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

REPLY TO
ATTENTION OF

CESPD-RBT

9 August 2010

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

SUBJECT: Review Plan approval for Martis Creek Dam Safety Modification Report, 7 July 2010, Martis Creek Dam, California

1. The enclosed Review Plan for the Martis Creek Dam Safety Modification Report, 7 July 2010, Martis Creek Dam, California 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:

Andrew Constantaras

Encl
1. Review Plan, 7 July 2010

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

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

CESPK-PD-WW

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

SUBJECT: Request for Approval of Review Plan for Martis Creek Dam Safety Modification Report, Martis Creek 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:

Rick L. Poeppelman

Encls

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

# REVIEW PLAN

## DAM SAFETY MODIFICATION REPORT

## MARTIS CREEK DAM, CALIFORNIA

### DAM SAFETY ASSURANCE PROGRAM

**SACRAMENTO DISTRICT**

**July 7, 2010**

US Army Corps of Engineers ®

**REVIEW PLAN**

**DAM SAFETY MODIFICATION REPORT**

**MARTIS CREEK 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 Martis Creek Dam, California, Dam Safety Modification Report and EIS. The Review Plan describes the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Martis Creek 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) Martis Creek 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 will be conducted at the Alternative Formulation workshop. A report will be prepared to show the value engineering process that was used. The aim of the VE studies should be 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 Dam Safety Modification (DSM) Report for the remediation at Martis Creek Dam. The DSM Report will be comprised of an Environment Impact Statement (EIS) and other documents needed for approval. The DSM Report documents the condition of the existing structure and recommended corrective actions to reduce risks to tolerable levels. The DSM Report serves as the decision document authorizing remedial actions to address failure mechanisms that pose unacceptable or intolerable risks to the public or the environment downstream while delivering its authorized benefits. In order for the project to function safely and effectively, the DSM report will be prepared in compliance with the USACE Engineering Regulation, ER 1110-2-1156, Dam Safety Policy and Procedures. The DSM Report will describe the alternative risk management plans. Prior to submission of the DSM report to HQUSACE, the report will be reviewed by an ATR team and a Type I IEPR external review panel and their comments will have been addressed. Following HQUSACE approval of the DSM Report, EIS, and a signature of the Record of Decision (ROD) the Project Delivery Team (PDT) will proceed into final design of Martis Creek Dam Remediation Project.

