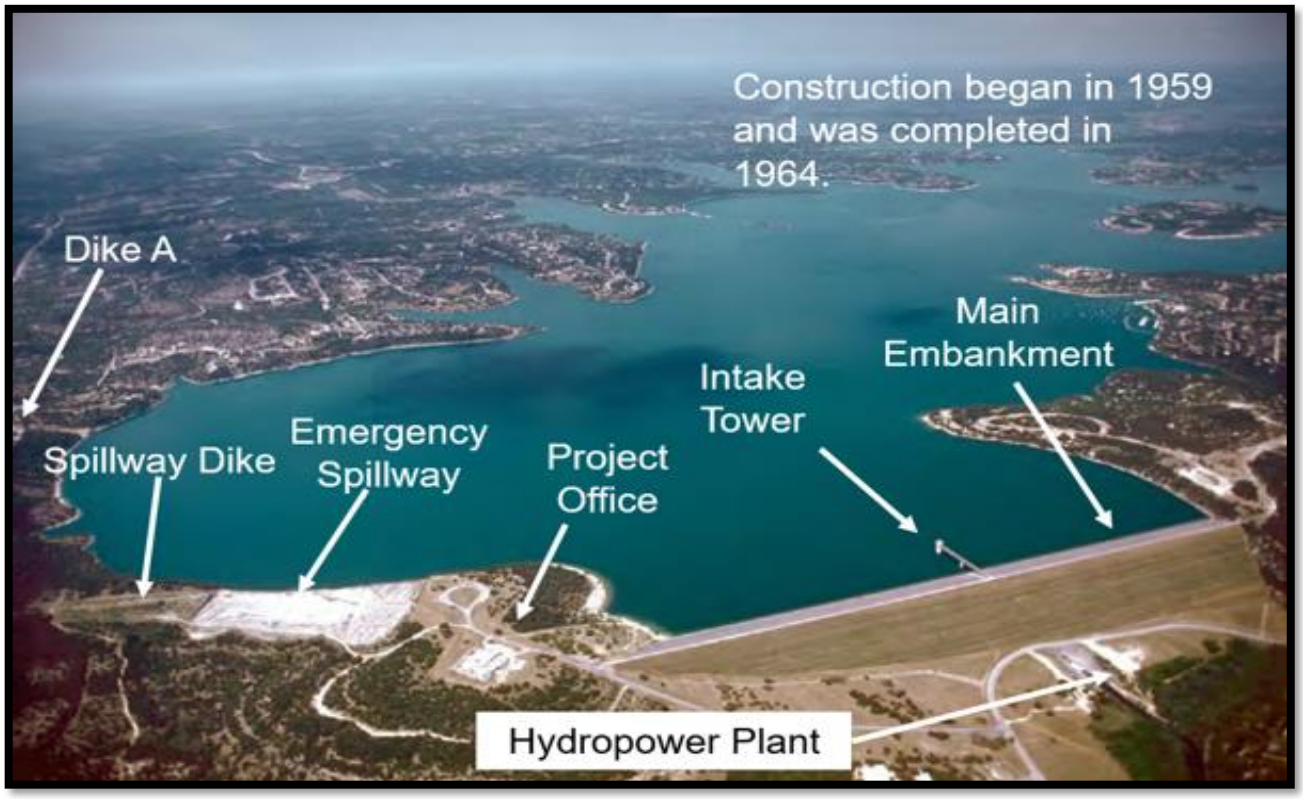

Figure 2-2: Canyon Dam Appurtenant Structures

Drawings depicting the key features of the project are included in Appendix B of the Canyon Lake and Dam/Dike A Periodic Assessment (PA) No. 1 report. Refer to Table 2-1 for listed pertinent data.

