



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1399

CESPD-RBT

7 September 2010

MEMORANDUM FOR Commander, Sacramento District, ATTN: CESPK-ED-GP,
Mr. Ronn Rose

SUBJECT: Review Plan approval for Success Dam, California, Dam Safety Remediation Letter Report, Dam Safety Assurance Program, 6 July 2010

1. The enclosed Review Plan for the Success Dam, California, Dam Safety Remediation Letter Report, 6 July 2010 has been prepared in accordance with EC 1165-2-209. The Review Plan has been coordinated internally within the DST and with the RMC. The CESPD-RBT will serve as the interim RMO.
2. The Review Plan includes independent external peer review.
3. I hereby approve this Review Plan, which 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.
4. The Point of Contact for this action is Karen Berresford, CESPD-PDC, (415) 503-6557, Karen.G.Berresford@spd02.USACE.army.mil.

Building Strong on the Cornerstone of the Southwest!

FOR THE COMMANDER:

Encl

1. Review Plan, 6 July 2010

Mr. Andrew Constantaras P.E.
Director of Regional Business



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
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CESPK-PD-WW

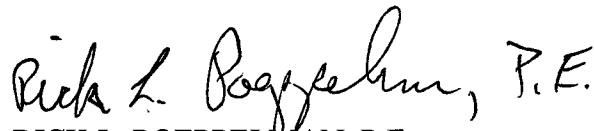
MEMORANDUM FOR: Commander, South Pacific Division (ATTN: CESPD-PD-C, Berresford)

SUBJECT: Request for Approval of Review Plan for Success Dam Safety Modification Letter Report, Success Dam, California

1. In accordance with EC 1165-2-209, Water Resources Policies and Authorities, Civil Works Review Policy, dated 31 January 2010, subject Review Plan is provided for approval by the Commander, South Pacific Division (Enclosure 1).
2. This Review Plan is in compliance with the EC and has been coordinated with the Risk Management Center (RMC). A concurrence email is provided as Enclosure 2.
3. Also enclosed is the SPD Checklist (Enclosure 3).
4. Please address any questions about this Review Plan to Ronn Rose, (916) 557-5396 or Ronn.S.Rose@usace.army.mil. Upon approval of this review plan, please provide notification to this office so we can post it to the Sacramento District public website. I appreciate your quick attention to this matter.

FOR THE COMMANDER:

Encls


RICK L. POEPELMAN, P.E.
Chief, Engineering Division
Sacramento District

REVIEW PLAN
DAM SAFETY REMEDIATION LETTER REPORT

SUCCESS DAM, CALIFORNIA
DAM SAFETY ASSURANCE PROGRAM

SACRAMENTO DISTRICT

July 6, 2010



**US Army Corps
of Engineers®**

cc:
CESPK-PD
CESPK-PD-W
CESPK-PM-C
CESPK-ED
CESPK-ED-GP

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st
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~~FUJITANI~~

POEPPELMAN *BCF*

REVIEW PLAN
DAM SAFETY MODIFICATION REPORT
SUCCESS DAM, CALIFORNIA
DAM SAFETY ASSURANCE PROGRAM (DSAP)

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This document presents the Review Plan for the Success Dam Remediation Letter Report. The Review Plan describes the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Success Dam Project Management Plan (PMP) dated April 2010. The Review plan is a component of the PMP.

b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 January 2010.
- (2) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005.
- (3) Engineer Regulation (ER) 1110-2-12, Quality Management, 30 September 2006.
- (4) CESPD Reg. 1110-1-8, Quality Management Plan, 30 December 2002.
- (5) Success Dam Project Management Plan, April 2010.
- (6) Engineering Regulation (ER) 1110-2-1156, Safety of Dams – Policy and Procedure, April Review Draft, 30 April 2010.

c. Requirements. This Review Plan was developed in accordance with EC 1165-2-209, 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 ECs outlines four levels of review: District Quality Control (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Safety Assurance Review (SAR). In addition to these four levels of review, decision documents are subject to policy and legal compliance review, and model certification/approval.

- (1) District Quality Control (DQC). DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, or overseeing contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices, and the recommendations before approval by the District Commander. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review; DQC is not addressed further in this Review Plan.
- (2) 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 assures that all the parts fit together in a coherent whole. ATR

teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), 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 MSC.

For ATR on decision documents, the USACE Risk Management Center (RMC) will serve as the Review Management Organization (RMO) for all Dam Safety Modification projects. The RMO will be in close coordination with the Flood Risk Management Planning Center of Expertise (FRM PCX). For decision documents with multiple purposes (or project purposes not clearly aligned with the PCXs), the home RMC should designate a lead PCX to conduct the review after coordinating with each of the relevant Centers. There shall be appropriate consultation throughout the review with the allied Communities of Practice (CoPs) such as engineering and real estate, other relevant PCXs, and other relevant offices to ensure that a review team with appropriate expertise is assembled and a cohesive and comprehensive review is accomplished. There shall be coordination with the Cost Engineering Directory of Expertise (DX), which will provide the cost engineering review and resulting certification. 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 the MSC and HQUSACE in accordance with the procedures outlined in Appendix H of ER 1105-2-100, or other appropriate guidance.

- (3) Independent External Peer Review (IEPR). IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. Any work product, report, evaluation, or assessment that undergoes DQC and ATR also may be required to undergo IEPR under certain circumstances. A risk-informed decision, as described EC 1165-2-209, will be made as to whether IEPR is appropriate for that product. IEPR panels will be made up of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers. IEPR teams are not expected to be knowledgeable of Army and administration policies, nor are they expected to address such concerns. IEPR is divided into two types, Type I is generally for decision documents and Type II is generally for implementation documents.
 - A. Type I IEPR is conducted on project studies. It is of critical importance for those decision documents and supporting work products where there are public safety concerns, a high level of complexity, novel, or precedent-setting approaches; has significant interagency interest; has significant economic, environmental, and social effects to the nation; or where the Chief of Engineers determines that the project is controversial. However, it is not limited to only those cases and most studies should undergo Type I IEPR.

- B. Type II IEPR, a Safety Assurance Review (SAR), shall be conducted on design and construction activities for hurricane and storm risk management and flood risk management projects, as well as other projects where existing and potential hazards pose a significant threat to human life. External panels will conduct reviews of the design and construction activities prior to the initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare. Since the decision document is the basis of ultimate design, safety assurance will be incorporated into the project as appropriate.
- (4) Policy and Legal Compliance Review. Decision documents will be reviewed throughout the study process for their compliance with law and policy. These reviews culminate in Washington-level 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 Chief of Engineers. Guidance for policy and legal compliance reviews is addressed further in Appendix H of ER 1105-2-100. When policy and/or legal concerns arise during DQC or ATR that are not readily and mutually resolved by the PDT and the reviewers, the District will seek issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, ER 1105-2-100. The home district Office of Counsel is responsible for the legal review of each decision document and certification of legal sufficiency.
- (5) Value Engineering (VE). A Value Engineering study was conducted at the Alternative Formulation workshop. The aim of the VE studies is to ensure that the widest range of engineeringly feasible and cost efficient measures are considered and that alternatives formulated from those measures are not limited to those that first come to mind at the initiation of the study. Putting this step into the process ensures consideration of the fullest range of measures and alternatives. The results will be presented in the dam safety modification report (DSMR) – integrated into the discussion of the formulation of alternatives.
- (6) Model Certification/Approval. EC 1105-2-407 requires certification (for Corps models) or approval (for non-Corps models) of planning models used for all planning activities. 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 used in planning. 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 activities in support of planning studies shall proceed as in the past. 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.

2. STUDY INFORMATION

- a. Decision Document.** The Sacramento District's PDT is preparing a supplemental decision document to the 1999 Dam Safety Evaluation Report. The supplement will be comprised of a Letter Report, a Final EIS (awaiting approval for filing with EPA and release to the public), a cost estimate, and a Real Estate Design Memorandum. The Letter Report documents the significant changes to the 1999 Dam Safety Assurance Program Evaluation report, which detailed the seismic problems at Success Dam and recommended corrective actions to eliminate the deficiency. The Letter Report serves as the Decision Document authorizing continued pursuit of the preferred remediation alternative. A key requirement for awarding the dam contract and funding the dam as currently envisioned will be authorization to use the Continuing Contract Clause for the main dam construction contract. (Prior to contract advertising, advance approval from CECW-I and ASA(CW) will be obtained, per guidance contained in the PARC Instruction Letter for FY06, dated 22 March 06). This action does not require congressional approval but does require advance approval from CECW-I and ASA(CW). Following HQUSACE approval of the Letter Report, the EIS, the Real Estate Design Memorandum (REDM), and signature of the Record of Decision (ROD), the Project Delivery Team (PDT) will proceed into final design of the Success Dam Seismic Remediation Project. Signature of the ROD will also authorize the acquisition of real estate, relocation of the Park Headquarters, and mitigation contract work. The project has already been authorized by Congress.
- b. Study Description.** The existing project was constructed and began operation on May 15, 1961. Success Dam was authorized for construction by the Flood Control Act of 1944 (Public Law 534, 22 December 1944, Seventy-eighth Congress, Second Session). Success Dam and its reservoir, Lake Success, are on the Tule River, about 6 miles east and upstream of the City of Porterville in Tulare County, California. The dam provides flood risk management benefits to the City of Porterville; in addition, the dam is part of a system of dams and reservoirs providing flood protection to the Tulare lakebed and adjacent areas from streams flowing westward out of the Sierra Nevada range. The other dams in this system are Pine Flat Dam on the Kings River, Terminus Dam on the Kaweah River, and Isabella Dam on the Kern River, all operated by the Sacramento District, U.S. Army Corps of Engineers (Corps).

