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US ARMY ENGINEER DIVISION, SOUTHWESTERN  
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DALLAS TX 75242-1317

CESWD-PD-P

07 DEC 2012

MEMORANDUM FOR Commander, Fort Worth District

SUBJECT: Sulphur River Basin Feasibility Study – Review Plan Approval

1. References:

a. EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010 and Change 1, 31 Jan 2012.

b. Memorandum, CESWD-PD-P, 3 December 2012, subject: Recommend Approval of the Review Plan for Sulphur River Basin Feasibility Study.

2. The review plan for the subject study, enclosed, has been reviewed and recommended for approval by the Water Management and Reallocation Studies Planning Center of Expertise (PCX). It has been prepared in accordance with the referenced guidance, and public comments received will be incorporated into the plan as the study progresses. Independent External Peer Review is required for this study.

3. In accordance with reference 1.a., I hereby approve this review plan for the subject study.

4. Please post the approved review plan with a copy of this memorandum to the District's public internet website and provide the internet address to the Water Management and Reallocation Studies PCX and to Southwestern Division. Before posting to the District website, the names of USACE employees should be removed.

5. The SWD point of contact for this action is Mr. Saji Varghese, CESWD-PD-P, at 469-487-7069.

Encl

A handwritten signature in cursive script, reading "Thomas W. Kula", is positioned above the typed name.

THOMAS W. KULA  
Brigadier General, USA  
Commanding

CF:  
CESWF-PER-PP (Gray)

**REVIEW PLAN**

**Sulphur River Basin Feasibility Study  
Sulphur River, Texas  
Feasibility Report**

***Fort Worth District***

**MSC Approval Date: 7 December 2012  
Last Revision Date: N/A**



**US Army Corps  
of Engineers ®**

**REVIEW PLAN**

**Sulphur River Basin Feasibility Study  
*Feasibility Report***

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## 1. PURPOSE AND REQUIREMENTS

**a. Purpose.** This Review Plan defines the scope and level of peer review for the Sulphur River Basin, Texas Feasibility Study.

### b. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, change #1, 31 Jan 2010
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5) Project Management Plan for Sulphur River Basin Feasibility Study, Feb 2005
- (6) Feasibility Cost Share Agreement, 24 February 2005

**c. Requirements.** This review plan was developed in accordance with EC 1165-2-209, 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, and 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. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

## 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 decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document. The RMO for the peer review effort described in this Review Plan is the Water Management and Reallocation Studies PCX (PCX-WMRS) at Southwestern Division in Dallas, TX.

The RMO will coordinate with the Cost Engineering Directory of Expertise (DX) to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. The RMO will also coordinate with the Planning Center of Expertise for Ecosystem Restoration (PCX-ER) and the Planning Center for Expertise for Flood Risk Management (PCX-FRM), if applicable.

## 3. STUDY INFORMATION

**a. Decision Document.** While budgeting for this study is included in the Water Supply Business Line, this is a multi-purpose study whose scope is to address water resources problems and opportunities for flood risk management, ecosystem restoration, water supply, and other allied problems within the Sulphur River Basin, Texas. A feasibility report is to be prepared for Sulphur River Basin as authorized by a resolution by the committee on Transportation and Infrastructure, United States House of Representatives, dated March 11, 1998, which reads as follows:

*Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army is requested to review the report of the Chief of Engineers on the Cooper Lake and Channels, Texas, published as House Document 488, 83<sup>rd</sup> Congress, 2<sup>nd</sup> Session, and other pertinent reports, with a view to*

*determining whether any modifications are warranted to address water and related resources problems in the Sulphur River basin, Texas. Special emphasis shall be given to the need for flood damage reduction, environmental restoration and protection, and related measures to remove and control log jams and the Sulphur River, Texas, below Cooper Lake.”*

The Chief of Engineers is the approval authority for this General Investigation study. If the Feasibility Report is approved by the Chief of Engineers, implementation of the recommended plan will require Congressional authorization. National Environmental Policy Act (NEPA) documentation will be an Environmental Impact Statement and will be integrated into the Feasibility Report.

A Feasibility Cost Sharing Agreement (FCSA) for the Sulphur River Basin, Texas Feasibility Study was executed on 24 February 2005, with the Sulphur River Basin Authority (SRBA) as the non-Federal sponsor. Current non-Federal Sponsor Designees includes the Tarrant Regional Water District, North Texas Municipal Water District, Upper Trinity Regional Water District, and the cities of Irving and Dallas. Stakeholders for the study include, but are not limited to, state and federal resource agencies; Texas Water Development Board; local landowners; timber companies; municipalities and water districts.

**b. Study/Project Description.** The Sulphur River basin study area, located in northeast Texas, includes portions of eleven counties and encompasses most of the Sulphur River Basin, though focus is on the portion of the basin upstream of the dam at Wright Patman Lake to the Cooper Dam on the South Sulphur River and to the headwaters of the North Sulphur River.

