

REVIEW PLAN

**San Acacia to Bosque del Apache Unit, New Mexico
Limited Re-evaluation Report**

Albuquerque District

November 2009



**US Army Corps
of Engineers®**

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1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the San Acacia to Bosque del Apache Unit, New Mexico, Limited Re-evaluation Report.

b. References

- (1) Engineering Circular (EC) 1105-2-410, Review of Decision Documents, 22 Aug 2008
- (2) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005
- (3) Engineering Regulation (ER) 1110-2-12, Quality Management, 30 Sep 2006
- (4) San Acacia to Bosque del Apache, NM LRR Project Management Plan
- (5) EC 1165-2-203 “Policy Compliance Review Checklist”, 15 October 1996
- (6) EC 1105-2-408 “Peer Review of Decision Documents”. 31 May 2005
- (7) ER 1105-2-100 “Planning Guidance Notebook & Appendices D, F, G & H”, as amended
- (8) CECW-CP Memo for Distribution, “Peer Review Process”, 30 March 2007

In addition, the PDT shall write the draft report to confirm that work was been done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy, including those referenced in the References section and including ETL 1110-2-571 “Vegetation Guidelines for FRM.”

c. **Requirements.** This review plan was developed in accordance with EC 1105-2-410, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision documents through independent review. The EC outlines three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review. In addition to these three levels of review, decision documents are subject to policy and legal compliance review and, if applicable, safety assurance 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, including 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 assure 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.

- (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. IEPR is generally for feasibility and reevaluation studies and modification reports with Environmental Impact Statements (EISs). IEPR is managed by an outside eligible organization (OEO) that is described in Internal Revenue Code Section 501(c) (3), is exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; is independent; is 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. 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.
- (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, ER 1105-2-100, Planning Guidance Notebook. 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. IEPR teams are not expected to be knowledgeable of Army and administration polices, nor are they expected to address such concerns. The home district Office of Counsel is responsible for the legal review of each decision document and signing a certification of legal sufficiency.
- (5) Safety Assurance Review. In accordance with Section 2035 of Water Resources Development Act (WRDA) of 2007, EC 1105-2-410 requires that all projects addressing flooding or storm damage reduction undergo a safety assurance review of the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare. A future circular will provide a more comprehensive Civil Works Review Policy that will address the review process for the entire life cycle of a Civil Works project. That document will address the requirements for a safety assurance review for the Pre-Construction Engineering Phase, the Construction Phase, and the Operations Phase. The decision document phase is the initial design phase; therefore, EC 1105-2-410 requires that safety assurance factors be considered in all reviews for decision document phase studies.
- (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 address 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

Decision Document.

Authorized by the Flood Control Act of 1948 (PL 80-858) and Water Resources Development Act of 1992 (PL 102-580), this Limited Reevaluation Report (LRR) is a post-authorization planning document that reaffirms economic justification, engineering design, and alternative formulation for the Rio Grande Floodway, San Acacia to Bosque del Apache Unit, New Mexico – Construction General project.

Pursuant to EC1105-2-410, coordination with the Planning Center of Expertise (PCX) for Flood Risk Management is recommended. It is anticipated that while this study will be challenging and beneficial, it will not be novel, controversial or precedent setting, nor have significant national importance. However, the estimated cost of the project is projected to be in excess of \$40 million dollars, a Supplemental Environmental Impact Statement (EIS) will be prepared, and the study will require an Independent External Peer Review (IEPR).

Study Description. This single purpose flood risk management project is located in the Middle Rio Grande Valley, a 150-mile-long segment of the river extending from Cochiti Dam to Elephant Butte Reservoir. The middle valley is entrenched in an alluvium-filled trough that is 100 to 300 feet deep and 1 to 3 miles wide. Principal tributaries to the Rio Grande below Cochiti Dam are Galisteo Creek, Rio Jemez, Rio Puerco, and Rio Salado, with the Rio Puerco and Rio Salado being just upstream of the project area.