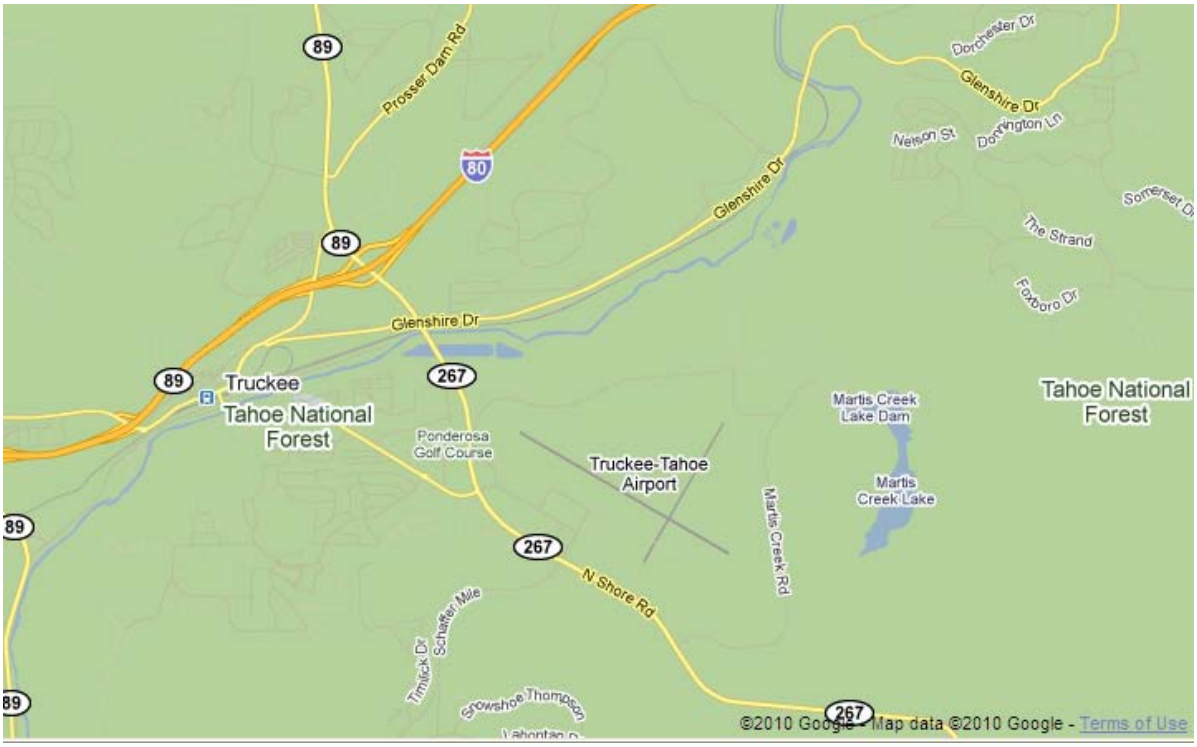
**b. Study Description.** Martis Creek Dam is located approximately 2 miles upstream of the confluence of Martis Creek and the Truckee River, and approximately 3 miles east of Truckee, in Nevada County California. The Truckee River flows through Reno, Nevada and into Pyramid Lake, Nevada. Martis Creek Dam was constructed between 1970 and 1972, is a rolled, zoned earth fill dam with a maximum height of 113 feet. The authorized purpose of the remediation at this time is for flood control, although “future water storage” was a design function. The reservoir capacity is 20,400 acre-feet at gross pool (elevation 5,838.0 feet). Several additional modifications were made between 1976 and 1985 to address the higher than expected foundation seepage that was observed during reservoir test fillings. These modifications have improved the integrity of the project, but it is still judged to have an unacceptably high likelihood of failure due to seepage at high reservoir levels.

The highest reservoir of record occurred in the 1995 test fill at elevation 5,833.1 feet. The total measured seepage at the high pool was 34 cfs. Overall, it was felt that the project performed at a level better than it had in the past before the most recent modifications. However, the filling was stopped due to small boils and seepage noted in several locations, including in the spillway cut. As a result of the 1995 reservoir test filling program, the Geotechnical Branch recommended that the reservoir not exceed elevation 5,810 feet and requested that they be notified in the event that reservoir elevations of 5,790 feet, 5,800 feet, 5,805 feet, and 5,810 feet are forecasted. Inspections by engineering staff are to be completed with increasing rigor as the reservoir rises to these “trigger” elevations.

Dam Safety Assurance studies were initiated in 2007, which includes hydrology, hydraulics, seepage, and seismicity. The seepage and seismic concerns have led to implementation of

interim risk reduction measures (IRRM) including leaving the outlet works gates in the full "open" position to lessen the probability of high reservoir levels during storms.

**Project Location Map**




**c. Dam Safety Concerns.** Martis Creek Dam has been classified as a DSAC I by HQUACE.

**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 Martis Creek dam.

**Table 1. Factors Affecting Scope and Level of Review**

| Questions to Determine Scope | Martis Creek Dam Remediation Project |
|---|---|
| Will parts of the study be challenging? | The Study will be challenging dealing with many aspects of the project. Below is a list of challenges that may be an issue during the study or construction.<br><br>• Real Estate<br>• Soil and Seismicity<br>• Hydrology<br>• Water Quality<br>• Environmental |
| Will the study report contain influential scientific information or be a highly influential scientific assessment? | At this time we do not predict that the study will contain influential scientific information or be a highly influential scientific assessment. |
| Will the study have significant economic, environmental, and/or social effects to the Nation? | There is a high possibility that major environmental impacts will result from construction of the project. The project is unlikely to have social impacts unless prehistoric Native American remains are discovered. These impacts of the project will be 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. |

| Questions to Determine Scope | Martis Creek Dam Remediation Project |
|---|---|
| What are the likely study risks and the magnitude of the risks? | The moderate to high level risks identified by the PDT include:<br>• 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.<br>• The complex seismic problems 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) Baseline risk assessment included as a part of the DSM report