Dam	
Type	Rolled earthfill embankent
Design Crest Elevation	El. 974.3 feet
Surveyed Crest Elevation	El. 974.3 feet (Sta 74+00, FY15 Survey)
Crest Width	20 feet
Length (excluding dike length)	4,410 feet
Structural Height (maximum height above streambed)	224.0 feet
Dike "A"	
Type	Earthfill
Crest Width	10 feet
Length	210 feet
Structural Height	13 feet
Spillway Dike	
Type	Rockfill
Crest Width	10 feet
Length	880 feet
Structural Height	74 feet
Outlet Works	
Type	Gate-controlled conduit
Size	Steel lined, 9'4" diameter
Control	Two - 5'8" wide by 10' hdraulically operated slide gates
Maximum design discharge capability	5,200 cfs (at 969.4 feet - NAVD88)
Length	880 feet
Stilling Basin Type	Reinforced concrete baffle impact basin and riprap
Spillway	
Type	Uncontrolled broadcrested weir
Crest Elevation	El. 943.3 feet
Width	1,260 feet
Maximm discharge capacity	627,608 cfs (at 973.7 feet-NAVD88)
Non-Federal Hydropower Facility	
Power Conduit Description	Steel liner within existing concrete flood conduit
Installed Capacity	Two 3,035 KW generating units
Discharge Valve	Howell-Bunger discharge valve

Table 2-1: Canyon Dam Pertinent Data

Reservoir Data

The reservoir data, Table 2-2 were obtained from the Pertinent Data table in the Water Control Manual dated September 2018. The record pool at El. 950.6 feet-NAVD88 occurred on 06 July 2002.

Feature	Elevation (ft-NAVD88)	Area (acres)	Storage	
			(ac-ft)	(inches)
Top of dam	974.3			
Maximum pool (1983)	973.7	17,890	1,204,100	15.84
Spillway crest	943.3	12,890	740,900	9.75
Top of flood control pool	943.3	12,890	740,900	9.75
Top of conservation pool	909.3	8,309	378,852	4.98
Top of inactive pool	775.3	79	640	0.01
Streambed at dam	750.3	-	-	
Notes: Sediment distributed as follows: 19,800 ac-ft below El. 909.3 ft and 8,300 ac-ft between El. 909.3 & 943.3 ft.				

Table 2-2: Reservoir Data

Need for IES

This IES will be a standalone effort, informed by work carried out during the 2019 PA. The primary objective of the proposed work will be to utilize a quantitative risk assessment (QRA) to further quantify and refine the risk estimates of risk-driving PFMs developed during the 2019 PA; SQRA methods will be utilized to estimate the risk of the sole internal erosion failure mode. The information gathered for the IES should advise if we need to do additional analysis (Phase 2 IES) or move on to a Dam Safety Modification Study (DSMS).

During the 2019 PA four risk driving PFMs were developed, which informed the current Dam Safety Action Classification (DSAC) ratings; DSAC 3 for Dike A and DSAC 2 for the Main Dam and Spillway Dike.

- Dike A
  - PFM 2c and 3c: Overtopping and overwash of Dike A resulting in uncontrolled flow and loss of pool.
- Main Dam and Spillway Dike
  - PFM 2a and 3a: Overtopping and overwash of Main Dam leading to erosion and failure of the embankment.
  - PFM 2b and 3b: Overtopping and overwash of Spillway Dike resulting in uncontrolled flow and loss of pool.
  - PFM 16: Concentrated leak erosion along steep left abutment contact due to differential settlement.

2.2 Project Sponsor

Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and policy and legal compliance reviews. Sponsor Peer Review of In-Kind Contributions - There will not be in-kind contributions for this effort.

The local water supply partner is GBRA. Contract number DA-41-443-CIVENG-58-64, Conservation Storage Canyon Dam and Reservoir, dated 20 September 1957, states in Article 4. *Consideration and Payment*, paragraph a.(5) “The allocated cost of major repairs, additions or betterments as determined by the applicable percentage of total project investment to be paid by the Authority obtained from the schedule set for in paragraph a.(2)(a) of this Article. Said cost shall be due and payable when incurred.” The specified schedule indicates that

42.9% of the Total Project Investment is to be paid by GBRA. Should this project move forward to a DSMS and it is determined that a risk management plan needs to be implemented the SWF PM will coordinate with SWF Office of Counsel to calculate the GBRA cost share percentage based on all project purposes. The SWF Water Supply Business Line Manager will then coordinate with GBRA for payment.