Success Dam is a rolled earth-fill structure 145 feet high and 3,404 feet long. The dam has a top width of 22.5 feet with a 16 ft wide service road. The top elevation of the dam is 691.5 feet, providing 39 feet of freeboard above the normal gross pool at the spillway crest (El. 652.5 feet), and 4.7 feet of freeboard above the spillway design flood (El. 686.8 feet). A rolled earth-fill dike, called Frazier's Dike, 42 feet high and 7,650 feet long, extends across Frazier Valley about 3 ½ miles northwest of the dam.

The Success Dam project is an existing multi-purpose project providing flood control, irrigation water storage, recreation, and electrical power generation. At normal gross pool, the reservoir capacity is 82,300 acre-feet (surface area of about 2,400 acres). Originally, the

total reservoir capacity at construction was 85,400 ac-ft with 75,000 ac-ft reserved for flood control and storage for irrigation water and 10,400 ac-ft for sediment storage.

Location Map



- c. **Dam Safety Concerns.** Studies conducted since 1992 have determined that the existing dam is at a high risk of failure. The alluvium foundation underlying the dam is susceptible to liquefaction and could cause an uncontrolled loss of reservoir pool through a breach in the embankment either during or shortly after a major earthquake. A Dam Safety Assurance Program (DSAP) Evaluation Report, January 1999, detailed the seismic problems at Success Dam and recommended corrective actions to eliminate the deficiency. The remediation method identified in the DSAP Evaluation Report was an in-situ densification by compaction

grouting. The total estimated cost for the concept design of the remediation project was \$30,900,000 (1997 dollars) including design memorandum and plans and specifications. The DSAP Evaluation Report recommended a seismic remediation alternative based on a Maximum Credible Earthquake (MCE) of 0.22g that affected portions of the foundation under the dam and portions of the upstream embankment shell. Authority to proceed with the seismic remediation modifications included in the DSAP Evaluation Report was received from the Directorate of Civil Works in a letter dated May 7, 1999 (Reference A). With HQUSACE approval of the Evaluation Report, the project progressed from DSAP funding under the Operations and Maintenance (O&M) Program, to construction funding under Construction General (CG).

Subsequent to the approval of the Evaluation Report in May 1999, additional studies and analyses conducted between 2000 and 2003 concluded that the seismic deficiency at Success Dam was significantly greater than documented in the report. The extent of the liquefiable foundation material was revised to include both the upstream and downstream portions of the dam, as well as some areas of the upstream embankment shell. The increase in extent in liquefiable foundation material plus newly-identified seismic sources led to a re-evaluation of alternatives beginning in 2004. A risk analysis study was also conducted to determine if the lake level should be lowered until remediation could be completed. The risk analysis concluded that the lake level should be lowered by approximately 32.5 feet from the gross pool elevation, which corresponds to a reduction of 2/3 of the available storage volume of the reservoir. Implementation of the restricted pool operation became effective in 2006.

Remediation alternatives for Success Dam were developed and evaluated in a phased, criteria-driven process between January and October 2004. The report "Seismic Remediation Project, Alternative Selection Report," October 2004, describes the alternatives that were identified and their evaluation. The results of the alternatives evaluation showed that a Roller Compacted Concrete (RCC) dam located within the downstream footprint of the existing dam was the preferred alternative. However, subsequent studies and foundation explorations conducted in 2005 concluded that a portion of the foundation was unsuitable for a concrete dam. The results of the 2005 investigations were evaluated by a panel of expert consultants who have been in place since 1995. The consultants agreed with the conclusion, as well as the decision to pursue a different remediation alternative. The remaining, most feasible, alternatives included 1) a modified earthen embankment dam with material added on the downstream side of the existing dam, 2) partial removal and replacement of the downstream shell of the dam combined with in-situ stabilization of the upstream side, and 3) a no-action alternative. Over the course of 2006, the earthen embankment dam alternative emerged as the preferred alternative.

A Draft Environmental Impact Statement (EIS) was released for public comment on November 24, 2006. The Draft EIS evaluated in detail two build alternatives and the no-action alternative. The two build alternatives were (1) a modified earthen embankment dam with material added on the downstream side of the existing dam, and (2) partial removal and replacement of the downstream shell of the dam combined with in situ stabilization of the upstream side. In addition to the seismic concern, the existing dam spillway is undersized to pass the Probable Maximum Flood (PMF). In order to maintain the required level of dam safety, both alternatives also require that the spillway be widened by at least 88 feet and up to

165 feet. Over the course of 2006, the earthen embankment dam emerged as the preferred alternative, and the costs for this alternative are anticipated to approach \$500M. Filing of the Final EIS with EPA and public distribution is currently on hold until approved by higher authority.

- d. **Factors Affecting the Scope and Level of Review.** Quality control will be achieved through DQC, ATR, Type I IEPR, and Type II IEPR. Questions that were considered in determining the scope and level of review are identified in column 1 of Table 1. The PDT’s assessment of these questions in relation to this study is listed column 2 of Table 1. The questions in Table 1 are from the EC 1165-2-209, Civil Works Review Policy, to determine the level of review required. Table 1 shows justification that a Type I IEPR is required for Success Dam.

Table 1. Factors Affecting Scope and Level of Review

Questions to Determine Scope	Success Dam Seismic Remediation Project
Will parts of the study be challenging?	The Study will be challenging because of the vulnerability of the dam during construction due to seismic activity because the earthen embankment dam does not afford the opportunity to strengthen the upstream foundation prior to degrading the downstream slope of the dam. Furthermore, due to the history of the area a potential risk exist for the discovery of prehistoric Native American remains. The additional risk posed by the reduced cross section will be mitigated by the following: 1) an additional pool restriction to El. 590 during construction, 2) an aggressive dewatering program of the downstream foundation excavation, and 3) a detailed slope/stability analysis. To minimize the risk of an archaeological discovery, contingency plans will be developed during preparation of plans and specifications.
Will the study report contain influential scientific information or be a highly influential scientific assessment?	In recommending the earthen embankment, the Letter Report does not present any conclusions that are likely to change prevailing practices. The Letter Report and studies leading up to it are also unlikely to contain influential scientific information and unlikely to be a highly influential scientific assessment. However, the project will be challenging because of the urbanization of the project area, the complex seismic problems of the foundation, and the complex hydraulic system and associated floodplains.

Questions to Determine Scope	Success Dam Seismic Remediation Project
Will the study have significant economic, environmental, and/or social effects to the Nation?	There will be major environmental impacts from construction of the project. There will be effects to health and safety (noise and air quality), riparian habitat, and listed species. The project is also likely to have significant economic impacts. Economic and social impacts will occur as a result of decreased recreation opportunities and effects on noise and air quality. Because of health and safety concerns due to impacts on noise and air quality, residents living in close proximity may have to be relocated. The project is unlikely to have further social impacts unless prehistoric Native American remains are discovered. These impacts of the project are discussed in detail in the draft EIS.
Will the study have significant interagency interest?	The study has local, state, and Federal interest.
Will the study have significant threat to human life/safety assurance?	The project presents a threat to human life/safety because of its considerable threat to human life in the event of dam failure.
Will the study be highly controversial?	The project has potential for public controversy.
Will the information in the decision document be based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?	It is not likely that the study will result in precedent-setting methods, models, or practices.
What are the likely study risks and the magnitude of the risks?	<p>The moderate to high level risks identified by the PDT include:</p> <ul style="list-style-type: none"> • Public controversy. The project has potential for public controversy. The risk will be somewhat mitigated by careful communications with small public groups to gain project acceptance and careful communications with the public in general. • The complex seismic problems of the foundation and the complex hydraulic system and associated floodplains are likely study risk associated with the project.

e. **In-Kind Contributions.** There will be no In-Kind Contributions for this project.

3. AGENCY TECHNICAL REVIEW

- a. General.** An Agency Technical Review (ATR) is an independent in-depth review to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews that various work products and assures that all the parts fit together in a coherent whole. For dam safety studies, the ATR team shall include members from and be coordinated with the Risk Management Center (RMC) as well as recognized experts in the field of risk assessment outside of the RMC. The ATR team findings will be vetted with the MSC DSO, Risk Management Center, and HQUSACE. The final report and supporting analyses warrant ATR because they will provide the basis for the Chief of Engineers interagency coordination and the Chief's approval or further recommendation to the Secretary of the Army and the Congress as needed.

ATR members will be provided with any significant public comments made during public meeting and on the products under review.

Each application of ATR should build upon any and all prior cycles of review for the study. Each ATR review iteration needs to address incremental changes and additions to documents and analyses addressed in prior ATR reviews, unless the ATR team determines that certain subjects or aspects warrant revisiting due to other changes or a need to adequately understand a larger portion of the project. Arising issues between PDT and reviewers should be resolved with face-to-face resolution.

The DSM report will include a Dam Safety Action Decision Summary (DSADS) which is intended to be an extractable, stand alone component of the DSM report that meets the information needs of senior USACE officials in making dam safety decisions. It would be a public document with unrestricted distribution, but is not designed to be a public communications document per se.