(2) Alternative Briefing to DSO and DST

(3) Draft Dam Safety Modification Report , Draft EIS, and Draft Technical Appendices

(4) Draft Cost Estimate

(5) Final Briefing to DSO and DST

(6) Final Dam Safety Modification Report, Final EIS, and Final Technical Appendices

(7) Final Cost Estimate

(8) 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 risk management 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 and internal drainage for levee construction, and application of non-structural flood risk management.

(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:

(1) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer.

(2) Include the charge to the reviewers prepared by the RMC in accordance with EC 1165-2-209, 7c.

(3) Describe the nature of their review and their findings and conclusions.

(4) Include a verbatim copy of each reviewer's comments and the PDT's responses.

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

## 4. TYPE I INDEPENDENT EXTERNAL PEER REVIEW

**b. General.** 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 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, RCM, PCX, and HQUSACE members for dam safety modification projects. Type I IEPR is coordinated by the RCM 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.

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.

**c. 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. Factors determining need for Type I IEPR**

| EC 1165-2-209 Criteria | Martis Creek Dam Remediation Project |
|---|---|
| Is there significant threat to human life? | The project has the potential to pose a significant threat to human life. |
| Is the total project cost more than $45 million? | The estimated project cost is predicted to cost more than $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 external agency has officially requested a Type I IEPR for the Martis Creek project. |
| Will there be significant public controversy as to size, nature, or effects of the project? | Yes, the project has potential for public controversy. |
| Will there be significant public controversy as to the economic or environmental cost or benefit of the project? | Yes, the project has potential for public controversy regarding the economic and environmental cost/benefit of the project. |
| 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.

**d. 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 risk management 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.

**e. 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 PCX.

(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.** **a. General.** Type II IEPR Safety Assurance Review (SAR) of design and construction activities for flood risk management 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. Martis Creek 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 risk management 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.

**Planning Model.** Below are a list of planning models to be employed in the Martis Creek Dam, California, Dam Safety Modification studies, investigations, and analyses have either been developed by or for the USACE and include, but not limited to:

A. HEC-FDA: (Current working version undergoing review for certification; expected to be certified within the first 1 year of the study) This model, developed by the Corps' Hydrological Engineering Center, will assist the PDT in applying risk analysis methods for flood risk management studies as required by, EM 1110-2-1419. This program:
   (1)Provides a repository for both the economic and hydrologic data required for the analysis
   (2)Provides the tools needed to understand the results
   (3)Calculates the Expected Annual Damages and the Equivalent Annual Damages
   (4)Computes the Annual Exceedence Probability and the Conditional Non-Exceedence Probability
   (5)Implements the risk-based analysis procedures contained in EM 1110-2-1619

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.

B. IWR-Planning Suite (Certified). This software assists with the formulation and comparison of alternative plans. While IWR-PLAN was initially developed to assist with environmental restoration and watershed planning studies, the program can be useful in planning studies addressing a wide variety of problems. IWR-PLAN can assist with plan formulation by combining solutions to planning problems and calculating the additive effects of each combination, or "plan." IWR-PLAN can assist with plan comparison by conducting cost effectiveness and incremental cost analyses, identifying the plans which are the best financial investments and displaying the effects of each on a range of decision variables.