The project area extends from the San Acacia Diversion Dam, located 12 miles north of the City of Socorro, New Mexico, downstream to the railroad bridge at San Marcial, which is located in the lower-most section of the Middle Rio Grande valley. River channel, off channel wetlands, riparian woodlands, floodplain farmland, terraced plains of grasses and shrubs, basalt-capped mesas, and nearby mountains characterize the valley. The width of the Rio Grande valley along the proposed project area varies from eight to twelve miles, with the nearly flat Rio Grande floodplain varying from one to three miles wide. The active floodplain averages 5,300 feet wide on the west side of the Rio Grande, between the river and existing spoil bank levee. The floodplain and bordering terraces are mostly rural and used for irrigated farmland, livestock grazing, wildlife conservation and enhancement. The City of Socorro is the major population center in the project area, with a 2000 population of 8,877. Smaller communities, such as San Acacia, Polvadera, San Luis, Lemitar, Escondida, San Pedro, and San Antonio, are scattered throughout the project area. Elephant Butte Reservoir, downstream of the project area, is the largest reservoir in New Mexico, storing water for irrigation and recreation. The project area runs through the center of the Bosque del Apache National Wildlife Refuge, which provides habitat for wintering waterfowl and cranes, endangered species, and a rich diversity of resident and migrant wildlife.

Preparation of this LRR/SEIS became necessary due to several changes that have occurred since the project was authorized. These include the following:

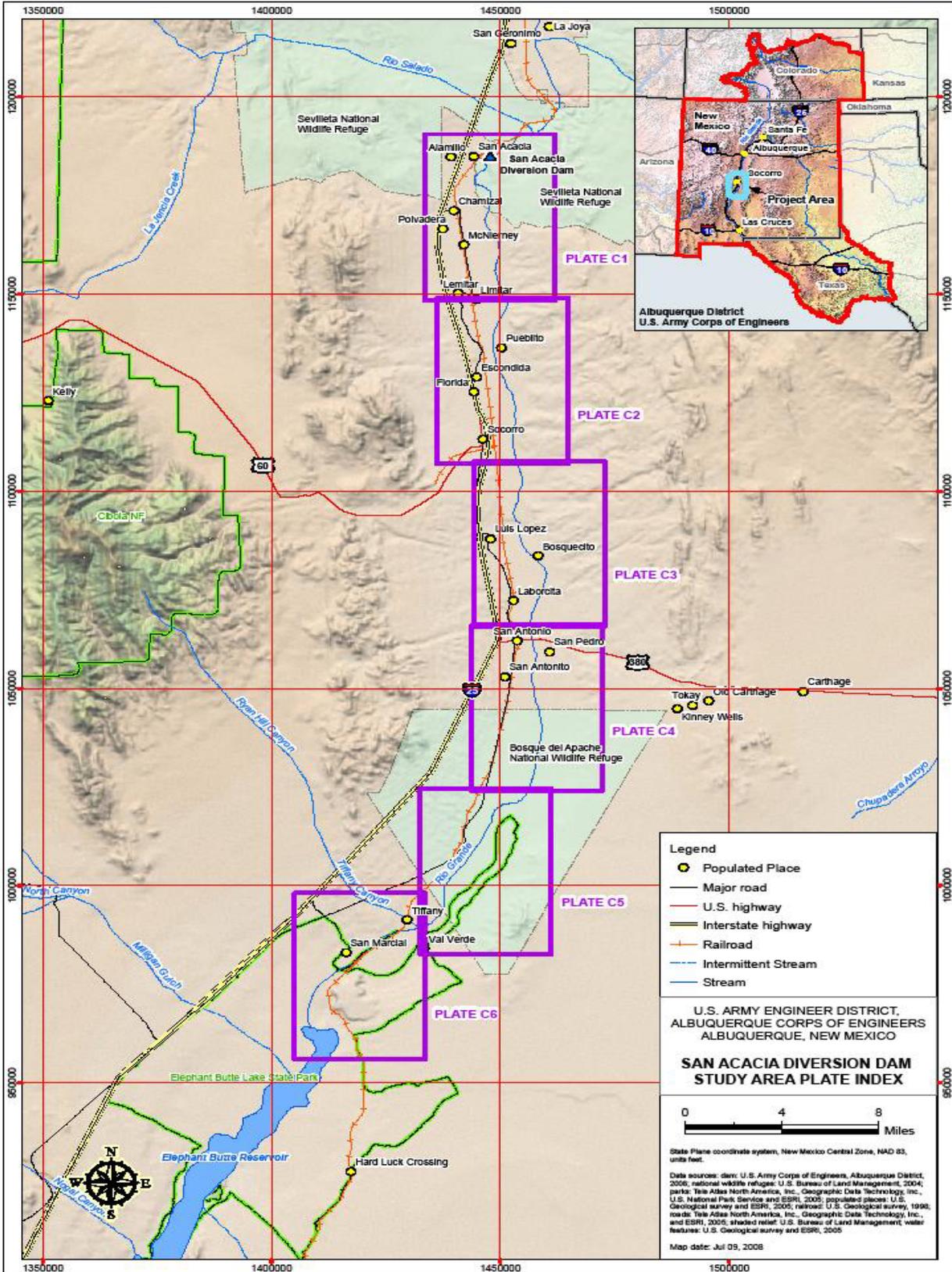
- A levee design modification to address long duration flows: Any proposed plan would have to incorporate design features to prevent seepage through the levee due to prolonged flow against the riverward toe.