Texas Senate Bill 1 legislation, passed in 1997, established 16 Regional Water Planning Groups throughout Texas to investigate future water resource needs and identify potential water supply alternatives in a statewide planning process. Investigation results have determined that the Sulphur River Basin contains approximately 60 percent of the potential additional water supply available in the State of Texas and is the only basin in Texas that contains relatively abundant, undeveloped and unpermitted surface water, making the basin integral to the State Water Plan. The Region C Water Planning Group, which covers the Dallas/Fort Worth metroplex, has identified the potential to supply future water needs for the region by developing additional water supply from the Sulphur River Basin. Thus, one of the primary purposes of the study is to examine current and projected water resource uses and needs to determine if existing resources can be better allocated to meet changing regional needs.

In addition, past channelization efforts along the North Sulphur River, which straightened the channel and eliminated flowing water to the original meanders, have caused degradation of aquatic and bottomland hardwood habitat values. The channelization efforts also encouraged land clearing activities that led to further losses of riparian bottomland habitats. The combination of increasing channel flow velocities, highly erodible bank soils and poorly managed land clearing practices resulted in the formation of a “logjam” at the downstream limits of the channelization project. The heavy silt and debris load has continued to add to the logjam just downstream of State Highway (SH) 37 over the years, blocking the original river channel and causing development of a series of braided channels on adjacent lands. This blockage has severely altered the historic riverine ecosystem and adversely impacted agricultural and transportation interests in the area by increasing floodwater retention duration on adjacent agricultural lands, leading to landowners incurring annual pumping costs, and by overtopping and causing closure of the SH 37 bridge and other upstream bridges during flood events. In addition, the erosive action continues increasing the width and depth of the upstream channel, threatening the structural integrity of at least nine bridges spanning the North Sulphur River.

Potential solutions are multi-purpose in nature, generally including water supply and ecosystem restoration. The feasibility study will review the systems operation of Wright Patman and Jim Chapman Lakes and evaluate the reallocation of flood storage in Wright Patman Lake and/or Jim Chapman Lake to

determine if existing water resources can be better allocated to meet the changing needs of the region, in addition to evaluating the potential for construction of new multipurpose reservoirs.

Other potential study solutions include sediment detention basins and check dams; creation of on- and off-channel wetlands; restoration of meanders to the base-flow channel; reconnection of flow through oxbows; creation of riffle/pool complexes, softening slopes for more “natural” channel configuration; restoration of bottomland hardwood riverine corridors; development of a comprehensive watershed plan, reestablishment of river channel, either by removing logjam or creating a new meandering channel that bypasses the logjam; removal of sediment buildup and improvements to existing levees.

The Sulphur River Basin FSCA reflects a 9 million dollar multipurpose water supply, ecosystem restoration, and flood risk management study. A modification to the original FSCA was executed on 3 April 2012 to allow accelerated use of non-Federal funds to move the study forward.

The study area lies within the jurisdiction of the Texas U. S. Congressional District 4, Representative. Ralph Hall. Current U.S. senators are Senator John Cornyn (R-TX) and Senator-elect Ted Cruz (R-TX).

**c. Factors Affecting the Scope and Level of Review.** This is an on-going feasibility study, which is preliminarily scheduled to be rescoped to meet the new SMART planning guidance in the fourth quarter of Fiscal Year 2013. The PMP was last revised in November of 2011, prior to drafting the updated language for the FSCA modification that was subsequently executed in April of 2012. The current primary review issues for the Sulphur River Basin feasibility study are the potential for life safety issues related to water supply, including reallocation, and FRM and the potential significant environmental mitigation requirements.

The critical risks relate to existing infrastructure (dams, roads, bridges, etc.), rights of way, and real estate agreements, and potential environmental mitigation requirements for either reallocation or water supply alternatives.

Scouring in the channelized portion of the river continues to threaten the integrity of infrastructure features, especially nine bridges, including the SH-37 Bridge, that cross the North Sulphur and Sulphur River channels. All these bridges have had to be replaced in the last 25 years, generally as a result of channel erosion.

Implementation of reallocation at either or both Jim Chapman and Wright Patman Lakes have the potential to lower flood protection levels to downstream properties and increase life safety concerns, as would implementation of new water supply reservoirs. The Sulphur River Basin is generally a rural watershed without major population centers that could potentially put large populations of people at risk, but any water supply or reallocation project that potentially includes a new dam or increased pool elevations associated with reallocation behind an existing dam would leave a residual risk to properties and populations since they could still potentially be affected by a flooding event. In addition, there is a risk of project failure from geotechnical issues, lack of operations and maintenance, etc. These risks cannot be determined until detailed analyses have occurred. If a substantial risk to the public as a result of a proposed alternative is identified during the feasibility study, the review plan will be revised to incorporate the identified risk.