For DSAC I and II dams, during preparation of the report, extensive and higher frequency of communication with approving authorities is required to assure a smooth and successful approval process. The MSC and HQ will conduct agency policy compliance review. The Risk Management Center will review the risk estimate and verify that risk estimate is in compliance with the current policy for dam safety risk estimates. The Risk Management Center will review the risk management recommendations and verify the estimated risk reductions.

- b. Products for Review.** The products to undergo ATR for the study will include:

- (1) Draft Dam Safety Remediation Letter Report , Draft EIS, and Draft Technical Appendices
- (2) Draft Cost Estimate
- (3) Final Briefing to DSO and DST
- (4) Final Dam Safety Remediation Letter Report, Final EIS, and Final Technical Appendices

- (5) Final Cost Estimate
- (6) Construction Engineering Design Plans and Specifications

Review of additional specific disciplines may be identified if necessary.

Required ATR Team Expertise. SPD will advise the review managing organization (RMO) on technical issues dealing with review of scope and the ATR team composition. The ATR team will be comprised of individuals from outside the home district that have not been involved in the development of the decision document and will be chosen based on expertise, experience, and/or skills.

SPD, in cooperation with the PDT, RMC, and vertical team, will determine the final make-up of the ATR team. The RMC may assume the MSC responsibilities at some point during the project. It is not anticipated that the public, including scientific or professional societies will be asked to nominate potential ATR members. The name, organization, contact information, credentials, and years of experience of each member will be identified at the time the review is conducted. Once the SPD designates the ATR panel members the review plan will be updated to reflect this selection however the following types of expertise may be represented:

- (1) Planning – Team member will be experienced with the civil works process, watershed level projects, and current flood damage reduction planning and policy guidance. Team member will have experience in plan formulation for multi-purpose projects and planning in a collaborative environment.
- (2) Hydrology – Team member will be an expert in the field of rainfall runoff models, flow-frequency analysis, hydrologic effects of flood control operations, and hydrologic analysis using HEC-HMS.
- (3) Reservoir Control/Water Management – Team member will be have knowledge of real-time daily and flood operations, regulation decisions, gauging network and system infrastructure, national water control policy, water control data software, and systems operations.
- (4) Hydraulics – Team member will be an expert in the field of hydraulics and have a thorough understanding of dam hydraulics and operations.
- (5) Real Estate/Lands – Team member will be experienced in federal civil works real estate laws, policies, and guidance.
- (6) Environmental Resources – Team member will have a solid background in the habitat types to be found in California’s Central Valley, understand the factors that influence the reestablishment of native species of plants and animals, and understand requirements for NEPA/CEQA documentation.

- (7) Economics – Team member will be familiar with the processes used in evaluation of flood risk management, ecosystem restoration, and recreation projects. Team member will have recent experience in preparing economic analysis plans for multi-purpose feasibility including all four project accounts: National Economic Development (NED), Environmental Quality (EQ), Regional Economic Development (RED), and Other Social Effects (OSE).
- (8) Geotechnical Engineering – Team member will have extensive experience in geotechnical evaluation of flood risk management structures such as static and dynamic slope stability evaluation; evaluation of the seepage through earthen embankments; and underseepage through the foundation of flood risk management structures.
- (9) Cost Engineering – Team member will have extensive Corps’ experience in the application of scientific principles and techniques to problems of cost estimating, cost control, business planning and management science, profitability analysis, project management, and planning and scheduling.
- (10) Geology – Team member will have extensive experience in and knowledge of subsurface geology.
- (11) Civil Design – Team member will have expertise in utility relocations, positive closure requirements, structural design, and non-structural flood damage reduction.
- (12) HTRW – Team member will have expertise in assessment of hazardous, toxic, and radiological waste (HTRW) to determine the nature and extent of HTRW materials within the project area.

c. Documentation of ATR. DrChecks review software will be used to document all ATR comments, responses, and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a 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 in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical 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:

- (5) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer.
- (6) Include the charge to the reviewers prepared by the RMC in accordance with EC 1165-2-209, 7c.
- (7) Describe the nature of their review and their findings and conclusions.
- (8) 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 AFB, draft report, and final report. A draft certification is included in Attachment 1.

4. TYPE I INDEPENDENT EXTERNAL PEER REVIEW

- a. General.** A Type I Independent External Peer Review conducted for feasibility, reevaluation, modification, and assessment reports with an EIS and managed by an outside eligible organization (OEO) that is described in Internal Revenue Code Section 9759 501(c) (3); as exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; as independent; as free from conflicts of interest; does not carry out or advocate for or against Federal water resources projects; and has experience in establishing and administering IEPR panels. These reviews are exempt from the Federal Advisory Committees Act (FACA). The scope of review will address all the underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project.

The RMC will be the Review Management Organization (RMO) for Dam Safety Modification Reports and perform the RMO functions required in 2065 EC 1165-2-209. The

RMC will manage the IEPR process for all dam safety modification reports and districts are to coordinate with the RMC for any required Type I IEPR.

Section 2034 of WRDA 2007 (P.L. 4676 110-114) requires an IEPR for all new projects and for all project modifications that meet the criteria listed in EC 1165-2-209. This review must be completed before the DSM report is approved. EC 1165-2-209, Water Resources Policies and Authorities, Civil Works Review Policy, contains the current guidance for the review for all civil works products. If a Type I IEPR is not required the Type II IEPR scope will contain a comprehensive review of the DSM report in addition to the Safety Assurance Review (Section 2035 of WRDA 2007, P.L. 110-114.) The intent is not to have two separate review panels for the same dam safety project. This review will be completed within a designated time frame for all DSAC I and II dams or the project will go forward without the review being completed due to life safety concerns. Note that DSM reports that recommend the ‘no action’ alternative are to be reviewed in the same manner as DSM reports that recommend an action alternatives.

Type I IEPR is conducted for decision documents if there is a vertical team decision that the covered subject matter meets certain criteria (described in EC 1165-2-209) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. The vertical team will include the district, MSC, RMC, PCX, and HQUSACE members for dam safety modification projects. Type I IEPR is coordinated by the RMC and managed by an Outside Eligible Organization (OEO) external to the USACE. Type I IEPR panels shall evaluate whether the interpretations of analysis and conclusions based on analysis are reasonable. Type I IEPR panels will accomplish a concurrent review that covers the entire decision document and will address all the underlying planning, safety assurance, engineering, economics, and environmental analyses, not just one aspect of the study. Type I IEPR panel members may be incorporated earlier in the review process and may begin their review before there is a completed decision document if directed by the RMC or HQUSACE.

The DSM report will include a Dam Safety Action Decision Summary (DSADS) which is intended to be an extractable, stand alone component of the DSM report that meets the information needs of senior USACE officials in making dam safety decisions. It would be a public document with unrestricted distribution, but is not designed to be a public communications document per se.

For DSAC I and II dams, during preparation of the report, extensive and higher frequency of communication with approving authorities is required to assure a smooth and successful approval process. The MSC and HQ will conduct agency policy compliance review. The Risk Management Center will review the risk estimate and verify that risk estimate is in compliance with the current policy for dam safety risk estimates. The Risk Management Center will review the risk management recommendations and verify the estimated risk reductions.

- b. Decision on Type I IEPR.** The decision to conduct Type I IEPR is made by comparing EC 1165-2-209 criterion to the study, as shown in Table 2. Based on these factors, Type I IEPR will be conducted.

Table 2. Decision on Type I IEPR

EC 1165-2-209 Criteria	Success Dam Seismic Remediation Project
Is there significant threat to human life?	The study includes a dam safety risk and thus presents a threat to human life/safety.
Is the total project cost more than \$45 million?	The estimated project cost will likely exceed \$45 Million
Has the Governor of California requested a Type I IEPR?	The Governor has not requested a Type I IEPR.
Has the head of a Federal or state agency charged with reviewing the project study requested a Type I IEPR?	No requests have been received for a Type I IEPR for this study.
Will there be significant public controversy as to size, nature, or effects of the project?	The project has potential for public controversy, as demonstrated by the Seismic Remediation Letter Report.
Will there be significant public controversy as to the economic or environmental cost or benefit of the project?	The project has potential for public controversy, as demonstrated by the Seismic Remediation Letter Report.
Will the study be based on information from novel methods, present complex challenges or interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?	The study will not be based on information from novel methods, present complex challenges or interpretation, nor contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.

Products for Review. The Type I IEPR will be performed for the draft report, including NEPA/environmental compliance documentation and technical appendixes. Type I IEPR panel members will be provided with ATR documentation and significant public comments made during public meetings and on the products under review. Arising issues between PDT and reviewers should be resolved with face-to-face resolution, but OEO will determine the final decision.

- c. Required Type I IEPR Panel Expertise.** The Type I IEPR panel members will be comprised of individuals that have not been involved in the development of the decision document, meet the National Academy of Sciences guidelines for independence, and will be chosen by the OEO.