- Updated information on three species listed as threatened or endangered since 1994 (i.e., the Rio Grande silvery minnow, the Southwestern Willow Flycatcher, and Pecos sunflower — each occurring within the study area, two with critical habitat).
- Elimination of the Tiffany Junction to Elephant Butte Reservoir reach as part of the study area: The shortened reach ends about 15 miles upstream of the Elephant Butte Reservoir.
- Realignment of a BOR facility, the Low Flow Conveyance Channel (LFCC), at two locations (River Miles [RM]-111 and 113) (USBR, 2008; 2005) in the upper end of the study reach: Recent U.S. Bureau of Reclamation (Reclamation) efforts created the need for a new alignment of the levee to the west of the previously assessed location.
- New hydrology analyses were needed primarily to evaluate longer duration flows and how they would affect the levees.
- A longer period of record was available to allow improved and updated hydrological analysis.

Formulation and subsequent screening of alternatives resulted in eleven alternatives that were carried forward into CEICA. Preliminary alternatives included ring levees, non-structural solutions, railroad bridge realignment and breaches of existing spoil banks. The final array of eleven alternatives consisted of various combinations and increments of three major features including reconstruction of the existing levee along the west bank of the Rio Grande for a total distance of approximately 43 miles; construction of a new BNSF railroad bridge at San Marcial; and acquisition of the 2,000+ acre Tiffany area as a sediment control basin. These analyses determined that the most economically justifiable and least environmentally damaging project is the alternative that only contains the levee.

The total project cost is \$109.8 million. Pending funding, the proposed levee construction would begin in 2010. Middle Rio Grande Conservancy District (MRGCD) and New Mexico Interstate Stream Commission (NMISC) have been identified as project sponsors for this effort.

The vertical team was engaged during F3 phase (completed December 2007) through this Review Plan, and will continue through the F4 and Design.



a. Factors Affecting the Scope and Level of Review.

Quality Control [QC] will be reviewed through DQC, ATR, and IEPR reviews where the following factors will also be

Safety Assurance factors include:

- Where failure leads to significant threat to human life,
- Novel methods\complexity\precedent setting models\policy changing conclusions,
- Innovative materials or techniques,
- Design lacks redundancy, resiliency or robustness,
- Unique construction sequence or acquisition plans,
- Reduced\overlapping design construction schedule.

Challenges include:

- 1 New Corps policy and procedures for performing feasibility studies including:
 - Planning Guidance Notebook Appendix G is still in draft form
 - Appendix H is relatively new
 - New Peer Review Guidance coming out soon
 - Corps PCX reviews still not standardized
- 2 Properly incorporating a decades long project history through many personnel changes;
- 3 Rigorous schedules.

This project is considered to have low overall risk because:

- 1 The Corps has completed studies and projects of this nature recently and successfully;
- 2 Health and human safety factors are currently believed to be minimal;
 - Currently, the information with regards to health and human safety factors is insufficient for a more definite determination.
 - The PDT as every intention to further assess safety factors as the study progresses.
- 3 Un-engineered spoil bank levees already exist throughout the project area which gives surrounding areas some measure of flood risk management.

This project study will require an IEPR as it will include a Supplemental Environmental Impact Statement (EIS) due to the only fact that total project cost is \$109.8 million and is in excess of \$45 million. The PDT has determined that the study / project:

- 1 Is not expected to be controversial;
 - Future engineered, levee alternatives will follow the footprint of the existing, spoil bank levees;
 - Public meetings have not shown there to be any public dispute as to the size, nature or effects of the project.
 - Public meetings have not shown there to be any public dispute as to the economic or environmental cost or benefit of the project.
- 2 Is not expected to have adverse impacts on scarce or unique cultural, historic, or tribal resources;
 - Future engineered, levee alternatives will follow the footprint of the existing, spoil bank levees;
 - Sites for flood risk management alternatives (levees) will follow the footprints of the existing spoil bank levees.
- 3 Is not expected to have adverse impacts on any fish or wildlife species or their habitat whether or not they be listed as endangered or threatened under the Endangered Species Act of 1973;
 - Future engineered, levee alternatives will follow the footprint of the existing, spoil bank levees;