The dam at Wright Patman Lake has a Dam Safety Action Classification (DSAC) - III rating. An October 2011 periodic inspection identified Potential Failure Modes (PFM) for seepage and piping of the dam’s embankment, especially in the foundation, as potential areas of concern. Obviously, the risks associated with the PFMs would have to be investigated and interim risk reduction measures (IRRM) would have to be implemented to alleviate these concerns and DSAC rating would have to be downgraded to at least a level IV prior to approval of any reallocation at the lake. The City of Texarkana is the non-Federal

sponsor for Wright Patman Lake. Communication with city personnel, Congressional representatives, local emergency response representatives and other stakeholders regarding USACE Dam Safety Program, DSAC III Dams and Wright Patman in particular was initiated in November 2011 and is on-going. In addition, meetings have been held between District Dam Safety personnel and the Sulphur River Basin Authority (local sponsor for the feasibility study) and their sponsor designees regarding the potential risks of sharing the costs associated with IRRMs/dam modification that might be associated with any reallocation of flood storage to water supply. Communication and coordination with the study sponsors, resource agencies, the public, and other interested stakeholders will continue throughout the plan formulation process.

It is anticipated that any FRM project identified in the recommended plan would be relatively minor as the damages that occur are generally to property, especially agricultural lands, and not structures. That being said, there are inherent project risks with all FRM alternatives as they relate to property and population. The alternative with the least amount of project risk for future damages would be evacuation of the floodplain. This is because if a structure is removed, it can no longer be damaged. With a structural alternative, there is an inherent project risk. A structural project in the form of detention, levees, and/or channelization could provide reduction in flood damages, but would leave a residual risk to properties and populations since they could still potentially be affected by a flooding event.

Early identification of rights of way will be necessary to clarify any necessary acquisitions and prepare an acquisition schedule that minimizes impacts to the study/project schedule. Furthermore, some public entities utilize real estate agreements that deviate from the Federal government standard. Use of these agreements could adversely impact the study/project schedule.

Litigation prior to the completion of Jim Chapman Lake (formerly known as Cooper Lake) resulted in the acquisition and management of approximately 25,500 acres of mitigation lands. The majority of these lands are located in the floodplain upstream of Wright Patman Lake. The area is operated by Texas Parks and Wildlife in agreement with the Fort Worth District and is known as the White Oak Creek Wildlife Management Area. Reallocation at Wright Patman Lake has the potential to adversely impact these lands. Implementation of any new water supply reservoirs in the basin would also lead to the loss of significant acres of lands due to inundation. Therefore, reallocation at Wright Patman and implementation of any new water supply reservoir would have significant environmental mitigation requirements, which have the potential to be controversial, not only for area landowners, but for federal, state and local resource agencies.

Other criteria for consideration for IEPR outlined in EC 1165-2-209:

- As a result of the abundance of water in the region, the Sulphur Basin has been the focus of numerous studies regarding the possible development of new water supply projects. Discussion of water supply projects in this area have a demonstrated history of being controversial and involve significant public dispute as to the economic, environmental cost and benefit of the project.
- Information in the decision document will not be based on novel methods, present complex challenges for interpretation, contain precedent-setting influential scientific information or assessment, nor have significant methods, or present conclusions that are likely to change prevailing practices.
- Interagency interest is high, but close coordination with local, state, and federal resource agencies along with the non-Federal sponsors throughout the course of the study will continue as will public meetings and outreach as required by NEPA.

- This project lies within the state of Texas although reallocation at Wright Patman Lake could potentially affect downstream interests in the state of Louisiana. There is no request from the Governor of either Texas or Louisiana for peer review by independent experts, not is one anticipated.
- Currently this study is does not have a recommended plan, however total project costs are estimated between \$1.0 to \$3.4 billion.

Based on the risks currently identified, the District believes both IEPR Type I and Type II reviews will be required. The Type I review will be conducted after a draft report is prepared, but before the Civil Works Review Board and State and Agency Review of the Final Feasibility Report. The Type II review will be conducted upon completion of the plans and specifications and at the midpoint of construction, as applicable.

**d. In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor include: project management; land use and vegetation classification and trend analysis; hydrologic and hydraulic data collection and modeling; and topographic survey data collection and analysis.

#### **4. DISTRICT QUALITY CONTROL (DQC)**

All decision 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.

- a. The DQC documentation system will be DrChecks for the continuity of the review record. DrChecks will be used to document all comments, responses and associated resolutions accomplished through the DQC 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 order to assess whether further specific concerns exist.

DQC shall be conducted and documented in a two phased approach. Table 1 on the following page summarizes the approach below.

The first phase of DQC shall be conducted by the technical supervisor for the section in which the original work product was produced. This is a check for technical sufficiency and completeness commensurate with scope and scale of the project, and may be delegated to qualified senior personnel



in the area of expertise. DQC shall not be performed by the same District personnel who performed the original work including managing/reviewing the work in the case of contracted effort. After the first phase of DQC is complete, both the DQC reviewer and Section Supervisor will be required to sign a certification form (Attachment 3) prior to submittal to the Lead Planner or Project Manager. The signed certification form will be provided as part of the technical appendix and be included in any reports prepared for ATR and Headquarters Planning and Policy review.

Technical products submitted for WIK credit shall be reviewed by the District’s appropriate PDT member for technical sufficiency and completeness. The PDT member and Section Supervisor will sign the DQC certification form and provide this to the Lead Planner or Project Manager prior to incorporating the documentation into study work products.