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

A. HEC-HMS: By applying this model the PDT is able to:
(1)Define the watersheds' physical features
(2)Describe the metrological conditions
(3)Estimate parameters
(4)Analyze simulations
(5)Obtain GIS connectivity

B. HEC-ResSim: This model predicts the behavior of reservoirs and to help reservoir operators plan releases in real-time during day-to-day and emergency operations. The following describes the major features of HEC-ResSim
(1)Graphical User Interface
(2)Map-Based Schematic
(3)Rule-Based Operations

C. HEC-RAS: The function of this model is to complete one-dimensional hydraulic calculations for a full network of natural and manmade channels. HEC-RAS major capabilities are:
(1)User interface
(2)Hydraulic Analysis
(3)Data storage and Management
(4)Graphics and reporting

F. SAMwin Hydraulic model for channels Design Package

G. HEC-2: The HEC-2 program computes water surface profiles for one-dimensional steady, gradually varied flow in rivers of any cross section.

H. FLO-2D: This model will be used for the overbank reaches.

I. Groundwater Modeling System (GMS): This model is used to conduct seepage analysis.

J. Various Habitat Evaluation Procedure models. The Ecosystem Restoration Planning Center of Expertise has responsibility for approving ecosystem output methodologies for use in ecosystem restoration planning and mitigation planning. The Ecosystem PCX will

need to certify or approve for use each regionally modified version of these methodologies and individual models and guidebooks used in application of these methods. The PDT will coordinate with the Ecosystem PCX during the study to identify appropriate models and certification approval requirements.

K. UTEXAS4: This model is used to conduct slope stability analysis.

L. UBC-Sand: This is a numerical deformation model used for seismic stability and deformation analyses.

M. SEEPS2D: This is a finite element model used for seepage analyses for earth embankments and foundations.

Other models may be added as needed as the study progresses. The PDT will coordinate all certification. Engineering models undergo a different review and approval process for USACE.

**c. Cost Estimating Model**. MCACES or MII: These are cost estimating models. This is a cost estimating model that was developed by Building Systems Design Inc. Crystal Ball risk analysis software will also be used.

## 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 | TBD |
| Draft DSMR including EIS and technical appendices | October 2011 |
| Final DSMR including EIS and technical appendices | July 2012 |

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 | TBD |
| Award contract | TBD |
| ATR team identified | TBD |
| Initiate review | TBD |
| ATR Briefing Meeting | TBD |
| Draft DSMR, EIS, and technical appendices | October 2011 |
| Respond to comments | December 2011 |

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 | TBD |
| Award contract | TBD |
| IEPR team identified | TBD |
| Initiate review | TBD |

| Task | Date |
|---|---|
| IEPR Briefing Meeting | TBD |
| Draft DSMR, EIS, and technical appendices | TBD |
| Respond to comments | TBD |

**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 DSMR, EIS, and technical appendices | 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 and agencies will have multiple opportunities to participate in the Dam Safety Modification Project for Martis Creek Dam to discuss the status of the ongoing studies, investigations, and analyses phase of work leading up to the Alternative Formulation and Analysis phase and the NEPA scoping meeting. One or more public workshops will be held during the public and agency review period for the draft decision and NEPA documents. The public review of necessary state or Federal permits will also take place during this period. A

formal State and Agency review will occur concurrently with the public review. Upon completion of the review period, comments will be consolidated in a matrix and addressed, if needed. A comment resolution meeting will take place, if needed, to decide upon the best resolution of comments. A summary of the comments and resolutions will be included in the decision and NEPA documents. A plan for future public participation will be developed, which might identify informal as well as additional formal forums for participation.