- Experience doing similar Corps project within SPA has shown that adverse impacts are unlikely.
- 4 Is not likely to contain influential scientific information, nor is it likely to be a highly influential scientific assessment;
 - Experience doing similar Corps project within SPA has shown that adverse impacts are unlikely.
 - 5 Does not involve the rehabilitation or replacement of existing hydropower turbines, lock structures, or flood control gates;
 - 6 Is not expected to be based on novel methods, does not present complex challenges for interpretation, does not contain precedent-setting methods or models, and will not present conclusion that are likely to change prevailing practices.
 - Flood risk management within the Rio Grande Basin is an activity for which SPA has ample experience and industry to treat this activity as routine and to be able to determine what methods and models will be used.
 - 7 Has minimal life safety risk.
 - Future engineered, levee alternatives will follow the footprint of the existing, spoil bank levees;
 - Experience doing similar Corps project within SPA has shown that adverse impacts are unlikely
 - Limited number of population centers in the study area
 - Small number of structures immediately adjacent to the floodplain
 - Width of floodplain results in low flow velocities
 - Inundation in the event of a breach or overtopping is about five feet
 - Ample egress available in populated areas
 - Provides similar or better life safety risk than the without project condition

San Acacia Bosque del Apache Project does have significant interagency interest with Bureau of Reclamation (BOR) who does the drudging in the project area. US Fish and Wildlife Services (USFWS) are also showing significant interested in the endangered species, notably the Southwest Willow Flycatcher in the area.

As a result, DQC, ATR and IEPR will focus on:

- 1 Completeness and compliance of H&H analysis;
- 2 Review of the planning process and criteria applied;
- 3 Review of the methods of preliminary analysis and design;
- 4 Compliance with sponsor, program and NEPA requirements;
- 5 Completeness of preliminary design and support documents; and
- 6 Spot checks for interdisciplinary coordination.

In accordance with Section 2035 of WRDA 2007, EC 1105-2-410 requires that all projects addressing flooding or storm damage reduction undergo a safety assurance review during design and construction. Safety assurance factors must be considered in all reviews for those studies. Implementation guidance for Section 2035 is under development. When guidance is issued, the study will address its requirements for addressing safety assurance factors, which at a minimum will be included in the draft report and appendixes for public review. Prior to preconstruction engineering and design (PED) of the project identified for construction, a PMP will be developed that will include safety assurance review. Safety assurance review will also be accomplished during construction.

In-Kind Contributions.

Per the PMP, the local sponsor may be included in the review process during DQC or ATR review as part of their in-kind contributions to the study/ project. Additional in-kind contributions provided by the local sponsors may be:

- 1 Existing reports and hard data that they contribute to the study / project;
- 2 Assistance during public involvement actions;
- 3 Assistance during the formulation of alternatives;
- 4 Attendance at F3 and F4 conference and briefings.

The in-kind contributions listed above do not require peer review.

3. AGENCY TECHNICAL REVIEW (ATR)

a. General. ATR for decision documents covered by EC 1105-2-410 are managed by the appropriate Planning Center of Expertise (PCX) with appropriate consultation with the allied Communities of Practice such as engineering and real estate. The ATR shall ensure that the product is consistent 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 the results in a reasonably clear manner for the public and decision makers. Members of the ATR team will be from outside the home district. The ATR lead will be from outside the home MSC. The leader of the ATR team will participate in milestone conferences and the Civil Works Review Board (CWRB) to address review concerns.

b. Products for Review.

It is anticipated that the ATR process will begin after the ATR has been assigned by the FRM-PCX, and will initially cover the F4. As alternative plans are formulated, the review process will focus on data, assumptions and the engineering, scientific, economic, social & environmental analysis process. Major review process milestones will include the preparation for the F4 and Supplemental Environmental Impact Statement.

Contractor deliverables will be reviewed for adequacy stated in their scope of work. Contractor generated reports and data will be reviewed in conjunction or as part of the LRR and supporting documentation during required review milestones for example ATR, IEPR, etc.