Section 3
District Quality Control

3.1 Requirements

All work products (including supporting data, analyses, reports, etc.) shall undergo DQC in accordance with EC 1165-2-217. The District shall perform these minimum required reviews in accordance with the District's internal review process of basic science and engineering work products focused on fulfilling the project quality requirements. 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 will not be performed by the same people who performed the original work, including managing/reviewing the work in the case of contracted efforts.

The District will oversee the DQC utilizing DrChecks^{SM}, requiring use of the four-part comment structure, for comment collaboration, response, and back checking. The District will process and document DQC certification via memorandum.

As a part of DQC, the RMC Senior Advisor and Technical Advisor will review the IES report prior to submission for ATR to ensure completeness.

See Attachment 1, Table 10-3 for the DQC Lead, reviewers, and reviewer's disciplines.

3.2 Documentation

Documentation of DQC activities is required and will be implemented by the process described in paragraph 3.1.

3.3 DQC Schedule and Estimated Cost

Although DQC is always seamless, the following reviews are scheduled in Table 3-1. The cost for DQC is approximately $72,000.

Project Phase/Submittal	Review Start Date	Review End Date
DQC Review	30 November 2020	13 January 2021

Table 3-1 DQC Schedule

Section 4
Agency Technical Review

4.1 Requirements

All Civil Works products (including supporting data, analyses, environmental compliance documents, water control manuals, etc.) shall undergo ATR in accordance with EC 1165-2-217. ATR reviews will occur seamlessly, including early involvement of the ATR team for key decisions, and at the scheduled milestones as shown in Table 4-1 ATR Schedule. ATR Reviews will be scaled to the appropriate level of technical effort required to evaluate the project findings and recommendations based on the complexity of the project and the level of risk assessment that was conducted. A site visit will not be scheduled for the ATR Team since one is not required for an IES.

4.1.1 ATR Requirements for Hydrologic Hazards and Loading Curves

The Hydrologic Hazards Assessment and Loading Curve will undergo an Agency Technical Review by an RMC Hydrology and Hydraulic (H&H) Advisor or designated Alternate prior to the Risk Assessment Elicitation, or as directed by the RMC. The reviewer will provide advance review of this work product to avoid unnecessary delays to the completion of the risk analysis and IES report. Ideally, this reviewer will serve as the H&H ATR team member for the IES Report. The reviewer is shown in Attachment 1.

4.1.2 ATR Requirements for SQRA Reports

ATR for SQRA (sometimes known as a Consistency Review) conducted using semi-quantitative risk methodology will consist of a review of the technical products by an independent team of USACE dam safety professionals who have past-experience with dam safety projects and work products. The team shall be selected by the RMO, and team members will have specialized experience in the analysis and assessment of the deficiencies and risk driver that were identified in the report. The SQRA Program Manager will select the SQRA ATR members.

4.1.3 ATR Requirements for IES Phase I Report

ATR for Issue Evaluation Studies conducted using quantitative risk methodology will consist of a review of the technical products by an independent ATR team of USACE dam safety professionals who have past-experience with dam safety projects and work products. The ATR Team Lead and ATR team shall be selected by the IES Program Manager.

