



REPLY TO
ATTENTION OF

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

CESPD-DE

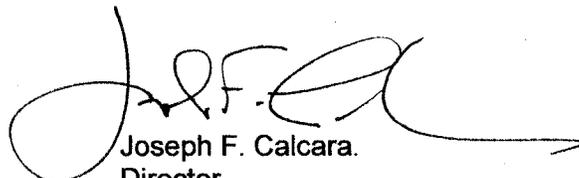
MEMORANDUM FOR Commander, Albuquerque District, ATTN: CESPA-PM-C, Ms Lynette Giesen

SUBJECT: Review Plan Approval for the Village of Hatch, New Mexico, Section 205 Project

1. The South Pacific Division, District Support Team (DST) has reviewed the enclosed Review Plan for the Village of Hatch, New Mexico, Section 205 Project and finds it prepared in accordance with EC 1165-2-209 (Encl 1).
2. Due to significant life safety issues, the Review Plan includes Independent External Peer Review.
3. The District will make the Review Plan available for public comment, and will incorporate the comments received into the Review Plan.
4. I hereby approve this Review Plan, which is subject to change as project circumstances require, consistent with project development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.
5. The point of contact for this memorandum is Mr. Paul Devitt, 415-503-6558, paul.a.devitt@usace.army.mil.

Building Strong from New Mexico All The Way To The Pacific!

Encl
Review Plan


Joseph F. Calcara.
Director
Programs

DECISION DOCUMENT REVIEW PLAN
USING THE NATIONAL PROGRAMMATIC REVIEW PLAN MODEL
for
Continuing Authorities Program
Section 103 and 205 Projects

Village of Hatch, New Mexico, Section 205
Section 205 Project
Albuquerque District

MSC Approval Date: March 2012
Last Revision Date: February 2012



**US Army Corps
of Engineers ®**

**DECISION DOCUMENT REVIEW PLAN
USING THE NATIONAL PROGRAMMATIC REVIEW PLAN MODEL**

**Village of Hatch, New Mexico, Section 205
Section 205 Project**

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1. PURPOSE AND REQUIREMENTS

- a. **Purpose.** This Review Plan defines the scope and level of peer review for the Village of Hatch, New Mexico, Section 205 project decision document.

Section 205 of the Flood Control Act of 1948, as amended, authorizes USACE to study, design and construct flood risk management projects. It is a Continuing Authorities Program (CAP) which focuses on water resource related projects of relatively smaller scope, cost and complexity. Traditional USACE civil works projects are of wider scope and complexity and are specifically authorized by Congress. The Continuing Authorities Program is a delegated authority to plan, design, and construct certain types of water resource and environmental restoration projects without specific Congressional authorization.

Additional Information on this program can be found in Engineering Regulation 1105-2-100, Planning Guidance Notebook, Appendix F.

- b. **Applicability.**

Applicability of the model National Programmatic Review Plan for a specific project is determined by the home MSC. If the MSC determines that the model plan is applicable for a specific study, the MSC Commander may approve the plan (including exclusion from IEPR if warranted) without additional coordination with a PCX or Headquarters, USACE. The initial decision as to the applicability of the model plan should be made no later than the Federal Interest Determination (FID) milestone (as defined in Appendix F of ER 1105-2-100, F-10.e.1) during the feasibility phase of the project. A review plan for the project will subsequently be developed and approved prior to execution of the Feasibility Cost Sharing Agreement (FCSA) for the study. In addition, per EC 1165-2-209, the home district and MSC should assess at the Alternatives Formulation Briefing (AFB) whether the initial decision on Type I IEPR is still valid based on new information. If the decision on Type I IEPR has changed, the District and MSC should begin coordination with the appropriate PCX immediately.

This review plan does not cover implementation products. A review plan for the design and implementation phase of the project will be developed prior to approval of the final decision document in accordance with EC 1165-2-209.

- c. **References**

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- (2) EC 1105-2-407, Model Certification, 31 May 2005
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) ER 1105-2-100, Planning Guidance Notebook, Appendix F, Continuing Authorities Program, Amendment #2, 31 Jan 2007
- (5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007

- d. **Requirements.** This programmatic 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 1105-2-407).