The second phase consists of review by a qualified DQC reviewer and the PDT member. The second phase shall begin once the Lead Planner has integrated the technical appendices and main report into one document and the report is ready for ATR. Technical supervisors shall provide a team member name for DQC to the Lead Planner and/or Project Manager a minimum of two weeks prior to the start of the second phase of DQC. The Lead Planner or Project Manager for the study will supply the DQC team member and the PDT member a link to the electronic file one full business day prior to the start of the second phase of DQC.

During the second phase of the DQC, the reviewers will be responsible for a complete reading of the report and accompanying appendices supplied by the Lead Planner and/or Project Manager. After the second phase of DQC is complete, both the DQC member, PDT member and Section Supervisor will be required to sign a certification form (Attachment 3) prior to submittal of the interim report for ATR and Headquarters Planning and Policy review. The DrChecks documentation and signed certification form will be provided with the interim report prepared for ATR and Headquarters Planning and Policy review.

**Table 1. Summary of DQC Activities**

<u>Phase</u>	<u>Responsible Party</u>	<u>Product</u>	<u>Documentation</u>	<u>Timeline</u>
Phase 1	Technical Section Chiefs; may be delegated to work leaders, team leaders, or other qualified senior personnel	All models and write ups as well as any supporting data or documentation; includes any WIK submittals	Signed certification form and any track changes or DrChecks comments	Prior to providing to planning for inclusion in the main report; prior to submitting any interim technical products to ATR
Phase 2	PDT and DQC team	Completed Draft Report with Integrated Environmental Assessment and supporting appendices	Signed certification form and DrChecks comment report	Prior to submitting for ATR; Anticipated 1-21 November 2012

- b. Products to Undergo DQC.** The following technical products for the study will undergo DQC prior to being submitted to the planner for ATR and incorporation into the main report in advance of major milestones.

- All existing conditions and future without project conditions discipline specific models & narratives;
- All technical calculations & drawings in support of plan formulation;
- All technical calculations, drawings and write ups for the tentatively selected plan
- All items provided as Work In Kind
- All contracted deliverables
- Any new or changed information in the working draft of the Feasibility Report with integrated Environmental Impact Statement (EIS).

The planner will maintain a glossary of terms & acronyms used by the PDT for inclusion in the main report and to ensure consistency between agencies and disciplines.

- c. Required DQC Expertise.** The following expertise is needed for DQC. The first and second phase of DQC shall be conducted by senior level section personnel (GS-12 or higher grade) from the section in which the original work product was produced. Additional quality checks are performed by staff responsible for the work, such as supervisors, work leaders, team leaders, designated individuals from the senior staff, or other qualified personnel. The technical components of the DQC team should mirror the PDT.

## 5. AGENCY TECHNICAL REVIEW (ATR)

ATR is mandatory for all decision 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.

- a. Products to Undergo ATR.** ATR will occur prior to major decision points in the planning process so that the technical results can be relied upon in setting the course for further study. An in-depth review of the report and all appendices will be coordinated and documented by the PDT leader prior to HQUSACE policy compliance review. All ATRs will be coordinated with the PCX-ER, and PCX-FRM and/or PCX-WMRS, if applicable. The ATR will be accomplished by an independent entity outside the Fort Worth District, within USACE, as designated by the PCX. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices of all project decision documents. The intent is for an ATR to not only ensure technical analyses are correct, but also to ensure compliance with all pertinent USACE guidance and delivery of high quality products early in the study prior to HQUSACE review. Technical products developed in preparation of the IPRs and milestones will be considered for incremental product review by the ATR team or selected team members as those products are developed.

ATR will be completed on the following documentation:

- Milestone 1 – Final Array of Alternatives
- Milestone 2 – Tentatively Select Plan
- Draft Feasibility Report
- Final Feasibility Report

Additional Issue Resolution Conferences (IRCs) may be required throughout the study when significant policy issues arise. If these require documentation for major decision making, then additional ATR of this documentation may be required; however, no IRCs are expected at this time. This quality control will occur prior to the decision event so that a firm technical basis for making decisions will be established. As a result, the decision event is free to address critical outstanding issues and set the direction for the next step of the study.

- b. Required ATR Team Expertise.** The expertise and disciplines represented on the ATR team reflect the significant disciplines involved in the planning effort. The ATR team consists of at least 12 team members outside of the Fort Worth District in the functional areas presented in the table below. The appropriate RMO, in cooperation with the PDT, vertical team, and other appropriate centers of expertise, will determine the final make-up of the ATR team. The names, organizations, contact information, credentials, and years of experience of the ATR members should be included in Attachment 1 once the ATR team is established.