In addition to the EIS, additional documents that will require ATR include the entire decision document, planning models, and MCASES for the final document. Tech appendices and other supporting documentation will be provided for additional reference.

Required ATR Team Expertise.

The ATR team has yet to be determined, but will be determined by the PCX. As reviewers' names, qualifications and years of relevant experience are decided, they will be added to the Review Plan.

- 1 The FRM-PCX Standard Operating Procedures and Program Management Plan have not been updated recently. When an update is available, that information will be referenced in this RP.
- 2 Reviewers shall review the draft report to confirm that work was done in accordance with established professional principles, practices, codes, and criteria and for compliance with laws and policy. Comments on the report shall be submitted into DrChecks. In particular those

referenced in the References section and including ETL 1110-2-571 “Vegetation Guidelines for FRM.”

- 3 Reviewers shall pay particular attention to one’s discipline but may also comment on other aspects as appropriate. Reviewers that do not have any significant comments pertaining to their assigned discipline shall provide a comment stating this.
- 4 Grammatical and editorial comments shall not be submitted into DrChecks. Comments but should be submitted to ATRT Leader via electronic mail using tracked Changes feature in the Word document or as a hard copy mark-up. The ATRT Leader shall provide these comments to the Project Manager.
- 5 Review comments shall contain these principal elements:
 - A clear statement of the concern;
 - The basis for the concern, such as law, policy, or guidance;
 - Significance for the concern; and
 - Specific actions needed to resolve the comment.
- 6 The “Critical” comment flag in DrChecks shall not be used unless the comment is discussed with the ATRT Leader and/or the Project Manager first.

Note: SPA reserves the right to nominate specific reviewers by technical discipline.

Anticipated number of ATRT reviewers: At the minimum, reviewers would include economics, environmental, and engineering.

The expertise that should be brought to the review team may include, but is not necessarily limited to, the following:

- 1 Hydraulic Engineering – The reviewer should have extensive knowledge of HEC-RAS modeling including the use of GIS (ARC-INFO) inputs to the model. The reviewer should also have a solid understanding of the geomorphology of alluvial rivers.
- 2 Southwestern Hydrology – The reviewer should have extensive knowledge of hydrology of the Rio Grande basin or similar.
- 3 Economics – The reviewer should be familiar with the processes used in evaluation of flood risk management projects and have recent experience in preparing economic analysis plans for flood risk management feasibility studies. HEC-FDA will be used for analysis, as will IMPLAN. Analysis will address all four project accounts during the F4 phase.
- 4 Biology and Ecosystem – The reviewer should have a solid background in the habitat types to be found in the arid southwestern United States, and understand the factors that influence the reestablishment of native species of plants and animals.
- 5 Cultural Resources – The reviewer should have extensive Corps’ experience regarding cultural resources on public and tribal lands. They need to be familiar with Department of Defense as well as USACE policies and procedures as they pertain to Corps studies and projects.
<http://www.usace.army.mil/CECW/Pages/cultural.aspx>

- 6 Design, Plans and Specifications – The reviewer should have recent experience in the design and of plans and specifications for levees and river bridges, to include tie in to natural features.
- 7 Plan Formulation – The reviewer should have recent experience in reviewing Plan Formulation processes for multi-objective studies and be able to draw on “lessons learned” in advising the PDT of best practices.
- 8 Geotechnical Engineering – The reviewer should carry a Professional Engineer’s license and have recent experience in the Corps’ design requirements for levee work. This person should also have experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; designing earthworks and structure foundations; and monitoring site conditions, earthwork and foundation construction.
- 9 Cost Engineering – The reviewer should 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.

c. Documentation of ATR.

PCX shall instruct the ATR leader or the OEO to prepare a Review Report that 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.
- 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.

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 quality 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 be 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; 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 or 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:

- 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; 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 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 sample certification is included in ER 1110-2-12.

4. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. General.

IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and HQUSACE members) that the covered subject matter meets certain criteria (described in EC 1105-2-410) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. IEPR is coordinated by the appropriate PCX and managed by an Outside Eligible Organization (OEO) external to the USACE. IEPR panels shall evaluate whether the interpretations of analysis and conclusions based on analysis are reasonable. To provide effective review, in terms of both usefulness of results and credibility, the review panels should be given the flexibility to bring important issues to the attention of decision makers; however, review panels should be instructed to not make a recommendation on whether a particular alternative should be implemented, as the Chief of Engineers is ultimately responsible for the final decision on a planning or reoperations study. IEPR panels will accomplish a concurrent review that covers the entire decision document and will address all the underlying engineering, economics, and environmental work, not just one aspect of the study. Whenever feasible and appropriate, the office producing the document shall make the draft decision document available to the public for comment at the same time it is submitted for review (or during the review process) and sponsor a public meeting where oral presentations on scientific issues can be made to the reviewers by interested members of the public. An IEPR panel or OEO representative will participate in the CWRB.

b. Decision on IEPR.

