

REVIEW PLAN

Santa Rosa Dam and Lake
Water Control Manual Update
Albuquerque District

MSC Approval Date: 29 July 2016

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**US Army Corps
of Engineers®**

REVIEW PLAN

**SANTA ROSA DAM AND LAKE
WATER CONTROL MANUAL UPDATE**

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1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan has been prepared for the review of a draft implementation document called “*Santa Rosa Dam and Lake Water Control Manual*” (WCM). This draft document serves to replace an existing and outdated implementation document called “*Pecos River Basin, New Mexico – Texas, Los Esteros Dam and Lake Water Control Manual*, dated April 1979” (1979 Manual). In June 1981, the 1979 Manual was revised and approved (1981 Revision). The 1979 Manual and the 1981 Revision contain the original Water Control Plan (WCP), which is not being updated as part of this 2016 revision to the WCM. The implementation of the updated WCM will begin upon approval and acceptance of the draft WCM.

b. References.

- ER 1110-1-12, Engineering and Design Quality Management, 21 Jul 2006
- ER 1110-2-240, Water Control Management, May 30 2016
- ER 1110-2-241, Use of Storage Allocated for Flood Control and Navigation at Non-Corps Projects, 24 May 1990
- ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 Aug 1999
- ER 1110-2-8156, Preparation of Water Control Manuals, 31 Aug 1995
- EM 1110-1-1005, Engineering and Design Control and Topographic Surveying, 1 Jan 2007 (7) EM 1110-2-3600, Management of Water Control Systems, November 30, 1987
- EC 1165-2-214, Civil Works Review Policy, 15 December 2014
- 02500-SPD, South Pacific Division, Preparation and Approval of Review Plans
- CESP-D-RBT-Reg. No. 10-1-04, Guidance on the Preparation of Deviations from Approved Water Control Plans, 18 Dec 2014
- Pecos River Basin, New Mexico – Texas, Los Esteros Dam and Lake Water Control Manual, April 1979 (Revised June 1981)

c. Requirements. This Review Plan was developed in accordance with the Engineering Circular (EC) EC 1165-2-214, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works Projects from initial planning through design, construction, operation, maintenance, repair, replacement, and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review.

2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for Water Control Manual decision documents is the home Major Subordinate Command (MSC). The MSC will coordinate and approve the Review Plan and manage the ATR.

3. PROJECT INFORMATION

a. Implementation Document. The 1981 Revision is the last updated and approved implementation document. The water control plan contained within that document is currently in use. The 1979 Manual and the 1981 Revision were prepared by the U.S. Army Corps of Engineers (USACE), Albuquerque District (SPA).

Santa Rosa Dam is on the Pecos River in Guadalupe County, NM. The dam is approximately 9 river miles above Santa Rosa, NM and approximately 757 river miles above its confluence with the Rio Grande at Lake Amistad, Texas (TX).

Construction of the dam began in 11 July 1975, and the dam was completed in the fall of 1979. Public Law 96-379, enacted on 06 October 1980, changed the name of the project from Los Esteros Dam to Santa Rosa Dam and Lake. The project serves the authorized purposes of flood control, irrigation, and sediment retention. Benefits also result from recreational use, and fish and wildlife enhancement.

The WCM currently being prepared will contain the current approved water control plan that is contained within the 1979 Manual and the 1981 Revision. Updates to the current manual are primarily to bring the information in the manual up to date to comply with ER 1110-2-8156 (Preparation of Water Control Manuals, 31 August 1995) and other ER's and EM's. Much of the general data in the June 1981 revision to the Santa Rosa Dam and Lake Water Control Manual is out of date. This includes pertinent information impacted by the recently revised Elevation-Area-Capacity (EAC) tables as well as less technical items such as names and numbers within the notification list. Historical storage and run-off averages will be revised to account for impacts due to conditions observed over the past period of record.

b. Factors Affecting the Scope and Level of Review. The existing Water Control Plan (WCP) will not be changed. The following are specific items that will be updated and included as part of the updated WCM for Santa Rosa Dam and Lake:

- General updates to project description, project operational history, plates, tables, and exhibits
- Update Hydrology Data: updated inflow, outflow, elevation-duration frequency analysis
- Update elevation-area-storage capacity tables based on most recent bathymetric survey
- Update pertinent data sheets using new elevation-area-storage capacity tables

Preparation of this draft WCM will be completed adhering to the policies provided in the engineering regulation (ER) guidance for Water Control Management ER 1110-2-240, and also following the format outlined for the preparation of water control manuals, provided by ER 1110-2-8156. The approval level for all updates made within the updated implementation document, (if policy compliant), is at the home MSC.

EC 1165-2-214 established thresholds that trigger IEPR: "In cases where there are public safety concerns, a high level of complexity, novel or precedent-setting approaches; where the project is controversial, has significant interagency interest, has a total project cost greater than \$45

million, or has significant economic, environmental and social effects to the nation, IEPR will be conducted.”