Due to the diverse backgrounds and levels of experience of the cadres and PDT's preparing these reports, and the scope of the ATR team to ensure the quality and credibility of the government's scientific information, an independent panel of senior-level, highly experienced experts from USACE, other agencies, and private industry, shall supplement the ATR by performing a quality and consistency review (QCC) of the risk assessment findings for quantitative risk assessments. While the ATR Team is given wide latitude to confirm that the technical data, analysis, and methodology meets current agency and state of the practice standards, the scope of the QCC review is more focused and defined by providing written responses to very specific questions that convey the panels professional and technical opinions on the major findings and understandings, the estimated levels of risk and risk reduction, and the appropriateness of the recommendations. The QCC Review findings provide a technical basis to resolve differences of opinion between the PDT and ATR teams, and helps USACE ensure recommended actions are appropriate and applied consistently across the USACE national portfolio of dams. The ultimate decisions concerning the risks and appropriate actions remain with the USACE vertical team.

4.2 Documentation of ATR

4.2.1 Documentation of Hydrologic Hazards Review

Hydrologic Hazards review comments are documented in the form of a Word document or DrChecks^{SM}, as specified below. After resolution of the comments, the reviewer will sign the ATR completion form, and this is to be included in the Canyon Dam IES review documentation. This signature will ensure all comments have been addressed during ATR and signify concurrence.

4.2.2 Documentation of IES Phase I ATR

Documentation of ATR for IES Phase I study will be performed using the requirements of EC 1165-2-217. This should include the four-part comment structure and the use of DrChecks^{SM} for comment collaboration, response, and back checking.

The scope of the QCC Panel, if applicable, is to review the draft documents, submit written draft comments that address a series of charge questions, attend a panel discussion with the PDT and ATR Lead to collaborate their major findings and understandings of the project, and submit updated responses to the charge questions following the panel discussion as a deliverable. Documentation of the review findings shall be in written format and in accordance with the A-E contract or Agency Scope of Work. The Panel's responses to the charge questions will be included in the final ATR documentation of the IES Report.

4.3 Products to Undergo ATR

The ATR Team is expected to review the IES report and work products developed as part of the IES.

4.4 Required Team Expertise and Requirements

4.4.1 IES Phase I ATR Team

ATR teams will be established in accordance with EC 1165-2-217. The following disciplines will be required for ATR of the IES:

ATR Lead: The ATR team leader will be a senior USACE dam safety professional and will have experience leading and conducting ATR for similar projects and work products The ATR lead will direct the scope and focus of the review efforts by each discipline. The ATR team leader will be from outside the home MSC and will 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, in this case Structural Engineering, Geotechnical Engineering, Engineering Geologist or Hydrology and Hydraulic (H&H) Engineer.

Geotechnical Engineer - The geotechnical engineer will have experience in the design, construction, and evaluation of embankment dams, potential failure mode analysis, and dam safety risk analysis. The geotechnical engineer will have experience in subsurface investigations, rock and soil mechanics, internal erosion evaluation, slope stability evaluation, and earthwork construction.

Engineering Geologist - The engineering geologist will have experience in assessing the geologic setting, bedrock geology, unconsolidated deposits, and hydrogeology and correlating the performance of foundations with the significant engineering properties. The engineering geologist will have specialized experience with embankment dams founded on glacial outwash and alluvium and carbonate lithologies.

Hydrology and Hydraulic (H&H) Engineer – The H&H engineer will have experience in the analysis and design of hydraulic structures for dams and will be knowledgeable and experienced with the routing of inflow hydrographs through multipurpose flood control reservoirs utilizing multiple discharge devices, evaluation of extreme flood events (e.g., PMF), development of the flood hazard/loading (i.e., stage-frequency and duration relationships), USACE hydrologic and hydraulic modeling, and breach and non-breach inundation for dam safety risk analysis. (This may be two separate reviewers and will be split if needed.)

Structural Engineer – The structural engineer will have experience evaluating the design, construction, and evaluation of hydraulic structures for dams (including gates/closure structures, flood walls, and penetrations), potential failure mode analysis, and dam safety risk analysis.

Consequences (Economist) – The economist (or consequence specialist) will have experience evaluating flood risk management projects in accordance with ER 1105-2-100 and USACE models and techniques to estimate population at risk, life loss, and economic damages for dam safety risk analysis.