The IEPR will focus on the formulation of the flood risk management plan. The review panel will be composed of individuals with expertise in arid region riverine systems ecology, groundwater surface water interactions, geotechnical engineering, hydraulic, hydrologic and sediment modeling. The entire feasibility report with appendices will be provided to the IEPR team. It is not anticipated that the public, including scientific or professional societies, will be asked to nominate potential external peer reviewers. It is recommended that the panel conduct a site visit if possible. A representative of the panel will attend the Civil Works Review Board.

The IEPR will be conducted by a contractor and managed by the FRM-PCX. The FRM-PCX will follow the process established in EC 1105-2-410 in managing the IEPR.

c. Products for Review.

This project study will require an IEPR as it will include a Supplemental Environmental Impact Statement (EIS) due to the only fact that total project cost is \$109.8 million and is in excess of \$45 million.

In addition to the EIS, additional documents that will require IEPR include the entire decision document, planning model documentation, tech appendices, and other supporting documentation. The planning models will be reviewed for how these were applied to the decision making of the project.

d. Required IEPR Panel Expertise.

Primary disciplines or expertise needed for the review – the IEPR panel may include the same disciplines as the ATRT, but for most studies the makeup of the IEPR panel is a subset of the ATR disciplines and may focus on more specific aspects of the study. Final determination of the review disciplines required for IEPR will be determined later in the study process through consultation between the PDT and ATRT. At a minimum, the IEPR panel will consist of engineering, environmental and economics.

Anticipated reviewers as well as number of reviewers– will be determined by the PDT and ATRT after the ATR process. At a minimum, the IEPR panel will consist of engineering, environmental and economics.

Note: It is unknown at this time whether Corps will be nominating reviewers for IEPR.

e. Documentation of IEPR.

DrChecks review software will be used to document 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. 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 IEPR team will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- 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; 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.

The final Review Report will be submitted by the IEPR panel no later than 60 days following the close of the public comment period for the draft decision document. The report will be considered and documentation prepared on how issues were resolved or will be resolved by the District Commander before the district report is signed. The recommendations and responses will be presented to the CWRB by the District Commander with an IEPR panel or OEO representative participating, preferable in person.

5. 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 appropriate PCX will be responsible for model certification/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 used in the development of the decision document are described below:

b. Planning Models. The following planning models are anticipated to be used:

- HEC-FDA 1.2.4 (Certified). The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Middle Rio Grande Valley between Cochiti Dam and Elephant Butte Reservoir to aid in the selection of a recommended plan to manage flood risk.

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

- Flo- 2D. Approved for flood routing and floodplain mapping. It is used by the Corps Flood Plain Management Group and includes graphics and reporting. This model was used for hydrologic routing for with and without project floodplains and flood stages. This model was reviewed for this project in 2006.
- MCASES. This is a cost estimating model that was developed by Building Systems Design Inc. The Corps began using this model in 1989. This will be used as a tool to determine cost estimates for project alternatives before Design.
- HEC-RAS 4.0. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. This model was used for with project flood stages and levee design for this project. It was reviewed in house June 2009.

6. REVIEW SCHEDULES AND COSTS

The Albuquerque District shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Project Manager will work with the ATRT 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 ATRT 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 ATRT Leader to any possible funding shortages.

Once actual costs are determined, this RP will be revised. Until then, ATR review and assistance is estimated to be about \$70,000 for the study.

The initial technical review strategy session (TRSS) forms the basis for a quality control plan for all major projects and is held early in the project development phase. All members of the project delivery (including representatives of the customer) and independent technical review teams as well as functional chiefs are required to participate in the initial TRSS. As of October 2009 ATR team members have not

been selected and TRSS will occur when they have been identified. It is anticipated that TRSS will occur in November 2009.

Value Engineering (VE) studies were completed for the authorized project in 1987. VE will be required for this LRR in accordance with CESP R 1110-1-8.