The OEO will determine the final participants on the Type I IEPR panel. The name, organization, contact information, credentials, and years of experience of each member will be identified at the time the review is conducted. Once the OEO designates the IEPR panel members, the review plan will be updated to reflect this selection. The following types of expertise may be represented on the Type I IEPR team:

- (1) Hydraulic Engineering Panel Member(s) - The member(s) should be a registered professional engineer with a minimum MS degree or higher in engineering science. Member(s) should have 10-15 years experience in the analysis and design of outlet works and spillways for embankment dams and 5-10 years experience in physical and numerical modeling. The panel member(s) should be familiar with USACE application of risk and uncertainty analyses in flood damage reduction studies and a familiarity with standard USACE hydrologic and hydraulic computer models.
- (2) Reservoir Control/Water Management – This Member should have a minimum of 10 years experience directly related to water management and reservoir control. The member shall have expertise in real-time daily and flood operations, regulation decisions, gauging network and system infrastructure, national water control policy, water control data software, and systems operations.
- (3) Economics Panel Member - Member should possess a Bachelors degree or higher. Member must have at least ten years experience directly related to water resource economic evaluation or review, with a minimum MS degree or higher in economics. At least 5 years experience directly working for or with USACE is highly recommended. Five years experience directly dealing with HEC-FDA is required, and the Panel Member must have two years experience in reviewing federal water resource economic documents justifying construction efforts.
- (4) NEPA Impact Assessment Panel Member – This Member should have a minimum of 10 years demonstrated experience in evaluating and conducting NEPA impact assessments, including cumulative effects analyses, for complex multi-objective public works projects with competing trade-offs. The Panel Member should have a minimum MS degree or higher in an appropriate field of study. Experience should encompass determining the scope and appropriate methodologies for impact assessment and analyses for a variety of projects and programs with high public and interagency interests and having project impacts to nearby sensitive habitats.
- (5) Cost Engineer Panel Member – Member should have a BS degree or higher. This member should have a minimum of 15 years experience with dam construction cost estimating and a working familiarity of USACE cost estimating systems (presently MII, a second generation of M-CACES).
- (6) Structural Engineer Panel Member – It is preferred that this member possess a PhD degree in engineering science, although an MS degree acceptable with professional registration as a Civil Engineer or Structural Engineer. The member should have a minimum of 15 years experience in static and seismic design per industry code standards

and USACE design regulations for Civil Works projects, dynamic site-specific response spectra analysis and evaluation, and soil-structure interaction evaluation and design.

- (7) Geotechnical Engineering Panel Member(s) – It is preferred that the member(s) possess a PhD degree in geotechnical engineering, although an MS degree is acceptable with professional registration as a geotechnical engineer. Minimum 20 years experience in geotechnical seismic design, and embankment dam design and evaluation. Additionally, at least 10 years experience in and piping and seepage failure mode analysis, and risk analysis of embankment dams, familiarity with USACE dam safety assurance policy and guidance, as well as competency in seismic modeling (preferably the finite difference model FLAC v6 commercially available through ITASCA).
- (8) Geology Panel Member – The member(s) should be a registered professional engineer with a minimum MS degree or higher in geology. Member(s) should have 10-15 years experience in and knowledge of subsurface geology.

The OEO will determine the final participants on the Type I IEPR panel. The name, organization, contact information, credentials, and years of experience of each member will be identified at the time the review is conducted and will be included in Attachment 1 of this Review Plan.

d. Documentation of Type I IEPR. DrChecks review software will be used to document Type I IEPR comments and aid in the preparation of the Review Report. Comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. Type I IEPR comments should generally include the same four key parts as described for ATR comments in Section 3. The OEO will be responsible for compiling and entering comments into DrChecks. The Type I IEPR panel will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- (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.
- (3) Describe the nature of their review and their findings and conclusions.
- (4) Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

The final Review Report will be submitted by the Type I IEPR panel no later than 60 days following the close of the public comment period for the draft decision document. The District will draft a response report to the IEPR final report and process it through the vertical

team for discussion at the CWRB. Following direction at the CWRB and upon satisfactorily resolving any relevant follow-on actions, HQUSACE will officially respond to the Type I IEPR Review Report and will post both the Review Report and the Corps' final responses to the SPD website.

5. TYPE II INDEPENDENT EXTERNAL PEER REVIEW

- a. General.** Type II IEPR Safety Assurance Review (SAR) of design and construction activities for flood damage reduction or coastal storm damage reduction projects or for other activities that affect public safety, and will also be conducted for reviewing the relevancy and effectiveness of the Corps inspection of completed works and safety programs in promoting safety and competent performance. They are not required to be managed by OEO's and may be managed by the Corps MSC or by an outside organization. While all aspects of the project may be included in the review, it will focus on the public safety aspects.

SAR applies to new projects and to the major repair, rehabilitation, replacement, or modification of existing facilities. The requirement for Type II IEPR is based on Section 2035 of WRDA 2007, the OMB Peer Review Bulletin and other USACE policy considerations. External panels will conduct reviews of the design and construction activities prior to the initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare. The Review Management Office for Type II IEPR reviews is the USACE Risk Management Center (RMC). Panel members will be selected using the National Academies of Science (NAS) policy for selecting reviewers. Type II IEPR is not exempted by statute from the Federal Advisory Committee Act (FACA).

- b. Decision on Type II IEPR.** The decision to conduct Type II IEPR is based on guidance from the Engineering Circulation, EC 1165-2-209. Success Dam requires a Type II IEPR because it is a rehabilitation project where potential hazards pose a significant threat to human life.

Products for Review. External panels will conduct reviews of the design and construction activities prior to the initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule, and before substantial completion of construction activities. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health, safety, and welfare. This review plan is a "living document" and will be updated to discuss Type II IEPR in more detail once design of the remediation is in process.

- c. Required Type II IEPR Panel Expertise.** The Type II IEPR panel members will be comprised of individuals that have not been involved in the development of the decision document, meet the National Academy of Sciences guidelines for independence, and will be chosen by and outside organization. The following types of expertise may be represented on the Type II IEPR team:

- (1) Hydraulic Engineering Panel Member(s) - The member(s) should be a registered professional engineer with a minimum MS degree or higher in engineering science. Member(s) should have 10-15 years experience in the analysis and design of outlet works and spillways for embankment dams and 5-10 years experience in physical and numerical modeling. The panel member(s) should be familiar with USACE application of risk and uncertainty analyses in flood damage reduction studies and a familiarity with standard USACE hydrologic and hydraulic computer models.
- (2) Reservoir Control/Water Management Panel Member – It is preferred that this member possess a MS degree in water resources or engineering science with a professional registration as a Civil Engineer. This Member should have a minimum of 15 years experience directly related to water management and reservoir control. The member shall have expertise in real-time daily and flood operations, regulation decisions, gauging network and system infrastructure, national water control policy, water control data software, and systems operations.
- (3) Structural Engineer Panel Member – It is preferred that this member possess a PhD degree in engineering science, although an MS degree acceptable with professional registration as a Civil Engineer or Structural Engineer. The member should have a minimum of 15 years experience in static and seismic design per industry code standards and USACE design regulations for Civil Works projects, dynamic site-specific response spectra analysis and evaluation, and soil-structure interaction evaluation and design.
- (4) Geotechnical Engineering Panel Member(s) – It is preferred that the member(s) possess a PhD degree in geotechnical engineering, although an MS degree is acceptable with professional registration as a geotechnical engineer. Minimum 20 years experience in geotechnical seismic design, and embankment dam design and evaluation. Additionally, at least 10 years experience in and piping and seepage failure mode analysis, and risk analysis of embankment dams, familiarity with USACE dam safety assurance policy and guidance, as well as competency in seismic modeling (preferably the finite difference model FLAC v6 commercially available through ITASCA).
- (5) Civil Design Panel Member(s) - The member(s) should be a registered professional engineer with a minimum MS degree or higher in civil or construction engineering. Member(s) should have 10-15 years experience in the embankment dam construction practices. The panel member(s) should be familiar with typical construction and construction management practices.
- (6) Construction Management Panel Member(s) – The member(s) should be a registered professional engineer with a minimum MS degree or higher in civil or construction engineering. Member(s) should have 10-15 year experience in the dam construction practices. The panel member(s) should be experienced with dam construction and best management practices.

6. MODEL CERTIFICATION AND APPROVAL

a. **General.** The use of certified or approved models for all planning activities is required by EC 1105-2-407. This policy is applicable to all planning models currently in use, models under development, and new models. The RMC will be responsible for model certification and approval. The goal of certification/approval is to establish that planning products are theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The use of a certified or approved model does not constitute technical review of the planning product. Independent review of the selection and application of the model and the input data and results is still required through conduct of DQC, ATR, and, if appropriate, IEPR. Independent review is applicable to all models, not just planning models. Both the planning models (including the certification/approval status of each model) and engineering models anticipated to be used in the development of the decision document are described below.

b. **Planning Model.** The following planning models are being used in the study:

- (1) HEC-FDA(Certified): This model, developed by the Corps' Hydrological Engineering Center, will assist the PDT in applying risk analysis methods for flood damage reduction studies as required by EM 1110-2-1419. This program calculates the Expected Annual Damages, computes the Annual Exceedence Probability and the Conditional Non-Exceedence Probability, and implements the risk-based analysis procedures contained in EM 1110-2-1619. HEC-FDA will be used to determine the inundation damages expected if a failure of Success Dam occurred.
- (2) Computed Estimated Annual Damages (EAD) – This model computed estimated annual damages for flooding associated with the four project conditions.
- (3) Habitat Evaluation Procedures (HEP). As habitat changes through time, either by natural or human-induced processes, we can quantify the overall suitability through time by integrating the areal extent-suitability product function over time. We can quantitatively compare two or more alternative management practices of an area with regards to those practices affecting species in the area. HEP also allows us to quantify the effects of mitigation and compensation. The Ecosystem Restoration Planning Center of Expertise is responsible for approving ecosystem output methodologies for use in ecosystem restoration planning and mitigation planning. The PDT will contact the Ecosystem PCX to verify that the HEP habitat suitability index (HSI) models were used in habitat impact and mitigation analyses are models that have been certified and approved for use. HSI models that have been developed by the USFWS have generally been certified and approved for use so additional review and certification should not be necessary.