## 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. Adam Riley, Sacramento District Project Delivery Team (SPK-PDT) Project Manager, at (916) 557-5391, or Adam.A.Riley@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 2: QA & ATR CERTIFICATION TEMPLATE**

## STATEMENT OF TECHNICAL REVIEW

## COMPLETION OF QUALITY ASSURANCE REVIEW AND AGENCY TECHNICAL REVIEW

The Sacramento District has completed the Dam Safety Modification Report, Environmental Impact Statement (EIS), and appendices of the Martis Creek Dam Seismic Remediation Study, California. Notice is hereby given that (1) a Quality Assurance review has been conducted as defined in the Quality Assurance Plan and (2) an agency technical review that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the project's Quality Management Plan. During the 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 review also assessed the DQC documentations and made the determination that the DQC activities employed appear to be appropriate and effective. The agency technical review was accomplished by an (A-E). All comments resulting from ATR have been resolved.

_____ _____

QA Review Team Leader Date

_____ _____

Project Manager Date

**CERTIFICATION OF QUALITY ASSURANCE AND AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows:
(*Describe the major technical issues, possible impact, and resolution*)

As noted above, all issues 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**

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

# 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 risk management 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.

## Jackson, Martha C SPK

**From:** Snorteland, Nathan J IWR
**Sent:** Wednesday, May 05, 2010 10:02 PM
**To:** Jackson, Martha C SPK
**Cc:** Furman, Richard J SPK; Fuentes, Jerry W SPK; Petrovsky, Veronica V SPK; Riley, Adam A SPK; Britzman, Richard A SPD@SPK; Dietl, Michael L SPK
**Subject:** RE: Isabella Lake and Martis Creek Review Plans
**Attachments:** Martis Review Plan_RMC - NJS.doc

Martis Creek RP comments attached. If you concur with the changes, your coordination with the RMC is complete.

-Nate

Nate Snorteland, P.E.
Director
Risk Management Center
Institute for Water Resources
U.S. Army Corps of Engineers
12300 W. Dakota Ave
Lakewood, CO 80228
571-232-9189
nathan.j.snorteland@usace.army.mil

-----Original Message-----
From: Jackson, Martha C SPK
Sent: Wednesday, May 05, 2010 2:41 PM
To: Snorteland, Nathan J IWR
Cc: Furman, Richard J SPK; Fuentes, Jerry W SPK; Petrovsky, Veronica V SPK; Riley, Adam A SPK; Britzman, Richard A SPD@SPK; Dietl, Michael L SPK
Subject: Isabella Lake and Martis Creek Review Plans

Nate,

Please review the attached review plans for Isabella Lake and Martis Creek Dam Safety Studies. As we discussed Success, Isabella, and Martis Creek are committed to be at Division and HQ by May 17th. If you see this being an issue please let me know as soon as possible. Please direct all comments and questions to me by email.

Thank you for working with our schedule!

Sincerely,

Marci Jackson
Study Manager, Planning Division
US Army Corps of Engineers, Sacramento District
Tel: 916-557-6709

# Review Plan Checklist
# For Decision Documents

**Date:** May 5, 2010
**Originating District:** Sacramento District, SPK
**Project/Study Title:** Dam Safety Assuance Program (DSAP) - Martis Creek Dam
**PWI #:**
**District POC:** Adam Riley, Project Manager
**PCX Reviewer:** Nathan Snorteland

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 ☒ No ☐ |
| 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?<br><br>b. Does it include a table of contents?<br><br>c. Is the purpose of the RP clearly stated and EC 1105-2-410 referenced?<br><br>d. Does it reference the Project Management Plan (PMP) of which the RP is a component?<br><br>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)?<br><br>f. Does it include a paragraph stating the title, subject, and purpose of the decision document to be reviewed?<br><br>g. Does it list the names and disciplines of the Project Delivery Team (PDT)?*<br><br>**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.* | EC 1105-2-410, Appendix B, Para 4a | a. Yes ☒ No ☐<br>b. Yes ☒ No ☐<br>c. Yes ☒ No ☐<br>d. Yes ☒ No ☐<br>e. Yes ☒ No ☐<br>f. Yes ☒ No ☐<br>g. Yes ☒ No ☐<br><br>**Comments:** |