<i>ATR Team Members/Disciplines</i>	<i>Expertise Required</i>
ATR Lead	The ATR lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR lead may also serve as a reviewer for a specific discipline (such as planning, economics, water supply, environmental resources, etc.).
Planning	The Planning reviewer should be a senior water resources planner with extensive experience in the Corps planning process, be knowledgeable of Corps policies and guidelines, up to date on the new planning paradigm objectives and methodologies and be familiar with water supply, ER, and FRM planning.
Economics	The Economics reviewer will have extensive experience in water supply and other social effects and an understanding of those effects on national and regional social dynamics.
Environmental Resources	The team member should be an environmental subject matter expert and be familiar with preparing, processing, and reviewing NEPA documents.
Hydrology and Hydraulic Engineering	The team member should be an expert in the field of water supply and reallocation hydrology and hydraulics, and have a thorough understanding of the USACE Dam Safety program requirements and of HEC and RiverWare computer modeling. A registered professional engineer (PE) is preferred.
Cultural Resources	The team member should demonstrate experience with Native American tribes and have experience with archeological resources. The team member should also be familiar with preparing, processing, and reviewing cultural resource law compliance documentation.
Geotechnical Engineering	The geotechnical engineering reviewer should be a subject matter expert and have extensive experience in dams and pre- and post-construction evaluation and rehabilitation. A registered PE is preferred.
Civil Engineering	The civil design engineering reviewer should be a subject matter expert and have extensive experience in dams and pre- and post-

	construction evaluation and rehabilitation. A registered PE is preferred.
Structural Engineering	The structural engineering reviewer should be a subject matter expert and have extensive experience in dams and pre- and post-construction evaluation and rehabilitation. A registered PE is preferred.
Electrical/Mechanical Engineering	N/A
Cost Engineering	The team member should be familiar with cost estimating for dams and ecosystem restoration projects in MCACES. Review includes construction schedules and contingencies for any document that requires Congressional authorization. The team member will be a Certified Cost Technician, Certified Cost Consultant, or Certified Cost Engineer. The Cost Engineering Directory of Expertise, Walla Walla District will assign this team member as part of a separate effort coordinated by the ATR or IEPR team lead in conjunction with the District Project Manager.
Real Estate	The team member should have experience with similar civil works projects and should also be familiar with preparing, processing, and reviewing Real Estate Plans and must be selected from the RE CoP approved list of RE ATR reviewers.
Hazardous, Toxic and Radioactive Waste (HTRW)	The team member should have experience with similar civil works projects and should also be familiar with preparing, processing, and reviewing Phase I Environmental Site Assessments per USACE regulations.
Risk Analysis	The Risk Analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including dam safety and familiarity with how information from the various disciplines involved in the analysis interact and affect the results.

- 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 quality review comment will be followed. See four comment structure discussed under DQC.

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 team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. 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 Technical Review should be completed, based on work reviewed to date, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

Additional Issue Resolution Conferences (IRCs) may be required throughout the study when significant policy issues arise. If these require documentation for major decision making, then additional ATR of this documentation may be required; however, no IRCs are expected at this time. This quality control will occur prior to the decision event so that a firm technical basis for making decisions will be established. As a result, the decision event is free to address critical outstanding issues and set the direction for the next step of the study.

## **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 1165-2-209, 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 the 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 analyses, 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 1165-2-209.
- **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the 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.

**Decision on IEPR.** Type I and Type II IEPRs are required.

This project meets the mandatory triggers for Type I IEPR described in Paragraph 11.d.(1) and Appendix D of EC 1165-2-209. Since reallocation, water supply dam implementation, and/or flood risk management measures are expected to be part of the recommended plan, a Type II IEPR is required for the design and follow-on project implementation.

- a. Products to Undergo Type I IEPR.** IEPR will occur after Milestone 2 – Tentatively Selected Plan. It will start concurrent with public review and complete within 30 days following the incorporation of public review comments into the Draft Feasibility Report and Integrated Environmental Assessment. The IEPR comments and responses will be presented and discussed at the Civil Works Review Board prior to approval by HQUSACE for the 30-day state and agency review of the final report. The IEPR will be accomplished by an Outside Eligible Organization, as designated by the PCX. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles, and professional practices of all project decision documents. The draft Feasibility Report with integrated EA as distributed for public review will be provided to the IEPR panel as well as documentation of previous reviews and any applicable vertical team guidance.
  
- b. Required Type I IEPR Panel Expertise.** The following IEPR expertise is required for this project. The expertise and disciplines represented on the IEPR team reflect the significant disciplines involved in the planning effort. The WMRS-PCX, as the RMO, will identify the final make-up of the IEPR team in coordination with the PM, vertical team, and other appropriate centers of expertise. The panel will include the necessary expertise to assess the engineering, environmental, and economic adequacy of the decision document as required by EC 1165-2-209, Appendix D. The IEPR panel members for this study and a brief description of their credentials will be included in Attachment 1 once they are identified.

<i><b>IEPR Panel Members/Disciplines</b></i>	<i><b>Expertise Required</b></i>
Economics	The economics panel member should have experience/credentials in multipurpose planning in Texas economies, including reallocation and water supply. Also experience in economic analysis in combined NER/NED evaluations.
Environmental–NEPA Compliance Expert	The environmental panel member should have environmental regulatory expertise in NEPA compliance. In addition to FRM and ER methodology, the environmental expert should be familiar with water supply and associated environmental mitigation analysis.
Hydraulic Engineer and Geotechnical/Civil/Structural Engineer	<p>The hydraulic engineering reviewer should be an expert in the field of water supply and reallocation hydrology and hydraulics, and have a thorough understanding of the USACE Dam Safety program requirements and the use of HEC and RiverWare computer modeling. A certified professional engineer is suggested.</p> <p>The geotechnical engineering reviewer will have extensive experience in dam designs, pre- and post-construction evaluation and rehabilitation, and a thorough understanding of the USACE Dam Safety program requirements. A certified professional engineer is strongly recommended.</p> <p>The Civil/Structural engineering reviewer will have experience with dam designs, pre- and post construction evaluation and</p>

	rehabilitation, and a thorough understanding of the USACE Dam Safety requirements.
Risk Analysis	The Risk Analysis reviewer will be experienced with performing and presenting risk analyses in accordance with ER 1105-2-101 and other related guidance, including dam safety.