Other models, such as regional Input-Output models and Ecosystem Habitat models, may be added as needed as the study progresses. The PDT will coordinate all certification with the FCM PCX.

c. Engineering Models. The following engineering models are anticipated to be used:

- (1) HEC-HMS. The Hydrologic Modeling System (HEC-HMS) is designed to simulate the precipitation-runoff processes of dendritic watershed systems. It is designed to be applicable in a wide range of geographic areas for solving the widest possible range of problems. This includes large river basin water supply and flood hydrology and small urban or natural watershed runoff. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation. This software program will be used to create inflow hydrographs for development of the with- and without-project conditions.
- (2) HEC-RAS. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) provides one-dimensional steady and unsteady flow river hydraulics calculations, sediment transport-mobile bed modeling, and water temperature analysis. The HEC-RAS software supersedes the HEC-2 river hydraulics package, which was a one-dimensional, steady flow water surface profiles program. This software program will create the water surface profile elevations for with and without project conditions. Channel hydraulics of the Tule River was simulated using an HEC-RAS unsteady 1-dimensional flow model.
- (3) HEC-ResSim: This model predicts the behavior of reservoirs and helps reservoir operators plan releases in real-time during day-to-day and emergency operations. HEC-ResSim will be used in the project to analyze the impacts made by operational changes and reduced reservoir operation during the construction phase.
- (4) FLO-2D. FLO-2D is a volume conservation flood routing model. The model will simulate river overbank flows, but it can also be used on unconventional flooding problems such as unconfined flows over complex alluvial fan topography and roughness, split channel flows, mud/debris flows, and urban flooding. This software program will be used to develop economic floodplains for the benefits analysis of the with- and without-project conditions. Floodplain inundation was simulated using a FLO-2D unsteady 2-dimensional flow model.
- (5) ArcView is a geographic information system (GIS) software for visualizing, managing, creating, and analyzing geographic data. ArcView GIS was used extensively to prepare hydraulic model input, economic model input, and prepare report graphics.

(6) Flood Frequency Analysis of Tulare Lakebed annual volumes were conducted in a spreadsheet that follows Water Resources Council Bulletin 17B guidelines.

- d. **Cost Estimating Model.** MCACES / MII is an integrated cost estimating system. Either MCACES or MII (second generation of MCACES) will be used to prepare cost estimates.

7. REVIEW SCHEDULES AND COSTS

- a. **DQC Schedule and Cost.** The DQC schedule is shown in Table 3.

Table 3. DCQ Schedule

Task	Date
DQC team identified	January 2010
Draft Remediation Letter Report	March 2010
Final Remediation Letter Report	TBD

The Sacramento District shall provide labor funding by cross charge labor codes. The Project Manager will work with the DQC team leader to ensure that adequate funding is available and is commensurate with the level of review needed. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

The DQC team leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers shall monitor individual labor code balances and alert the DQC team leader to any possible funding shortages. DQC review is estimated to be \$100,000 for the study.

- b. **ATR Schedule and Cost** The ATR schedule is shown in Table 4. Additional detail will be added to this schedule when the time period for the first review draws closer. All products for these milestones will be reviewed.

Table 4. ATR Schedule

Task	Date
Prepare scope of work	Completed
Award contract	March 2010
ATR team identified	February 2010
Initiate review	March 2010
ATR briefing meeting	February 2010
Draft DSMR, EIS, and technical appendices	March 2010
Respond to comments	July 2010

The Sacramento District shall provide labor funding by cross charge labor codes. Funding for travel will be provided through government order, if needed. The Project Manager will work with the ATR team leader to ensure that adequate funding is available and is commensurate

with the level of review needed. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

The ATR team leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers shall monitor individual labor code balances and alert the ATR team leader to any possible funding shortages. ATR review is estimated to be \$250,000 for the study.

- c. **Type I IEPR Schedule and Cost.** The schedule for Type I IEPR will be determined as the time period for review draws closer. Interim products for hydrology, hydraulic, geotechnical design, environmental and economics will be provided to the panel before the draft report is release for public review. The full Type I IEPR panel will receive the entire draft DSM report, environmental impact statement (EIS), and all technical appendixes concurrent with public and agency review. The final report to be submitted by the Type I IEPR panel must be submitted to the PDT within 60 days of conclusion of public review.

DSMR consist of sensitive information that Homeland Security may restrict the level of information that is released for public review. The PM will coordinate with RMC and MSC DSO before any document is released for public review. The DSADS is likely to be the public document that gets released for public review.

The Type I IEPR is estimated to be \$500,000 for this study. See section 4 of this document for further information concerning the Type I IEPR. See Table 5 for the Type I IEPR Schedule.

Table 5. Type I IEPR Schedule

Task	Date
Prepare scope of work	March 2010
Award contract	July 2010
IEPR team identified	July 2010
Initiate review	July 2010
IEPR briefing meeting	August 2010
Draft DSMR, EIS, and technical appendixes	September 2010
Respond to comments	November 2010

- d. **Type II IEPR Schedule and Cost.** The schedule for Type II IEPR will be determined as the time period for review draws closer. Interim products for hydrology, hydraulic, geotechnical design, and economics will be provided to the panel after the design is completed and before physical construction begins. The full Type II IEPR panel will receive the entire set of civil construction plans, technical documents and appendixes concurrent with the DQC and ATR. The final report to be submitted by the Type II IEPR panel must be submitted to the PDT within 60 days of conclusion of public review.

DSMR consist of sensitive information that Homeland Security may restrict the level of information that is released for public review. The PM will coordinate with RMC and MSC

DSO before any document is released for public review. The DSADS is likely to be the public document that gets released for public review.

The Type II IEPR is estimated to be \$500,000 for this study. See section 5 of this document. See section 5 of this document for further information concerning Type II IEPR. See Table 6 for the Type II IEPR, Safety Assurance Review (SAR) Schedule.

Table 6. Safety Assurance Review (SAR) Schedule

Task	Date
Prepare scope of work	TBD
Award contract	TBD
SAR team identified	TBD
Initiate review	TBD
SAR briefing meeting	TBD
Draft Engineering Design and Construction Plans	TBD
Respond to comments	TBD

- a. **Model Certification/Approval Schedule and Cost.** If other planning, engineering, or economic models are added during the study, design or construction phase, the PDT will coordinate model certification/approval with the RMC.

8. PUBLIC PARTICIPATION

The public has been and will continue to be kept informed of the project. Public participation has occurred as part of the NEPA process in scoping for the EIS and meetings held to receive public comments on the draft EIS. Meetings are also being held as needed to report on project status.

Release of the draft report for public review will occur after issuance of the AFB policy guidance memo and concurrence by HQUSACE. The District will make the draft decision document available to the public for comment at the same time it is submitted for review (or during the review process) and sponsor a public meeting where oral presentations can be made to the reviewers by interested members of the public. ATR and Type I IEPR reviewers will be provided with all public comments. Upon completion of the review periods, comments will be consolidated in a matrix and addressed, if needed. A summary of the comments and resolutions will be included in the document.

9. RMC COORDINATION

Review plans for decision documents and supporting analyses outlined in ER 1110-2-1156 are coordinated with the RMC in close coordination with the FRM PCX. The RMC will coordinate with the National Ecosystem Restoration Planning Center of expertise and Cost Engineering Directory of Expertise, as appropriate. This Review Plan will be coordinated with the RMC and submitted by the SPK Planning Chief, 916-557-6767 to the MSC Commander for approval. The RMC will be asked to manage the ATR, Type I IEPR, and Type II IEPR- SAR. The RMC is

requested to nominate the ATR teams. The RMC will work in close coordination with the Outside Eligible Organization (OEO) when negotiating the IEPR contracts. The approved Review Plan will be posted to the SPK websites. Any public comments on the Review Plan will be collected by SPK for resolution and incorporation as needed. Any public comments directed to either the RMC or to HQUSACE will be forwarded to SPK.

10. MSC APPROVAL

The MSC is South Pacific Division and is responsible for approving the review plan. Approval is provided by the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, RMC, PCX, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the review plan is a living document and may change as the study progresses. Changes to the review plan should be approved by following the process used for initially approving the plan. In all cases the MSCs will review the decision on the level of review and any changes made in updates to the project.

The RP is a "living document" and shall be updated as needed during the study process. The RMC shall be provided an electronic copy of any revised approved RP. The PDT shall follow their DST's guidance for processing revised RPs for their respective MSCs.

11. REVIEW PLAN POINTS OF CONTACT

Questions and/or comments about this Review Plan may be directed to

Mr. Darren Suen, Sacramento District Project Delivery Team (SPK-PDT) Project Manager, at (916) 557-5332, or Darren.G.Suen@usace.army.mil,

Ms. Marci Jackson, SPK-PDT Planning contact at (916) 557-6709 or Martha.C.Jackson@usace.army.mil,

Mr. Rick Britzman, South Pacific Division (SPD) Dam Safety Program Manager, at (916) 557-6607, or Richard.A.Britzman@usace.army.mil,

Ms. Karen Berresford, South Pacific Division (SPD) Contact, at (415) 503-6557 or Karen.G.Berresford@usace.army.mil,

Mr. Nathan Snorteland, Director, Risk Management Center (RMC), at (571) 232-9189 or Nathan.J.Snorteland@usace.army.mil,

Mr. Eric Thaut, Program Manager for the Planning Center of Expertise for Flood Risk Management, at (415) 503-6852, or eric.w.thaut@usace.army.mil.