The updated implementation document, the draft WCM, will require only two types of technical review: DQC and ATR. The specific disciplines required for ATR reviewers include personnel within water control, economics, and Hydrology and Hydraulics. The proposed updates to the original implementation document do not involve precedent-setting or novel approach methods, present complex challenges to interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing flood risk management practices. The overall cost of the updating water control document will not exceed \$45 million. The governor of Colorado has not requested an IEPR for updating the original 1979 Manual or the 1981 Revision.

For the reasons stated, a Type I IEPR, Type II IEPR, or Safety Assurance Review (SAR), will not be required as part of the technical review of the implementation document, the draft WCM called “Santa Rosa Dam and Lake Water Control Manual”.

4. DISTRICT QUALITY CONTROL (DQC)

All implementation documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home District shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC. DQC will be managed in SPA. DQC applies to the tools outlined in the quality management plans for SPA and the South Pacific Division (SPD), the District’s MSC. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, etc. A list of the DQC review team members is included in Attachment 1.

The quality control objectives in the preparation of the draft WCM include ensuring that the product:

- meets customer (Federal and non-Federal sponsor) requirements;
- complies with applicable laws, regulations, policies, and sound technical practices of the disciplines involved;
- are of adequate scope and level of detail;
- are consistent, logical, accurate, and comprehensive; and
- is based on convincing and consistent assumptions.

Design checks, if applicable, and other internal reviews will be carried out as routine management practices in technical divisions. This includes checking work to assure basic assumptions and calculations are error-free. These checks will be performed by staff responsible for the work.

Supervisory review will be managed by the section chief and branch chief to ensure that appropriate criteria is established, correct methodology is followed, appropriate data is used, and computations are accurate.

The SPA's Office of Counsel is responsible for the legal review. Legal review involves a critical examination of the documents to ensure compliance with applicable laws, policies, and regulations.

5. AGENCY TECHNICAL REVIEW (ATR)

ATR is an in-depth review that ensures the proper application of clearly established criteria, regulations, laws, codes, principles, and professional practices. ATR also assures that all work products coherently fit together. ATR will be managed within USACE and conducted by a qualified team from outside of the home district. ATR team will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. The ATR team leader shall be outside of SPD. Candidates may be nominated by the home District.

ATR is mandatory for all implementation documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within USACE by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC, as indicated in the Director of Civil Works' Policy Memorandum #1, 19 Jan 2011.

a. Products to Undergo ATR. The preparation of the draft WCM will be in accordance with the District and MSC Quality Management Plans, and ER1110-2-8156. The ATR shall be conducted according to protocol set forth in this Review Plan. Certification of the ATR will be provided prior to the Division Commander approving the updated implementation document, the WCM.

Products requiring ATR are the following: 1) the draft WCM; and 2) the updated hydrologic frequency for modified project conditions.

b. Required ATR Team Expertise. The ATR team will be comprised of individuals that have experience as listed in Table 1. All Engineering and Construction ATR reviewers must be registered in the CERCAP system, per ECB 2013-28. It is anticipated that the team will consist of approximately three or four reviewers. The ATR lead will be identified as soon as practical after completion of the draft WCM. ATR team members will be identified after the ATR lead has been identified, as the ATR lead will assist with assembling the review team, and will track and document the ATR process. The ATR lead will also oversee the ATR Certification process, and provide copies of all documentation to the home District for inclusion into the updated implementation document.

Table 1: Required ATR Team Expertise

Team Member/Discipline	Expertise Required
ATR Lead	The ATR lead should be a senior professional preferably with experience in preparing water management decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, hydraulics/hydrology, economics, environmental resources, etc). The ATR lead must be from outside of the SPD.
Reservoir Operations	The reviewer of this draft water control document should be a senior professional, preferably within a water management group, with experience evaluating water control operations and developing water control manuals.
Hydrology & Hydraulics	Hydrologist or hydraulic engineer proficient with river hydraulics, GEO-RAS, HEC-RAS and associated one dimensional models, FLO-2D, floodplain mapping, hydrologic statistics, sediment transport analysis, channel stability analysis, risk and uncertainty analysis, and a number of other closely associated technical subjects.

c. Documentation of ATR. The Design Review and Checking System (DrChecks) 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 quality review comment normally include:

- 1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- 2) The basis for 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 section, recommended plan components, efficiency cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- 4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers 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 Project Delivery Team (PDT) response, and as applicable, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the District, RMO, MSC, and HQUSACE), and 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:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- 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.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Completion of Agency Technical Review should be completed for updated implementation document, the WCM. In addition to the ATR Lead preparing the Statement of Completion of Agency Technical Review, District Leadership will provide Certification of Agency Technical Review in accordance with EC 1165-2-214. A sample Statement of Technical Review is included in Attachment 2.