**c. Documentation of Type I IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. Panel comments will be compiled by the OEO and 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 4.d above. The OEO will prepare a final Review Report that will accompany the publication of the final decision document 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 OEO no later than 60 days following the close of the public comment period for the draft decision document. USACE shall consider all recommendations contained in the Review Report and prepare a written response for all recommendations adopted or not adopted. The final decision document will summarize the Review Report and USACE response. The Review Report and USACE response will be made available to the public, including through electronic means on the internet.

**d. Products to Undergo Type II IEPR.** The Type II IEPR SAR team shall perform reviews (and a site visit, as necessary) at the completion of the plans and specifications, at the midpoint construction, and other important milestones as determined by the RMO and SWF. Representatives from the Risk Management Center (RMC) will be invited to these visits, as well as other panel meetings.

**e. Required Type II IEPR Panel Expertise.** The following table provides an estimate of the number of Type II IEPR panel members and the types of expertise that should be represented on the review panel for this project. The WMRS-PCX, as the RMO, will identify the final make-up of the IEPR team in coordination with the PM, vertical team, and other appropriate centers of expertise. The panel will include the necessary expertise to assess the engineering adequacy of the decision document as required by EC 1165-2-209, Appendix D. The IEPR panel members for this study and a brief description of their credentials will be included in Attachment 1 once they are identified.

<i>IEPR Panel Members/Disciplines</i>	<i>Expertise Required</i>
Geotechnical Engineer	The Geotechnical Engineering panel member should be a senior-level geotechnical engineer with experience in the field of geotechnical engineering, analysis, design, and construction of embankment dams and levees. The Panel Member should have knowledge and experience in the forensic investigation and evaluation of seepage and piping, settlement, slope stability, and deformations problems associated with embankments constructed on weathered and jointed rock and alluvial soils. The Panel

	Member should have experience in the design and construction of seepage barriers or cutoff walls. The Panel Member should have experience in failure mode analysis, risk assessment of embankment dams, evaluating risk reduction measures for dam safety assurance projects, and familiarity with the USACE dam safety guidance. The Panel Member should have a working knowledge of all applicable USACE design criteria, and shall be a licensed Professional Engineer.
Engineering Geologist	The Engineering Geologist panel member should be a senior-level geologist familiar with identification of geological hazards, exploration techniques, field and laboratory testing, and instrumentation. The Panel Member should be proficient in assessing seepage and piping through and beneath dams constructed on fractured and faulted rock, or within various geologic environments, including but not limited to alluvial (including open-work gravels) and colluvial (including boulders and cobbles) materials. The Panel Member should be experienced in the design and construction of seepage barriers or cutoff walls. The Panel Member should have a working knowledge of all applicable USACE design criteria and shall be a licensed Professional Geologist.
TBD	Other Type II IEPR SAR reviewers will be added once the recommended alternative has been identified and the integrated Dam Safety Modification and Environmental Impact Statement Record of Decision (ROD) have been approved.

f. **Documentation of Type II IEPR.** The IEPR panel will be selected and managed by an Outside Eligible Organization (OEO) per EC 1165-2-209, Appendix D. The review team will prepare a final Review Report that 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.

This review report, including reviewer comments and a recommendation letter will be provided to the RMC as soon as they become available.

Written responses to the IEPR Review Report will be prepared to explain the agreement or disagreement with the views expressed in the report, the actions undertaken or to be undertaken in response to the report, and the reasons those actions are believed to satisfy the key concerns stated in the report (if applicable). These comment responses will be provided to the RMC for concurrence. The revised submittal will be provided to the RMO with the USACE response and all other materials related to the review.



The Huntington District’s responses shall be submitted to the LRD MSC for final MSC Commander Approval. After the MSC Commander’s approval, the District will make the report and responses available to the public on the District’s website.

**7. POLICY AND LEGAL COMPLIANCE REVIEW**

All decision documents will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. 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. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION**

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX.

**9. 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 use of a certified/approved planning model does not constitute technical review of the planning product. 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 (if required).

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 (if required).