Ms. Jodi Staebell, Operational Director Planning Center of Expertise for Ecosystem Restoration, at (309) 794-5448, or Jodi.K.Staebell@usace.army.mil

Mr. Michael P. Jacobs, Cost Engineering Directory of Expertise (CE-DX), at (509) 527-

7516, or Michael.P.Jacobs@usace.army.mil

ATTACHMENT 1: TEAM ROSTERS

Table 7 - 13 include rosters and contact information for the current PDT, ATR team, vertical team, RMC points of contact, Type I IEPR panel members, and Type II IEPR panel members.

Table 7. Project Delivery Team

Name/Title	Section	Email/Phone
Darren Suen /Project Manager	Project Management	Darren.G.Suen@usace.army.mil 916-557-5332
Michael E. Ruthford /Technical Lead	Dam Safety & Infrastructure	Michael.E.Ruthford@usace.army.mil 916-557-7302
Roxanne Bump /Budget Analyst	Program Management	Roxanne.N.Bump@usace.army.mil 916-557-7583
Gary M. Bedker /Economist	Water Resources Branch	Gary.M.Bedker@usace.army.mil 916-557-6707
Calvin Foster /Area Park Manager	Southern Operations Area Office	Calvin.Foster@usace.army.mil 559-784-0215
Stephen G. Graff /Hydraulics	Hydraulic Design	Stephen.G.Graff@usace.army.mil 916-557-7297
B.J. Bailey /Geologist	Geology	Betty.J.Bailey@usace.army.mil 916-217-6642
Andy Farhan /Soils Engineer	Soil Design Section	Andy.Farhan@usace.army.mil 916-557-5399
Kenneth R. Pattermann /Dam Safety	Dam Safety & Infrastructure	Kenneth.R.Pattermann@usace.army.mil 916-557-6980
Vlad Perlea /Dam Safety	Dam Safety & Infrastructure	Vlad.G.Perlea@usace.army.mil 916-557-5320
Richard M. Perry /Archeologist	Cultural, Recreation & Social Assessment	Richard.M.Perry@usace.army.mil 916-557-5218
Elizabeth A. Wegenka /GIS Mapping	Mapping Section	Elizabeth.A.Wegenka@usace.army.mil 916-557-7640
Michael Ma /Structural Design	Structural Design	Michael.Ma@usace.army.mil 916-557-7298
Warren Byrd /Support Staff	Public Affairs Officer	Warren.Byrd@usace.army.mil 916-557-5145
Chung F. Wong /Structural Design	Structural Design	Chung.F.Wong@usace.army.mil 916-557-7305

Bill Halczak /Materials	Soil Design Section	William.Halczak@usace.army.mil 916-557-7427
Mariah M. Garr /Environmental Manager	Environmental Planning Section	Mariah.M.Garr@usace.army.mil 916-557-7702
Martha Jackson/ Planner	Water Resources Planning Section	Martha.C.Jackson@usace.army.mil 916-557-6709
Stan Ho & Team /AE Services	AE Administration Section	Stanley.Ho@usace.army.mil 916-557-6677
Harold Williamson Carolyn Mallory	Contracting	Harold.Williamson@usace.army.mil 916-557-5196 Carolyn.e.mallory@usace.army.mil 916-557-5203
John C. Palma /Project Management Specialist	P2	John.C.Palma@usace.army.mil 916-557-6621
Penny Caldwell /Real Estate Specialist	Real Estate	Penny.P.Caldwell@usace.army.mil 916-557-6884
Sid Jones /Landscape Architect	Civil Design Section	Sidney.I.Jones@usace.army.mil 916-557-7273
Wayne Johnson /Water Manager	Water Management Section	Wayne.L.Johnson@usace.army.mil 916-557-7139

Table 8. District Quality Control Team

Discipline	Phone	Years of Experience	Credentials
TBD/Lead			
TBD/Seismic			
TBD/Structural			
TBD/Hydraulic			
TBD/Hydrology			
TBD/Construction			
TBD/Cost			
TBD/NEPA/EIS			
TBD/Economics			
TBD/Planning			

Table 9. Agency Technical Review Team

Discipline	Phone	District
Kristie Hartfeil/Geotechnical	(503) 808-4861	NWP
Rick Russell/Design Team Leader	(503) 808-4791	NWP

Rick Russell/Program Management	(503) 808-4791	NWP
Martin Hansen/Civil	(503) 808-4879	NWP
Martin Hansen/Hydraulics	(503) 808-4879	NWP
Matthew Hanson/Structural	(503) 808-4934	NWP
Michael Moran/Cost Engineering	(503) 808-4427	NWP
Gene Sturm/Economics	(402) 995-2691	NWO

Table 10. Type I Independent External Peer Review Panel

Discipline	Phone	Years of Experience	Credentials
Hydrology and Hydraulics	TBD		
Economics	TBD		
Environmental Resources	TBD		
Cost Engineering	TBD		
Civil Design	TBD		
Geotechnical Engineering	TBD		

Table 11. Type II Independent External Peer Review Panel

Discipline	Phone	Years of Experience	Credentials
Hydrology and Hydraulics	TBD		
Civil Design/Construction	TBD		
Structural Engineering	TBD		
Geotechnical Engineering	TBD		

Table 12. Vertical Team

Name	Discipline	Phone
Karen Berresford	District Support Team Mgr	415-503-6557 Karren.G.Berresdord@usace.army.mil
Ken Zwickl	Regional Integration Team	202-761-4085 Kennith.J.Zwickl@usace.army.mil
Adam Riley	SPK Dam Safety PM	916-557-5391 Adam.A.Riley@usace.army.mil
Rick Britzman	SPD Dam Safety PM	916-557-6607 Richard.B.Britzman@usace.army.mil
Rick Poepelman	SPK Dam Safety Officer	916-557-7301 Rick.L.Poepelman@usace.army.mil
Andy Constantaras	SPD Dam Safety Officer	415-503-6510 Andrew.Constantaras@usace.army.mil
Travis Tutka	HQ Dam Safety PM	202-761-4643 Travis.C.Tutka@ucace.army.mil
Eric Halpin	HQ Special Assistant	202-761-7662 Eric.C.Halpin@usace.army.mil
James Dalton	HQ Dam Safety Officer	202-761-8826 James.C.Dalton@usace.army.mil

Table 13. Planning Center of Expertise Points of Contact

Name	Discipline	Phone
Nathan Snorteland	Director, Risk Management Center (RMC)	571-232-9189
Eric Thaut	Program Manager, PCX Flood Risk Management	415-503-6852
Jodie Staebell	Operational Director, PCX Ecosystem Restoration	309-794-4558
Michael Jacobs	Cost Engineering Directory of Expertise (CE-DX)	509-527-7516

ATTACHMENT 2: ATR CERTIFICATION TEMPLATE

STATEMENT OF AGENCY TECHNICAL REVIEW

**SUCCESS DAM SEISMIC REMEDIATION LETTER REPORT,
CALIFORNIA**

**LETTER REPORT, ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL
IMPACT REPORT, AND APPENDICES**

The Sacramento District has completed the letter report, environmental impact statement/environmental impact report, and appendices of the Success Dam Seismic Remediation Study, California. Notice is hereby given that an agency technical review 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 result, including whether the product meets the customer's needs consistent with law and existing Corps' policy. The ATR was accomplished by an agency team composed of staff from multiple districts. All comments resulting from ATR have been resolved.

Agency Technical Review Team Leader

Date

Project Manager

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows:

(Describe the major technical concerns, possible impact, and resolution)

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

Chief, Planning Division

Date

District Dam Safety Officer

Date

ATTACHMENT 3: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
AFB	Alternative Formulation Briefing	MSC	Major Subordinate Command
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
BOD	Basis of Design	O&M	Operation and Maintenance
CSDR	Coastal Storm Damage Reduction	OMB	Office of Management and Budget
CWRB	Civil Works Review Board	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DSAC	Dam Safety Action Classification	OEO	Outside Eligible Organization
DQC	District Quality Control	OSE	Other Social Effects
DSO	Dam Safety Office	PCX	Planning Center of Expertise
DX	Directory of Expertise	PDT	Project Delivery Team
EA	Environmental Assessment	PMP	Project Management Plan
EC	Engineer Circular	PL	Public Law
EIS	Environmental Impact Statement	QMP	Quality Management Plan
EO	Executive Order	QA	Quality Assurance
ER	Ecosystem Restoration	QC	Quality Control
FDR	Flood Damage Reduction	RMC	Risk Management Center
FEMA	Federal Emergency Management Agency	RMO	Review Managing Organization
FRM	Flood Risk Management	RTS	Regional Technical Specialist
GRR	General Reevaluation Report	SAR	Safety Assurance Review
HTRW	Hazardous, toxic, and radiological waste	SET	Science and Engineering Technology
HQUSACE	Headquarters, U.S. Army Corps of Engineers	USACE	U.S. Army Corps of Engineers
IEPR	Independent External Peer Review	WRDA	Water Resources Development Act
IRRM	Interim Risk Reduction Measure		

Dam Safety Glossary

Agency Technical Review (ATR) – an independent in-depth review to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews that various work products and assures that all the parts fit together in a coherent whole.