| **2. Is the RP detailed enough to assess the necessary level and focus of peer review?** | EC 1105-2-410, Appendix B, Para 3a | Yes ☒ No ☐ |
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| a. Does it indicate which parts of the study will likely be challenging?<br><br>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?<br><br>c. Does it indicate if the project/study will require preparation of an environmental impact statement (EIS)?<br><br>*Will an EIS be prepared? Yes ☒ No ☐*<br>*If yes, IEPR is required.*<br><br>d. Does it address if the project report is likely to contain influential scientific information or be a highly influential scientific assessment?<br><br>*Is it likely? Yes ☐ No ☒*<br>*If yes, IEPR is required.*<br><br>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):<br><br>• more than negligible adverse impacts on scarce or unique cultural, historic, or tribal resources?<br><br>• substantial adverse impacts on fish and wildlife species or their habitat, prior to implementation of mitigation?<br><br>• 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?<br><br>*Is it likely? Yes ☒ No ☐*<br>*If yes, IEPR is required.* | EC 1105-2-410, Appendix B, Para 3a<br><br>EC 1105-2-410, Appendix B, Para 3a<br><br>EC 1105-2-410 Para 7c & 8f<br><br>EC 1105-2-410, Appendix B, Para 4b<br><br>EC 1105-2-410, Para 6c<br><br>EC 1105-2-410 Para 8f<br><br>EC 1105-2-410 Para 8f<br><br>EC 1105-2-410 Para 8f | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐<br><br>d. Yes ☒ No ☐<br><br>e. Yes ☒ No ☐<br><br>**Comments:** Below is a list of challenges that may be an issue during the study or construction.<br>•Real Estate<br>•Soil and Seismicity<br>•Hydrology<br>•Water Quality<br>•Environmental |

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| f. Does it address if the project/study is likely to have significant interagency interest?<br><br>*Is it likely? Yes ☒ No ☐*<br>*If yes, IEPR is required.*<br><br>g. Does it address if the project/study likely involves significant threat to human life (safety assurance)?<br><br>*Is it likely? Yes ☒ No ☐*<br>*If yes, IEPR is required.*<br><br>h. Does it provide an estimated total project cost?<br><br>*What is the estimated cost: <u>$45 - 500M</u>*<br>*(best current estimate; may be a range)*<br><br>*Is it > $45 million? Yes ☒ No ☐*<br>*If yes, IEPR is required.*<br><br>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?<br><br>*Is it likely? Yes ☒ No ☐*<br>*If yes, IEPR is required.*<br><br>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?<br><br>*Is it likely? Yes ☐ No ☒*<br>*If yes, IEPR is required.* | EC 1105-2-410, Para 6c<br><br>EC 1105-2-410, Appendix D, Para 1b<br><br>EC 1105-2-410, Appendix D, Para 1b<br><br>EC 1105-2-410, Appendix D, Para 1b<br><br>EC 1105-2-410, Appendix D, Para 1b | f. Yes ☒ No ☐<br><br>g. Yes ☒ No ☐<br><br>h. Yes ☒ No ☐<br><br>i. Yes ☒ No ☐<br><br>j. Yes ☒ No ☐<br><br>**Comments:** |
| **3. Does the RP define the appropriate level of peer review for the project/study?** | EC 1105-2-410, Para 8a | Yes ☒ No ☐ |
| 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? | EC 1105-2-410, Para 7a | a. Yes ☒ No ☐ |