Climate Change Reviewer – The climate change reviewer will have experience in performing climate change assessments and have an understanding of how this would impact the risk-based design for dams. The reviewer will be knowledgeable and experienced with the most current climate change policies, literature, and tools used to perform the assessments. The reviewer will be familiar with the Climate Hydrology Assessment Tool, Non-stationarity Detection Tool, and Vulnerability Assessments. The reviewer will review the climate change assessment report that is prepared to summarize the impacts for IES and IES Phase 2 risk reports that will progress towards a dam safety modification study.

4.4.2 IES Phase I QCC Panel

The panel will consist of Senior Technical Experts from A-E firms and/or Technical Specialists from USACE. It is anticipated that three to four panel members from any of these groups will be selected by the RMC to review each project report. The panel members selected for each specific project will be referred to as the QCC Panel for that project. The ATR Lead will be invited to attend the QCC review.

4.5 Statement of Technical Review Report

4.5.1 IES SQRA Review Report

All comments and their resolutions, along with a review certification sheet, will be added to the review documentation appendix of the IES SQRA report. If there were any significant issues the ATR lead will document those in the comments.

4.5.2 IES Phase I Review Report

At the conclusion of each ATR effort, the ATR team will prepare a Statement of Technical Review Report (using the RMC's template) with a completion and certification memo. The report will be prepared in accordance with EC 1165-2-217. At the conclusion of the QCC, the review facilitator will prepare a memo for RMC Directors Signature that summarizes what issues must be addressed prior to presentation to DSOG.

4.6 ATR Schedule and Estimated Cost

The preliminary ATR schedule is listed in Table 4-1. The cost for the ATR is approximately $60,000.

Project Phase/Submittal	Review Start Date	Review End Date
ATR	11 January 2021	11 February 2021

Table 4-1 ATR Schedule

Section 5
DSOG Review

5.1 Requirements

All IES work products will undergo a review by the Dam Safety Senior Oversight Group (DSOG). The DSOG is provided an advanced copy of the final report approximately four weeks prior to the DSOG Panel Discussion, or as directed by the Program Manager. The PDT will prepare DSOG Briefing Slides summarizing the project Risk, the report findings, and recommendations. These slides will be reviewed by the Program Manger prior to presentation to DSOG for clarity and conciseness.

5.2 Documentation

At the conclusion of the DSOG briefing, a memo will be prepared by the DSOG Chairperson that summarizes the risk characterization of the dam, confirms or adjusts the recommended DSAC, proposes Dam Safety and Operations and Maintenance (O&M) actions to reduce risk, and is signed by the Headquarters Dam Safety Officer.

Section 6
Policy and Legal Compliance Review

All IES products 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, and Chapter 8 of ER 1110-2-1156. 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. Initial and final policy compliance reviews will be conducted concurrently by the MSC and HQUSACE.

Section 7

Public Posting of Review Plan

As required by EC 1165-2-217, the approved Review Plan will be posted on the District public website (https://www.swf.usace.army.mil/About/Organization/PPMD/Peer-Review-Plans/). This is not a formal comment period and there is no set timeframe for the opportunity for public comment. If and when comments are received, the PDT will consider them and decide if revisions to the Review Plan are necessary.

Section 8

Review Plan Approval and Updates

The MSC Commander, or delegated official, is responsible for approving this RP. The Commander's approval reflects vertical team input (involving the District, MSC, and RMC) as to the appropriate scope, level of review, and endorsement by the RMC. The RP is a living document, all changes made to the approved RP will be documented in Attachment 3, Table 10-6. Re-approval of review plans by the MSC, with re-endorsement by the RMO, will be required when there are significant changes such as when the project advances from an IES Phase I to Phase II. Small changes will not require re-approval and re-endorsement. The latest version of the RP, along with the Commanders' approval memorandum, will be posted on the District's webpage and linked to the HQUSACE webpage. The approved RP should be provided to the RMO.