- a. **Planning Models.** The following planning models are anticipated to be used in the development of the decision document:

Model Name and Version	Brief Description of the Model and How It Will Be Applied in the Study	Certification / Approval Status
HEC-FDA 1.2.4 (Flood Damage	The Hydrologic Engineering Center’s Flood Damage Reduction Analysis (HEC-FDA) program provides the	Certified

Analysis)	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 in the Sulphur River Basin to aid in the selection of a recommended plan to manage flood risk.	
(HEP) (USFWS, 1980)	The United States Fish and Wildlife Service Habitat Evaluation Procedure is being used to evaluate habitat conditions that would result from alternative plans. A habitat suitability index (HSI) for indicator species is derived by aggregating suitability indices (SIs) critical for habitat variables. The species specific HSI models being used are Swamp Rabbit, Bobcat, Mink, Gray Squirrel, Eastern Turkey, Barred Owl, Downy Woodpecker, Pine Warbler, Wood Duck, Great Blue Heron and Eastern Meadowlark, which are all approved for use.	Approved for use.

**b. Engineering Models.** The following engineering models are anticipated to be used in the development of the decision document:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Approval Status</b>
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. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions in the Sulphur River Basin watershed.	HH&C CoP Preferred Model
HEC-HMS 2.2.2.	The Hydrologic Engineering Center’s Hydrologic Modeling System (HEC-HMS) simulates precipitation-runoff processes. Version 2.2.2 was chosen over the newer version, 3.3, for its efficiency and reliability in modeling the terrain present in the river basin to address cross flow areas throughout the river basin.	HH&C CoP Preferred Model
RiverWare 6.2.6	The Center for Advance Decision Support for Water and Environmental Systems’ (CADSWES) RiverWare is a computational program to simulate the reservoir operating policies within the watershed for the period of record hydrology. The program will be used to evaluate the existing and future without-project conditions, yield analysis, and reallocation analysis.	HH&C CoP Preferred Model

## 10. REVIEW SCHEDULES AND COSTS

**a. ATR Schedule and Cost.** ATR will be completed prior to submission of documentation to the vertical team for a decision. Documents will be submitted to the ATR team leader and appropriate technical discipline as soon as they are available. The completed package submitted prior to milestones shall be provided concurrently to the ATR team and vertical team two weeks (14 days) in advance of the milestone meeting.

There will be DQC, ATR, and IEPR for the feasibility report and integrated EA. The timing and scope of these reviews is yet to be determined, but will be documented in the Project Management Plan that is currently being updated to follow the new SMART planning guidance. DQC and ATR of submittal packages and feasibility report materials will be required prior to major milestones. The following table shows preliminary cost estimates to conduct the ATR.

Product	Status	Date	Est. Cost
Milestone 1		TBD	\$ 10,000
Milestone 2		TBD	\$ 50,000
Milestone 3		TBD	\$ 10,000
Milestone 4		TBD	\$ 5,000

\*Note: This study has yet to be rescoped so none of the SMART planning guidance has yet been incorporated into the PMP. The information for these next two tables will be filled in as details are known.

**b. Type I IEPR Schedule and Cost.** IEPR Schedule and Cost. IEPR will be completed concurrent with public review following Milestone 2 and upon approval of the vertical team. Type I IEPR is 100% Federal cost, but is included in the project budget. IEPR will be completed on the following documentation:

Product	Status	Date	Est. Cost
Draft Feasibility Report and Integrated Environmental Impact Statement		TBD	\$250,000

**c. Type II IEPR Schedule and Cost.** IEPR Schedule and Cost. IEPR will be completed following completion of plans and specifications and during project construction. Type II IEPR is 100% Federal cost, but is included in the project budget. IEPR will be completed on the following documentation:

Product	Status	Date	Est. Cost
100% Plans and Specifications		TBD	\$1,000,000

**d. Model Certification/Approval Schedule and Cost.** PDT has determined that USFWS HEP Process will be used for the habitat analysis. Several of the HSI models selected have already been certified. Additional HSI models utilized which have not already been certified will be put forward for certification for one time use, if applicable. As additional models are subsequently identified, the review plan will be modified to explain the certification process that will be required.

## 11. PUBLIC PARTICIPATION

The public will be able to comment on the feasibility study during the decision making process. Several public meetings will be held throughout the study. A public workshop will be held during the

development of alternatives. In addition, after a tentatively selected plan is determined, a public meeting will be held to solicit public comment on the plan. Finally, a public meeting is normally held during the public review process of the draft feasibility report.

The public will have an opportunity to review and provide comments on the draft feasibility report and Environmental Impact Statement for 45 days. The EIS will most likely begin after Milestone 1 is complete and prior to Milestone 2. In addition, the public can provide comments at anytime during the feasibility study process to the study's project manager at the following address:

U.S. Army Corps of Engineers, Fort Worth District  
ATTN: Sulphur River Project Manager, CESWF-PM-C  
P.O. Box 17300  
Fort Worth, TX, 76102-0300

Comments and responses are documented by the date the comment was received, and provided as an attachment which follows the document from the first ATR through Washington D.C. level review of the final feasibility report. This includes comments from all ATRs and comments received from the public throughout the study process.

All published reports can be found at the Fort Worth District's website ([www.swf.usace.army.mil](http://www.swf.usace.army.mil)) as well as directions for obtaining any information that may be disclosed under the Freedom of Information Act (Public Law 89-554, 80 Stat. 383; amended 1996, 2002, 2007).