SAN ACACIA MILESTONE SCHEDULE		
Task	Activity	Date
Finalize F4 Report		
Tetra Tech Contract	SOW to Don Luna	17 February 2009
	NTP	18 March 2009
	Draft Report to DQC	18 May 2009
	DQC complete	2 June 2009
	Response Matrix Meeting	9-12 June 2009
	Complete DQC backcheck	2 July 2009
	Final Document	10 July 2009
PM Coordinate ATR		9-12 June 2009
Public Meeting		June 2009
Technical Review Strategy Session (TRSS)		16 November 09
Agency Technical Review		
	Review Start	23 November 2009
	Comments Due	9 December 2009
	District Responses	23 December 2009
	Backcheck	30 December 2009
SPD F4		
	Review Start	4 January 2010
	SPD comments due	9 February 2010
	District responses	16 February 2010
	Backcheck	24 February 2010
F4a		
	Review Start	1 April 2010
	HQ provides comments	23 April 2010
	F4(a) conference	24 May 2010
Technical Appendix		
	Complete	June 2010
External Quality Control		
BMI	Review Start	Nov 2010
	Review Complete	April 2011
Submit BA to USFWS	Review Start	June 2010
Receive Draft BO		October 2010
Draft Report to HQ/SPD	Review Start	October 2010
Public Review 45 days	Review Start	October 2010
Final Draft to HQ/SPD	Review Start	May 2011
Civil Works Review Board		
Sign PPA		August 2011

a. IEPR Schedule and Cost.

The IEPR will begin concurrently with the ATR. The IEPR is scheduled to begin November 2009 at an estimated cost of \$150,000. Following is the draft schedule for the IEPR:

RESOURCE	TASK	DURATION	EST. START	EST. FINISH
PDT / ATRT	Write IEPR Scope of Work	15d	1 Nov 09	16 Dec 09
IEPR	A/E Review of IEPR SOW	20d	16 Nov 09	11 Dec 09
PM / Contracting / Battelle	Negotiate IEPR Contract	5d	11 Dec 09	18 Dec 09
SPA Contracting	Award IEPR Contract	1d	21 Dec 09	
Battelle	Independent External Peer Review	130d?	22 Dec 09	15 Jun 10

b. Model Certification/Approval Schedule and Cost.

HEC- FDA 1.2.4 is a certified model, therefore no additional model certification is anticipated.

7. PUBLIC PARTICIPATION

Public involvement is anticipated throughout the Feasibility Study. Three public workshops were held. Public comments were received during those public meetings and were addressed as requested.

Public Comment Action	Estimated Date
Public Meetings	2007
Public Comments or Questions	Ongoing
Draft Supplemental SEIS Public Meetings	July 2010

The public will have opportunity to provide written comments on draft SEIS in July 2009.

Dissemination of Public Comment

Release of the draft SEIS for public review will occur after issuance of the AFB policy guidance memo and concurrence by HQUSACE. The District will make the draft decision document available to the public for comment at the same time it is submitted for review (or during the review process) and sponsor a public meeting where oral presentations on scientific issues can be made to the reviewers by interested members of the public. ATR and IEPR reviewers will be provided with all public comments. The public review of necessary State or Federal permits will also take place during this period.

Upon completion of the review periods, comments will be consolidated in a matrix and addressed, if needed. A summary of the comments and resolutions will be included in the document.

8. PCX COORDINATION

Review plans for decision documents and supporting analyses outlined in EC 1105-2-410 are coordinated with the appropriate Planning Center(s) of Expertise (PCXs) based on the primary purpose of the basic decision document to be reviewed. The lead PCX for this study is the National Flood Risk Management Planning Center of Expertise located at SPD. This review plan will be submitted through the PDT District

(SPA) Planning Chief, 505-342-3201, to the PCX Director, 415-503-6852 for approval. The PCX will be asked to manage the review, and is requested to review and comment on the sufficiency of the ATRT proposed. The approved review plan will be posted to the PCX and SPA websites. Any public comments on the review plan will be collected by the PDT District for resolution and incorporation if needed. Any public comments directed to either the PCX or to HQ will be forwarded to SPA. NOTE: Based upon recent coordination between USACE-HQ and USACE-PAO, SPA will only use titles and phone numbers on the RP placed upon the SPA website for public review.

PCX shall instruct the ATR leader or the OEO to prepare a Review Report that shall:

- 5 Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer.
- 6 Include the charge to the reviewers.
- 7 Describe the nature of their review and their findings and conclusions.
- 8 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.