Section 9

Engineering Model Certification and Approval

The use of certified or approved engineering models is required for all activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. 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. 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 and ATR. Where such validations have not been completed, appropriate independent checks of critical calculations will be performed and documented as part of DQC. The following engineering models, software, and tools are anticipated to be used:

Model Name	Version	Validation Date
HEC-LifeSim	HEC-LifeSim 2.0	TBD
HEC-LifeSim	HEC-HMS 4.3	In progress, Preferred Model
HEC-ResSim	HEC-ResSim 3.4	In progress, Preferred model
HEC-RAS	HEC-RAS 5.0.5	TBD
GeoStudio Slope/W	2018	2018 - Approved
CWALSHT	GG&M CoP recommended	TBD

Model Name	Version	Validation Date
CI-Wall	GG&M CoP recommended	TBD
Precipitation Watershed Analysis Tool (WAT)	HEC-WAT 2.0	In Progress, Preferred model
RiverWare	RiverWare 7.0.4	In Progress, Preferred model
USACE internal erosion spreadsheet tools	Validation in progress	TBD
Primavera Project Management	USACE Preferred Model	Primavera P6 Professional 17 Release: 17.12.15
WinDAM C	WinDAM C	TBD
ArcMap 10.4	ArcMap 10.4	TBD

Table 9-1 Models and Status

Section 10
Points of Contact

Title	Organization	Phone
RMC Sr. Advisor	CEIWR-LRL	502-315-6469
RMC Advisor – B/U Sr. Advisor	CEIWR-RMC	303-963-4553
RMC Project PgM	CEMVS-EC-GD	314-331-8407
Cadre Lead	CESAS-EN-G	912-652-5707
Cadre B/U Lead	CESAS-EN-GG	912-652-5167
SWD DSPM	CESWD-RBT	918-669-7148
SWF Lead EN	CESWF-EC-G	817-886-1771
SWF DSPM	CESWF-EC-G	817-886-1698
SWF PM	CESWF-PMC	817-886-6853

Table 10-1 RP POC's

ATTACHMENT 1

Team Rosters (FOUO)

(To be Removed Prior to Posting on District Website)

Table 10-2 Risk Cadre

Table 10-3 DQC Reviewers

Table 10-4 IES Phase I ATR Reviewers

Table 10-5 QCC Panel

ATTACHMENT 2

Project Risk Information (FOUO)

(To be Removed Prior to Posting on District Website)

ATTACHMENT 3
Review Plan Revisions

NOTE 1: A re-endorsement and MSC re-approval of this RP will only be required if the review requirements change significantly.

NOTE 2: Post-RMC endorsement changes, based on MSC comment, to allow for finalization of the RP included:

Description of Change	Page/Paragraph Number
Added RP document note: ***NOTE:*** *All elevations in this document refer to NGVD29 unless otherwise noted to be in NAVD88. The conversion between datums is NGVD29 + 0.3 feet = NAVD88.*	Inside front cover page.
"a maximum elevation of 950.32 ft-msl" was noted to be in NGVD29.	PAGE 2, PARA 1
"Length" included "(excluding dike length)"	PAGE 4, TABLE 2-1, ROW 5
Corrected elevation for Pool of record to 95.6 NAVD88.	PAGE 4, RESERVOIR DATA
Converted it to NAVD 88: Maximum Pool (1983) WCM 973.7 and Streambed at dam elevation was also converted to 750.3.	PAGE 5, TABLE 2-2
Added ArcMap 10.4 to table.	PAGE 12, TABLE 9-1
Corrected authority: River and Harbor Act of 1945 (House Document 14, 79th Congress, 1st Session)	PAGE 1, AUTHORITY & PURPOSE

All future Revision Changes will be documented below:

Revision Date	Description of Change	Page/Paragraph Number

Table 10-6 RP Revisions