6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

IEPR may be required for decision documents under certain circumstances. 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. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist 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. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside of USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-214.
- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside of USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to 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.

a. Decision on IEPR. The draft WCM will not contain influential scientific information nor contain a highly influential scientific assessment. There are also no changes to existing policy, or anticipated impacts to public health, life, and safety are unlikely to be of concern due to the proposed updates. This project to produce the updated implementation document will not exceed a total project cost of \$45M.

For the reasons stated above, a Type I or Type II IEPR will not be required in the technical review of the draft WCM.

7. POLICY AND LEGAL COMPLIANCE REVIEW

All decision documents will be reviewed for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

8. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined 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 selection and application of the model and the input and output of data is still the responsibility of the users and is subject to DQC, ATR, and IEPR.

EC 1105-2-412 does not cover engineering models used in planning. 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. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR.

In preparing the draft WCM, no planning or engineering models will be necessary.

9. REVIEW SCHEDULE AND COSTS

a. DQC and ATR Schedule and Cost. The DQC and ATR process for this document will follow the following timeline. Table 2 summarizes the tentative dates and estimated budget for each anticipated review event.

Table 2: Proposed Budget and Schedule

Activity	Budget	Start Date	Finish Date
Ongoing Review of WCM		Continuous / Seamless	
DQC Review	\$7,500	May 2016	June 2016
ATR Review	\$10,000	Aug 2016 (Proposed)	Nov 2016 (Proposed)
MSC Approval		Dec 2016 (Proposed)	

b. Type I and Type II IEPR Schedule and Cost. None

c. Model Review Schedule and Cost. None

10. PUBLIC PARTICIPATION

State and Federal resource agencies may be invited to review the draft WCM as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments.

It is not anticipated, however, that the public, including scientific or professional societies, will be asked to nominate potential external peer reviewers in the technical review of the draft WCM.

11. REVIEW PLAN APPROVAL

The home MSC Commander is responsible for approving this Review Plan and ensuring that use of the Review Plan is appropriate for the specific project covered by the plan. The Review Plan is a living document and may change as the study progresses. The home District is responsible for keeping the Review Plan up to date. Minor changes to the Review Plan since the last MSC Commander approval are documented, as needed, in a form provided in Attachment 3.

Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. Significant changes may result in the MSC Commander following the process used for initially approving the plan. Significant changes may result in the MSC Commander determining that use of the Review Plan is no longer appropriate.

In these cases, a project specific Review Plan will be prepared and approved in accordance with EC 1165-2-214 and Director of Civil Works' Policy Memorandum #1. The latest version of the Review Plan, along with the Commander's approval memorandum, will be posted on the home District's webpage.

12. REVIEW PLAN POINTS OF CONTACT

Questions and/or comments of this Review Plan can be directed to the following points of contact:

Home District: Garret Ross, CESP-OD-W, (505) 342-3245

ATTACHMENT 1: TEAM ROSTERS

DQC		
Review Level	Name	Contact Number
Preparation of the draft WCM (Implementation Document)		
Preparer	Garret Ross	(505) 342-3245
DQC Reviewer(s)	Curtis McFadden, Reservoir Control Branch	(505) 342-3351
	Steve Scissions, Hydrology and Hydraulics Section	(505) 342-3328
	Julie Alcon, Environmental Resources Section	(505) 342-3281
	Mark Dole, Plan Formulation Section	(505) 342-3364
	Bruno Quirici, Dam Safety Program	(505) 342-3200

ATR Lead – TBD		
Review Level	Name	Contact Number
ATR Lead	TBD	TBD
ATR Reviewers		
ATR Reviewer	TBD	TBD
ATR Reviewer	TBD	TBD
ATR Reviewer	TBD	TBD

MSC		
SPD	Cuong Ly	(213) 452-3445

ATTACHMENT 2: EXAMPLE STATEMENT OF AGENCY TECHNICAL REVIEW

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the draft implementation document, “*Santa Rosa Dam and Lake Water Control Manual*”. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-214. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer’s needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrCheckssm.

SIGNATURE

<insert name>

ATR Team Leader

<insert office symbol>

Date

SIGNATURE

<insert name>

Project Manager

<insert office symbol>

Date

SIGNATURE

<insert name>

Review Management Office Representative

<insert office symbol>

Date

CERTIFICATION OF AGENCY TECHNICAL REVIEW

A summary of all comments and responses is attached. 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 the independent technical review of the project have been fully resolved.

SIGNATURE

<insert name>

Chief, Engineering Division

<insert office symbol>

Date

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CAP	Continuing Authorities Program	O&M	Operation and maintenance
CSDR	Coastal Storm Damage Reduction	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control/Quality Assurance	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	QC	Quality Control
FSM	Feasibility Scoping Meeting	RED	Regional Economic Development
GRR	General Reevaluation Report	RMC	Risk Management Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers	RMO	Review Management Organization
IEPR	Independent External Peer Review	RTS	Regional Technical Specialist
ITR	Independent Technical Review	SAR	Safety Assurance Review
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act