DSAC Class I (Urgent and Compelling) – Dams where progression toward failure is confirmed to be taking place under normal operations and the dam is almost certain to fail under normal operations within a time frame from immediately to within a few years without intervention; or, the combination of life or economic consequences with 8584 probability of failure is extremely high.

DSAC Class II (Urgent) – Dams where failure could begin during normal operations or be initiated as the consequence of an event. The likelihood of failure from one of these occurrences, prior to remediation, is too high to assure public safety; or, the combination of life or economic consequences with probability of failure is very high.

DSAC Class III (High Priority) – Dams that have issues where the dam is significantly inadequate or the combination of life, economic, or environmental consequences with probability of failure is moderate to high.

DSAC Class IV (Priority) – Dams are inadequate with low risk such that the combination of life, economic, or environmental consequences with a probability of failure is low and the dam may not meet all essential USACE engineering guidelines.

DSAC Class V (Normal) – Dams considered adequately safe, meeting all essential agency guidelines and the residual risk is considered tolerable.

Dam Safety Modification Study – The safety case that presents the investigation, documentation, and justification of modifications for dam safety at completed Corps of Engineers projects. The report presents the formulation and evaluation for a full range of risk reduction alternatives with preliminary level cost estimates. A detailed risk assessment is required to look at incremental risk reduction alternatives that together meet the tolerable risk guidelines and cost effectiveness of additional risk reduction below the minimum safety criteria. However, the level of detail should only be what is needed to justify the modification decision. Related NEPA (reference A-98) and ESA studies will be conducted during the Modification Study, in support of the recommended risk reduction measures. The resultant Dam Safety Modification Decision Document will present a comparison of alternatives and the recommended risk management plan to include actions, components, risk reduction by increments, implementation plan, detailed cost estimate, NEPA, and ESA determinations.

Dam Safety Officer (DSO) – A registered professional civil engineer with management abilities who is competent in the areas related to the design, construction, operation, inspection or evaluation of dams. They must understand adverse dam incidents and the potential causes and consequences of dam failure. The DSO is the highest-ranking Registered Professional Engineer in each level of the Corps of Engineers responsible for implementing the dam safety program of that organization. The Commander shall ensure the DSO meets the technical qualifications and experience. The DSO is the Chair of the Dam Safety Committee.

Interim Risk Reduction Measure (IRRM) – Dam Safety Risk Reduction Measures that are to be formulated and undertaken for dams that are not considered to be tolerably safe and are intended as interim until more permanent remediation measures are implemented. Increased monitoring and reservoir restrictions are examples of interim measures that can be taken at a project.

Risk assessment – Risk assessment is a broad term that encompasses a variety of analytic techniques that are used in different situations, depending upon the nature of the risk, the available data, and needs of decision makers. A risk assessment is a systematic, evidence based approach for quantifying and describing the nature, likelihood, and magnitude of risk associated with the current condition and the same values resulting from a changed condition due to some action. Risk assessment includes explicit acknowledgment of the uncertainties in the risk. As applied to dam safety, the process of identifying the likelihood and consequences of dam failure to provide the basis for informed decisions on a course of action.

Risk Management Center (RMC) – An independent USACE Center assigned to the Institute of Water Resources, which is responsible for development and implementation of dam and levee safety policy, prioritization of national dam and levee safety projects and technical consistency of dam and levee safety products. The Center utilizes a combination of in-situ and virtual resources (district, contract, and Risk and Reliability Directory of Expertise, the Modeling, Mapping, and Consequence Production Center, and Policy and Procedures workgroups) to manage the program.

Safety Assurance Review (SAR) Team - Section 2035, Safety assurance review team, Public Law 110-114, the Water Resource Development Act of 2007, requires a safety assurance review of the design and construction of work effecting public safety. This review team is formed at the time pre-construction engineering and design starts and stays with the project until the completion of construction.

Type I IEPR – An Independent External Peer Review conducted for feasibility, reevaluation, modification, and assessment reports with an EIS and managed by an outside eligible organization (OEO) that is described in Internal Revenue Code Section 501(c) (3); as exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; as independent; as free from conflicts of interest; does not carry out or advocate for or against Federal water resources projects; and has experience in establishing and administering IEPR panels. These reviews are exempt from the Federal Advisory Committees Act (FACA). The scope of review will address all the underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project.

Type II IEPR – A Safety Assurance Review (SAR) of design and construction activities for flood damage reduction or coastal storm damage reduction projects or for other activities that affect public safety, and will also be conducted for reviewing the relevancy and effectiveness of the Corps inspection of completed works and safety programs in promoting safety and competent performance. They are not required to be managed by OEO's and may be managed by the Corps MSC or by an outside organization. While all aspects of the project may be included in the review, it will focus on the public safety aspects.

Review Plan Checklist For Decision Documents

Date: April 8, 2010

Originating District: Sacramento District, SPK

Project/Study Title: Dam Safety Assurance Program (DSAP) - Success Dam

PWI #:

District POC: Darren Suen, Project Manager

PCX Reviewer:

Please fill out this checklist and submit with the draft Review Plan when coordinating with the appropriate PCX. Any evaluation boxes checked 'No' indicate the RP may not comply with ER 1105-2-410 (22 Aug 2008) and should be explained. Additional coordination and issue resolution may be required prior to MSC approval of the Review Plan.

REQUIREMENT	REFERENCE	EVALUATION
1. Is the Review Plan (RP) a stand alone document?	EC 1105-2-410, Para 8a	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p>a. Does it include a cover page identifying it as a RP and listing the project/study title, originating district or office, and date of the plan?</p> <p>b. Does it include a table of contents?</p> <p>c. Is the purpose of the RP clearly stated and EC 1105-2-410 referenced?</p> <p>d. Does it reference the Project Management Plan (PMP) of which the RP is a component?</p> <p>e. Does it succinctly describe the three levels of peer review: District Quality Control (DQC), Agency Technical Review (ATR), and Independent External Peer Review (IEPR)?</p> <p>f. Does it include a paragraph stating the title, subject, and purpose of the decision document to be reviewed?</p> <p>g. Does it list the names and disciplines of the Project Delivery Team (PDT)?*</p> <p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>	EC 1105-2-410, Appendix B, Para 4a	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>f. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>g. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments:</p>

<p>2. Is the RP detailed enough to assess the necessary level and focus of peer review?</p>	<p>EC 1105-2-410, Appendix B, Para 3a</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it indicate which parts of the study will likely be challenging?</p> <p>b. Does it provide a preliminary assessment of where the project risks are likely to occur and what the magnitude of those risks might be?</p> <p>c. Does it indicate if the project/study will require preparation of an environmental impact statement (EIS)?</p> <p><i>Will an EIS be prepared? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i> <i>If yes, IEPR is required.</i></p> <p>d. Does it address if the project report is likely to contain influential scientific information or be a highly influential scientific assessment?</p> <p><i>Is it likely? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></i> <i>If yes, IEPR is required.</i></p> <p>e. Does it address if the project is likely to have significant economic, environmental, and social affects to the nation, such as (but not limited to):</p> <ul style="list-style-type: none"> • more than negligible adverse impacts on scarce or unique cultural, historic, or tribal resources? • substantial adverse impacts on fish and wildlife species or their habitat, prior to implementation of mitigation? • more than negligible adverse impact on species listed as endangered or threatened, or to the designated critical habitat of such species, under the Endangered Species Act, prior to implementation of mitigation? <p><i>Is it likely? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i> <i>If yes, IEPR is required.</i></p>	<p>EC 1105-2-410, Appendix B, Para 3a</p> <p>EC 1105-2-410, Appendix B, Para 3a</p> <p>EC 1105-2-410 Para 7c & 8f</p> <p>EC 1105-2-410, Appendix B, Para 4b</p> <p>EC 1105-2-410, Para 6c</p> <p>EC 1105-2-410 Para 8f</p> <p>EC 1105-2-410 Para 8f</p> <p>EC 1105-2-410 Para 8f</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments: In recommending the earthen embankment, the Letter Report does not present any conclusions that are likely to change prevailing practices. The Letter Report and studies leading up to it are unlikely to contain influential scientific information and unlikely to be a highly influential scientific assessment. However, the project will be challenging because of the urbanization of the project area, the complex seismic problems of the foundation, and the complex hydraulic system and associated floodplains.</p>

<p>f. Does it address if the project/study is likely to have significant interagency interest?</p> <p><i>Is it likely? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i> <i>If yes, IEPR is required.</i></p>	<p>EC 1105-2-410, Para 6c</p>	
<p>g. Does it address if the project/study likely involves significant threat to human life (safety assurance)?</p> <p><i>Is it likely? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i> <i>If yes, IEPR is required.</i></p>	<p>EC 1105-2-410, Appendix D, Para 1b</p>	
<p>h. Does it provide an estimated total project cost?</p> <p><i>What is the estimated cost: <u>\$500M</u></i> <i>(best current estimate; may be a range)</i></p> <p><i>Is it > \$45 million? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i> <i>If yes, IEPR is required.</i></p>	<p>EC 1105-2-410, Appendix D, Para 1b</p>	
<p>i. Does it address if the project/study will likely be highly controversial, such as if there will be a significant public dispute as to the size, nature, or effects of the project or to the economic or environmental costs or benefits of the project?</p> <p><i>Is it likely? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i> <i>If yes, IEPR is required.</i></p>	<p>EC 1105-2-410, Appendix D, Para 1b</p>	<p>f. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>g. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>h. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>i. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>j. Does it address if the information in the decision document will likely be based on novel methods, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices?</p> <p><i>Is it likely? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></i> <i>If yes, IEPR is required.</i></p>	<p>EC 1105-2-410, Appendix D, Para 1b</p>	<p>j. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments: In recommending the earthen embankment, the Letter Report does not present any conclusions that are likely to change prevailing practices. However, the project will be challenging because of the urbanization of the project area, the complex seismic problems of the foundation, and the complex hydraulic system and associated floodplains.</p>