9. MSC APPROVAL

The MSC that oversees the home district is responsible for approving the review plan. Approval is provided the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, 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.

10. REVIEW PLAN POINTS OF CONTACT

Questions and/or comments on this review plan can be directed to the following points of contact:

- SPA Contact, Planning Chief (505-342-3201)
- PCX Director, (415-503-6852)
- PCX Reviewer, Senior Economist- NWK, (816-389-3105)
- SPD Reviewer, District Support Team Lead, (415-503-6556)

ATTACHMENT 1: TEAM ROSTERS

Name	Discipline	Phone
	Cost Engineering	505-342-3334
	Project Management	505-342-3354
	Environmental	505-342-3358
	Structural Engineering	505-342-3311
	Environmental Engineering	505-342-3474
	Geotechnical	505-342-3472
	Environmental Engineering	505-342-3680
	Plan Formulation	505-342-3364
	Cultural Resources	505-342-3359
	Real Estate	505-342-3294
	Economics	505-342-3366
	Hydrology, Hydraulics & Sedimentation [H&H]	505-342-3327
	Civil Engineering	505-342-3343
	Hydrology and Hydraulics	505-342-3340

ATRT (TBD by FRM-PCX)

Name	Discipline	District	Phone

ATTACHMENT 2-1:

STATEMENT ON THE COMPLETION OF ATR

The Army Corps of Engineers, Albuquerque District has completed the F4 Report with appendices of the San Acacia to Bosque del Apache Unit, New Mexico General Re-evaluation Report. Notice is hereby given that an ATR, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. 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; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The ATR was accomplished by an independent team composed of _____ staff. All comments resulting from ATR have been resolved.

ATRT Leader, San Acacia Re-evaluation

Date

Project Manager, San Acacia Re-evaluation

Date

Chief, Planning Branch
Albuquerque District

Date

CERTIFICATION OF ATR

A summary of all comments and responses are attached. Significant concerns and the description of the resolution are as follows:

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

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

Colonel (P), Corps of Engineers
Commanding

Date

ATTACHMENT 2-2:

STATEMENT ON THE COMPLETION OF ATR

The Army Corps of Engineers, Albuquerque District has completed the Civil Works Review Board with appendices of the San Acacia to Bosque del Apache Unit, New Mexico General Re-evaluation Report. Notice is hereby given that an ATR, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. 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; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The ATR was accomplished by an independent team composed of _____ staff. All comments resulting from ATR have been resolved.

ATRT Leader, San Acacia Re-evaluation

Date

Project Manager, San Acacia Re-evaluation

Date

Chief, Planning Branch
Albuquerque District

Date

CERTIFICATION OF ATR

A summary of all comments and responses are attached. Significant concerns and the description of the resolution are as follows:

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

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

Colonel (P), Corps of Engineers
Commanding

Date

ATTACHMENT 2-3:

STATEMENT ON THE COMPLETION OF ATR

The Army Corps of Engineers, Albuquerque District has completed the Final Report to ASA / OMB / Congress with appendices of the San Acacia to Bosque del Apache Unit, New Mexico General Re-evaluation Report. Notice is hereby given that an ATR, that is appropriate to the level of risk and complexity inherent in the project, has been conducted as defined in the Review Plan. 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; the appropriateness of data used and level obtained; and reasonableness of the result, including whether the product meets the customer's needs consistent with law and existing Corps policy. The ATR was accomplished by an independent team composed of _____ staff. All comments resulting from ATR have been resolved.

ATRT Leader, San Acacia Re-evaluation

Date

Project Manager, San Acacia Re-evaluation

Date

Chief, Planning Branch
Albuquerque District

Date

CERTIFICATION OF ATR

A summary of all comments and responses are attached. Significant concerns and the description of the resolution are as follows:

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

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

Colonel (P), Corps of Engineers
Commanding

Date

ATTACHMENT 3: ACRONYMS AND ABBREVIATIONS

<u>Term</u>	<u>Definition</u>	<u>Term</u>	<u>Definition</u>
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
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
CWRB	Civil Works Review Board	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control	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	RTS	Regional Technical Specialist
HQUSACE	Headquarters, U.S. Army Corps of Engineers	USACE	U.S. Army Corps of Engineers
IEPR	Independent External Peer Review	WRDA	Water Resources Development Act
ITR	Independent Technical Review		
LRR	Limited Reevaluation Report		
MSC	Major Subordinate Command		