## **12. REVIEW PLAN APPROVAL AND UPDATES**

The Southwestern Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, 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. 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 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. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

## **13. REVIEW PLAN POINTS OF CONTACT**

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

- U.S. Army Corps of Engineers, Fort Worth District  
ATTN: Sulphur River Project Manager, CESWF-PM-C  
P.O. Box 17300  
Fort Worth, TX 76102
- U.S. Army Corps of Engineers, Southwestern Division  
ATTN: Chief of Planning & Policy Division, CESWD-PDS-P  
1100 Commerce St.  
Dallas, TX 75242
- U.S. Army Corps of Engineers, South Pacific Division  
ATTN: FRM-PCX Program Manager, CESPDPDS-P

1455 Market St.  
San Francisco, CA 94103

- U.S. Army Corps of Engineers, Mississippi Valley Division  
ATTN: ER-PCX Program Manager, CEMVD-PDS-P  
1400 Walnut St.  
Vicksburg, MS 39180
- U.S. Army Corps of Engineers, Southwestern Division  
ATTN: WMRS-PCX Program Manager, CESWD-PDS-P  
1100 Commerce St.  
Dallas, TX 75242

**ATTACHMENT 1: TEAM ROSTERS**

**a. Fort Worth District PDT Members**

<b>Discipline</b>	<b>PDT Member</b>
Project Management	
Reservoir Control	
Hydrology & Hydraulics	
Cost Estimating	
Civil Design	
Structural Design	
Geotechnical Design	
Real Estate	
Cultural Resources	
Environmental Resources	
Hazardous, Toxic and Radiological Waste	
Economics	
GIS	
GIS - Surveying	
Recreation	
Lake Recreation	
Natural Resources	
Public Affairs	
Contracting	
Program Analyst	

**b. Non-Federal Sponsor Team**

<b>Discipline</b>	<b>PDT Member</b>	<b>Organization</b>
Project Management		
Project Management		
Project Management		
Project Management		
Project Management		
Project Management		
Project Management		
Project Management		
Environmental/Engineering		
Engineering		

**c. District Quality Control Team Members (Includes PDT and additional personnel listed below)**

<b>Discipline</b>	<b>DQCT Member</b>	<b>Contact Information</b>
DQC Lead		
Planning		
H&H		
Civil Design		
Structural Design		
Geotechnical		
Cost Estimating		
Economics		

<b>Discipline</b>	<b>DQCT Member</b>	<b>Contact Information</b>
Cultural		
Environmental		
Real Estate		
HTRW		
Regulatory		
GIS		
Dam Safety		

**d. ATR Team**

<b>Task</b>	<b>Name</b>	<b>Description of Credentials</b>
RMO		
ATR Team Lead		
Planning		
Economics		
Environmental Resources		
Cultural Resources		
Hydrology & Hydraulic Engineering		
Geotechnical Engineering		
Civil/Structural Engineering		
Cost Engineering		
Real Estate		
HTRW		
Risk Analysis		

**e. IEPR-Team**

<b>TASK</b>	<b>NAME</b>	<b>DESCRIPTION OF CREDENTIALS</b>
Economics		
Environmental Resources		
H&H		
Engineering including SAR		

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS**

**COMPLETION OF AGENCY TECHNICAL REVIEW**

The Agency Technical Review (ATR) has been completed for the <type of product> for <project name and location>. The ATR was conducted as defined in the project’s Review Plan to comply with the requirements of EC 1165-2-209. 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 DrChecks<sup>sm</sup>.

*SIGNATURE*

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Name

ATR Team Leader

Office Symbol/Company

\_\_\_\_\_  
Date

*SIGNATURE*

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Name

Project Manager

Office Symbol

\_\_\_\_\_  
Date

*SIGNATURE*

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Name

Architect Engineer Project Manager<sup>1</sup>

Company, location

\_\_\_\_\_  
Date

*SIGNATURE*

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Name

Review Management Office Representative

Office Symbol

\_\_\_\_\_  
Date

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

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

*SIGNATURE*

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Name

Chief, Engineering Division

Office Symbol

\_\_\_\_\_  
Date

*SIGNATURE*

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Name

Chief, Planning Division

Office Symbol

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Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

**ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS**

<b><u>Term</u></b>	<b><u>Definition</u></b>	<b><u>Term</u></b>	<b><u>Definition</u></b>
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
DPR	Detailed Project Report	OMB	Office and Management and Budget
DQC	District Quality Control/Quality Assurance	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DX	Directory of Expertise	OEO	Outside Eligible Organization
EA	Environmental Assessment	OSE	Other Social Effects
EC	Engineer Circular	PCX	Planning Center of Expertise
EIS	Environmental Impact Statement	PDT	Project Delivery Team
EO	Executive Order	PAC	Post Authorization Change
ER	Ecosystem Restoration	PMP	Project Management Plan
FDR	Flood Damage Reduction	PL	Public Law
FEMA	Federal Emergency Management Agency	QMP	Quality Management Plan
FRM	Flood Risk Management	QA	Quality Assurance
FSM	Feasibility Scoping Meeting	QC	Quality Control
GRR	General Reevaluation Report	RED	Regional Economic Development
Home District/MSD	The District or MSC responsible for the preparation of the decision document	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