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| b. Does it state that ATR will be conducted or managed by the lead PCX?<br><br>c. Does it state whether IEPR will be performed?<br><br>*Will IEPR be performed? Yes ☒ No ☐*<br><br>d. Does it provide a defensible rationale for the decision on IEPR?<br><br>e. Does it state that IEPR will be managed by an Outside Eligible Organization, external to the Corps of Engineers? | EC 1105-2-410, Appendix D, Para 3a<br><br>EC 1105-2-410, Appendix B, Para 4b<br><br>EC 1105-2-410, Para 7c | b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐<br><br>d. Yes ☒ No ☐<br><br>e. Yes ☒ No ☐ n/a ☐<br><br>**Comments:** |
| **4. Does the RP explain how ATR will be accomplished?** | EC 1105-2-410, Appendix B, Para 4l | Yes ☒ No ☐ |
| a. Does it identify the anticipated number of reviewers?<br><br>b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)?<br><br>c. Does it indicate that ATR team members will be from outside the home district?<br><br>d. Does it indicate that the ATR team leader will be from outside the home MSC?<br><br>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?<br><br>f. If the reviewers are listed by name, does the RP describe the qualifications and years of relevant experience of the ATR team members?*<br><br>**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.* | EC 1105-2-410, Appendix B, Para 4f<br><br>EC 1105-2-410, Appendix B, Para 4g<br><br>EC 1105-2-410, Para 7b<br><br>EC 1105-2-410, Para 7b<br><br>EC 1105-2-410, Appendix B, Para 4k(1)<br><br>EC 1105-2-410, Appendix B, Para 4k(1) | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐<br><br>d. Yes ☒ No ☐<br><br>e. Yes ☒ No ☐<br><br>f. Yes ☒ No ☐ n/a ☐<br><br>**Comments:** |

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| **5. Does the RP explain how IEPR will be accomplished?** | EC 1105-2-410, Appendix B, Para 4k & Appendix D | **Yes** ☒ **No** ☐ **n/a** ☐ |
| a. Does it identify the anticipated number of reviewers?<br><br>b. Does it provide a succinct description of the primary disciplines or expertise needed for the review (not simply a list of disciplines)?<br><br>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?<br><br>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? | EC 1105-2-410, Appendix B, Para 4f<br><br>EC 1105-2-410, Appendix B, Para 4g<br><br>EC 1105-2-410, Appendix B, Para 4k(1) & Appendix D, Para 2a<br><br>EC 1105-2-410, Para 7c | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐<br><br>d. Yes ☒ No ☐<br><br>**Comments:** |
| **6. Does the RP address peer review of sponsor in-kind contributions?** | | Yes ☐ No ☒ |
| a. Does the RP list the expected in-kind contributions to be provided by the sponsor?<br><br>b. Does it explain how peer review will be accomplished for those in-kind contributions? | EC 1105-2-410, Appendix B, Para 4j | a. Yes ☐ No ☒<br><br>b. Yes ☐ No ☐ n/a ☒<br><br>**Comments:** There are no non-federal sponsors so therefore there are no in-kind services. |
| **7. Does the RP address how the peer review will be documented?** | | Yes ☒ No ☐ |
| a. Does the RP address the requirement to document ATR and IEPR comments using DrChecks?<br><br>b. Does the RP explain how the IEPR will be documented in a Review Report?<br><br>c. Does the RP document how written responses to the IEPR Review Report will be prepared? | EC 1105-2-410, Para 8g(1)<br><br>EC1105-2-410, Appendix B, Para 4k(13)(b)<br><br>EC 1105-2-410, Appendix B, Para 4l | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐ n/a ☐<br><br>c. Yes ☒ No ☐ n/a ☐ |