3. Does the RP define the appropriate level of peer review for the project/study?	EC 1105-2-410, Para 8a	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p>a. Does it state that DQC will be managed by the home district in accordance with the Major Subordinate Command (MSC) and district Quality Management Plans?</p> <p>b. Does it state that ATR will be conducted or managed by the lead PCX?</p> <p>c. Does it state whether IEPR will be performed?</p> <p><i>Will IEPR be performed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></i></p> <p>d. Does it provide a defensible rationale for the decision on IEPR?</p> <p>e. Does it state that IEPR will be managed by an Outside Eligible Organization, external to the Corps of Engineers?</p>	<p>EC 1105-2-410, Para 7a</p> <p>EC 1105-2-410, Appendix D, Para 3a</p> <p>EC 1105-2-410, Appendix B, Para 4b</p> <p>EC 1105-2-410, Para 7c</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>Comments:</p>
4. Does the RP explain how ATR will be accomplished?	EC 1105-2-410, Appendix B, Para 4l	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p>a. Does it identify the anticipated number of reviewers?</p> <p>b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)?</p> <p>c. Does it indicate that ATR team members will be from outside the home district?</p> <p>d. Does it indicate that the ATR team leader will be from outside the home MSC?</p> <p>e. Does the RP state that the lead PCX is responsible for identifying the ATR team members and indicate if candidates will be nominated by the home district/MSC?</p> <p>f. If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*</p>	<p>EC 1105-2-410, Appendix B, Para 4f</p> <p>EC 1105-2-410, Appendix B, Para 4g</p> <p>EC 1105-2-410, Para 7b</p> <p>EC 1105-2-410, Para 7b</p> <p>EC 1105-2-410, Appendix B, Para 4k(1)</p> <p>EC 1105-2-410, Appendix B, Para 4k(1)</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>e. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>f. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>Comments:</p>

<p><i>*Note: It is highly recommended to put all team member names and contact information in an appendix for easy updating as team members change or the RP is updated.</i></p>		
<p>5. Does the RP explain how IEPR will be accomplished?</p>	<p>EC 1105-2-410, Appendix B, Para 4k & Appendix D</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p>
<p>a. Does it identify the anticipated number of reviewers?</p> <p>b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)?</p> <p>c. Does it indicate that the IEPR reviewers will be selected by an Outside Eligible Organization and if candidates will be nominated by the Corps of Engineers?</p> <p>d. Does it indicate the IEPR will address all the underlying planning, safety assurance, engineering, economic, and environmental analyses, not just one aspect of the project?</p>	<p>EC 1105-2-410, Appendix B, Para 4f</p> <p>EC 1105-2-410, Appendix B, Para 4g</p> <p>EC 1105-2-410, Appendix B, Para 4k(1) & Appendix D, Para 2a</p> <p>EC 1105-2-410, Para 7c</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments:</p>
<p>6. Does the RP address peer review of sponsor in-kind contributions?</p>		<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>a. Does the RP list the expected in-kind contributions to be provided by the sponsor?</p> <p>b. Does it explain how peer review will be accomplished for those in-kind contributions?</p>	<p>EC 1105-2-410, Appendix B, Para 4j</p>	<p>a. Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>b. Yes <input type="checkbox"/> No <input type="checkbox"/> n/a <input checked="" type="checkbox"/></p> <p>Comments: There are no non-federal sponsors so therefore there are no in-kind services.</p>
<p>7. Does the RP address how the peer review will be documented?</p>		<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does the RP address the requirement to document ATR and IEPR comments using DrChecks?</p>	<p>EC 1105-2-410, Para 8g(1)</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

<p>b. Does the RP explain how the IEPR will be documented in a Review Report?</p> <p>c. Does the RP document how written responses to the IEPR Review Report will be prepared?</p> <p>d. Does the RP detail how the district/PCX will disseminate the final IEPR Review Report, USACE response, and all other materials related to the IEPR on the internet and include them in the applicable decision document?</p>	<p>EC1105-2-410, Appendix B, Para 4k(13)(b)</p> <p>EC 1105-2-410, Appendix B, Para 4l</p> <p>EC 1105-2-410, Para 8g(2) & Appendix B, Para 4l</p>	<p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>Comments:</p>
<p>8. Does the RP address Policy Compliance and Legal Review?</p>	<p>EC 1105-2-410, Para 7d</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments:</p>
<p>9. Does the RP present the tasks, timing and sequence (including deferrals), and costs of reviews?</p>	<p>EC 1105-2-410, Appendix B, Para 4c & Appendix C, Para 3d</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it provide a schedule for ATR including review of the Feasibility Scoping Meeting (FSM) materials, Alternative Formulation Briefing (AFB) materials, draft report, and final report?</p> <p>b. Does it include interim ATR reviews for key technical products?</p> <p>c. Does it present the timing and sequencing for IEPR?</p> <p>d. Does it include cost estimates for the peer reviews?</p>	<p>EC 1105-2-410, Appendix C, Para 3g</p> <p>EC 1105-2-410, Appendix C, Para 3g</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments:</p>
<p>10. Does the RP indicate the study will address Safety Assurance factors?</p> <p>Factors to be considered include:</p> <ul style="list-style-type: none"> • Where failure leads to significant threat to human life • Novel methods\complexity\ precedent-setting models\policy changing 	<p>EC 1105-2-410, Para 2 & Appendix D, Para 1c</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>Comments:</p>

<ul style="list-style-type: none"> conclusions • Innovative materials or techniques • Design lacks redundancy, resiliency of robustness • Unique construction sequence or acquisition plans • Reduced\overlapping design construction schedule 		
11. Does the RP address model certification requirements?	EC 1105-2-407	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p>a. Does it list the models and data anticipated to be used in developing recommendations (including mitigation models)?</p> <p>b. Does it indicate the certification/approval status of those models and if certification or approval of any model(s) will be needed?</p> <p>c. If needed, does the RP propose the appropriate level of certification/approval for the model(s) and how it will be accomplished?</p>	EC 1105-2-410, Appendix B, Para 4i	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>Comments:</p>
12. Does the RP address opportunities for public participation?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p>a. Does it indicate how and when there will be opportunities for public comment on the decision document?</p> <p>b. Does it indicate when significant and relevant public comments will be provided to reviewers before they conduct their review?</p> <p>c. Does it address whether the public, including scientific or professional societies, will be asked to nominate potential external peer reviewers?</p> <p>d. Does the RP list points of contact at the home district and the lead PCX for inquiries about the RP?</p>	<p>EC 1105-2-410, Appendix B, Para 4d</p> <p>EC 1105-2-410, Appendix B, Para 4e</p> <p>EC 1105-2-410, Appendix B, Para 4h</p> <p>EC 1105-2-410, Appendix B, Para 4a</p>	<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>d. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Comments:</p>
13. Does the RP address coordination with the appropriate Planning Centers of Expertise?	EC 1105-2-410, Para 8a	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<p>a. Does it state if the project is single or multi-purpose? Single <input type="checkbox"/> Multi <input checked="" type="checkbox"/></p>		<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

<p>List purposes: flood control, irrigation, water storage, recreation, and electrical power generation.</p> <p>b. Does it identify the lead PCX for peer review? Lead PCX: FRM</p> <p>c. If multi-purpose, has the lead PCX coordinated the review of the RP with the other PCXs as appropriate?</p>	<p>EC 1105-2-410, Appendix D, Para 3c</p>	<p>c. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> n/a <input type="checkbox"/></p> <p>Comments:</p>
<p>14. Does the RP address coordination with the Cost Engineering Directory of Expertise (DX) in Walla Walla District for ATR of cost estimates, construction schedules and contingencies for all documents requiring Congressional authorization?</p>	<p>EC 1105-2-410, Appendix D, Para 3</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>a. Does it state if the decision document will require Congressional authorization?</p> <p>b. If Congressional authorization is required, does the state that coordination will occur with the Cost Engineering DX?</p>		<p>a. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>b. Yes <input type="checkbox"/> No <input type="checkbox"/> n/a <input checked="" type="checkbox"/></p> <p>Comments:</p>
<p>15. Other Considerations: This checklist highlights the minimum requirements for an RP based on EC 1105-2-410. Additional factors to consider in preparation of the RP include, but may not be limited to:</p> <p>a. Is a request from a State Governor or the head of a Federal or state agency to conduct IEPR likely?</p> <p>b. Is the home district expecting to submit a waiver to exclude the project study from IEPR?</p> <p>c. Are there additional Peer Review requirements specific to the home MSC or district (as described in the Quality Management Plan for the MSC or district)?</p> <p>d. Are there additional Peer Review needs unique to the project study?</p>	<p>EC 1105-2-410, Appendix D, Para 1b</p> <p>EC 1105-2-410, Appendix D, Para 1d</p>	<p>Comments:</p> <p>a.) Yes b.) No c.) No d.) No</p>
<p>Detailed Comments and Backcheck:</p>		