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| 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? | EC 1105-2-410, Para 8g(2) & Appendix B, Para 4l | d. Yes ☒ No ☐ n/a ☐<br>**Comments:** |
| **8. Does the RP address Policy Compliance and Legal Review?** | EC 1105-2-410, Para 7d | Yes ☒ No ☐<br>**Comments:** |
| **9. Does the RP present the tasks, timing and sequence (including deferrals), and costs of reviews?** | EC 1105-2-410, Appendix B, Para 4c & Appendix C, Para 3d | Yes ☒ No ☐ |
| 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?<br><br>b. Does it include interim ATR reviews for key technical products?<br><br>c. Does it present the timing and sequencing for IEPR?<br><br>d. Does it include cost estimates for the peer reviews? | EC 1105-2-410, Appendix C, Para 3g<br><br>EC 1105-2-410, Appendix C, Para 3g | a. Yes ☒ No ☐<br>b. Yes ☒ No ☐<br>c. Yes ☒ No ☐ n/a ☐<br>d. Yes ☒ No ☐<br>**Comments:** |
| **10. Does the RP indicate the study will address Safety Assurance factors?**<br><br>Factors to be considered include:<br><br>• Where failure leads to significant threat to human life<br>• Novel methods\complexity\ precedent-setting models\policy changing conclusions<br>• Innovative materials or techniques<br>• Design lacks redundancy, resiliency of robustness<br>• Unique construction sequence or acquisition plans<br>• Reduced\overlapping design construction schedule | EC 1105-2-410, Para 2 & Appendix D, Para 1c | **Yes ☒ No ☐ n/a ☐**<br>**Comments:** |

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| **11. Does the RP address model certification requirements?** | EC 1105-2-407 | Yes ☒ No ☐ |
| a. Does it list the models and data anticipated to be used in developing recommendations (including mitigation models)?<br><br>b. Does it indicate the certification/approval status of those models and if certification or approval of any model(s) will be needed?<br><br>c. If needed, does the RP propose the appropriate level of certification/approval for the model(s) and how it will be accomplished? | EC 1105-2-410, Appendix B, Para 4i | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐ n/a ☐<br><br>**Comments:** |
| **12. Does the RP address opportunities for public participation?** | | Yes ☒ No ☐ |
| a. Does it indicate how and when there will be opportunities for public comment on the decision document?<br><br>b. Does it indicate when significant and relevant public comments will be provided to reviewers before they conduct their review?<br><br>c. Does it address whether the public, including scientific or professional societies, will be asked to nominate potential external peer reviewers?<br><br>d. Does the RP list points of contact at the home district and the lead PCX for inquiries about the RP? | EC 1105-2-410, Appendix B, Para 4d<br><br>EC 1105-2-410, Appendix B, Para 4e<br><br>EC 1105-2-410, Appendix B, Para 4h<br><br>EC 1105-2-410, Appendix B, Para 4a | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐<br><br>d. Yes ☒ No ☐<br><br>**Comments:** |
| **13. Does the RP address coordination with the appropriate Planning Centers of Expertise?** | EC 1105-2-410, Para 8a | Yes ☒ No ☐ |
| a. Does it state if the project is single or multi-purpose? Single ☐ Multi ☒<br><br>List purposes: flood control, and water storage<br><br>b. Does it identify the lead PCX for peer review? Lead PCX: **FRM**<br><br>c. If multi-purpose, has the lead PCX coordinated the review of the RP with the other PCXs as appropriate? | EC 1105-2-410, Appendix D, Para 3c | a. Yes ☒ No ☐<br><br>b. Yes ☒ No ☐<br><br>c. Yes ☒ No ☐ n/a ☐<br><br>**Comments:** |

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| **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?** | EC 1105-2-410, Appendix D, Para 3 | Yes ☒ No ☐ |
| a. Does it state if the decision document will require Congressional authorization?<br><br>b. If Congressional authorization is required, does the state that coordination will occur with the Cost Engineering DX? | | a. Yes ☒ No ☐<br><br>b. Yes ☐ No ☐ n/a ☒<br><br>**Comments:** |
| **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:<br><br>a. Is a request from a State Governor or the head of a Federal or state agency to conduct IEPR likely?<br><br>b. Is the home district expecting to submit a waiver to exclude the project study from IEPR?<br><br>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)?<br><br>d. Are there additional Peer Review needs unique to the project study? | <br><br>EC 1105-2-410, Appendix D, Para 1b<br><br>EC 1105-2-410, Appendix D, Para 1d | **Comments:**<br>a.) Yes<br>b.) No<br>c.) No<br>d.) No |
| **Detailed Comments and Backcheck:** | | |