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 Section 205 decision documents is the home MSC. The MSC will coordinate and approve the review plan and manage the ATR. If Type I IEPR will be performed, the MSC will coordinate with the IEPR effort with the appropriate PCX, which will administer the Type I IEPR. The home District will post the approved review plan on its public website. A copy of the approved review plan (and any updates) will be provided to the FRM-PCX to keep the PCX apprised of requirements and review schedules.

3. STUDY INFORMATION

- a. **Decision Document.** The Village of Hatch, New Mexico, Section 205 decision document will be prepared in accordance with ER 1105-2-100, Appendix F. The approval level of the decision document (if policy compliant) is the home MSC. An Environmental Assessment (EA) will be prepared along with the decision document.

Study/Project Description. This single purpose Section 205, Continuing Authorities Program (CAP) project is located within the Village of Hatch, New Mexico. The Village of Hatch is located in the northwest corner of Doña Ana County, New Mexico, near the Rio Grande and is approximately 35 miles northwest of Las Cruces, New Mexico at the intersection of US Highway 85 and state Highway 26.

Hatch is situated east of the Continental Divide within the subdivision of the Mexican Highland Section of the Basin and Range Physiological Province. The area is characterized by gently sloping plains separated by rugged mountain ranges. It is located within the Rio Grande floodplain, bounded to the north by the north-south aligned Caballo Mountains and the Sierra de Las Uvas mountains. Spring Canyon rises in the Las Uvas Mountains and flows west through the Village of Hatch toward the Rio Grande. An existing upstream detention dam controls 5.4 square miles of drainage area.

The project area for the proposed earthen dam is located approximately a half mile south of the railroad tracks near the head of the Colorado Drain. Elevations range from almost 6000 feet in the Las Uvas Mountains to 4030 feet at the confluence with the Rio Grande. Stream slopes are steep throughout most of the watershed, but are mild in the Rio Grande Valley. Development is rural and agriculture in the valley and non-existent elsewhere in the watersheds.

The entire Village of Hatch is in the 100- year floodplain. Significant flooding occurred on August 23-4, 1987 with up to two feet of water in the streets of Hatch. The Dona Ana Flood Commission had contracted through the Corps of Engineers, Albuquerque District and Resource Technology, Incorporated, for detailed without project floodplains and for estimated costs for a proposed project to capture flows from Spring Canyon and Placitas Arroyo respectively. Flow comes from two sources from the west, which travel through the town toward the Rio Grande. Spring Canyon, 8.1 square miles total drainage area, has an upstream detention dam

controlling 5.4 square miles and detention storage areas at its downstream end. As the flow goes overbank it enters Hatch and leaves several smaller ponding areas at Main Street and at the Railroad embankments. In addition, Placitas Arroyo is an uncontrolled drainage basin of 31.5 square miles. The downstream reach of this arroyo is the western municipal limit of the town of Hatch. This reach is affected by levees that are not adequately designed and constructed. In addition there are three major road crossings—a concrete pier and beam bridge at NM 26, a wooden trestle bridge at NM 187 and concrete box culverts at Cedar Road.

Combined flows exceed 2,300 cfs for the 10% annual chance event and 7,000 cfs for the 1% annual chance event.

1996 USGS aerial photography was evaluated to estimate the number of structures affected by flooding. There are 159 residential, 139 commercial/public, 43 mobile homes, and 197 detached outbuildings within the 100-year floodplain. This evaluation does not identify streets, utilities, vehicles, agricultural properties, which would add to the number of damageable property units. The Village of Hatch experienced two major flood events in 1988 and 1992 with floodwaters reaching up to three feet deep in residential areas. Flood damages totaled approximately \$1,400,000 in 1988 and \$1,750,000 in 1992. Numerous homes and businesses received flood damage and many families lost the majority of their belongings and were displaced from their homes for several months.

Although there is no single defined drainage path or river in Hatch, there are numerous parallel flow paths that travel through the community in a general northwest to southeast direction. Since the early 1950's, underground storm drainage systems have been installed in the Village of Hatch, but due to the high cost of the systems, they were only designed to handle a five-year design storm. They are of little use in a major flood event.

Alternatives considered and eliminated from further study included non-structural, channelization and other possible locations for the dam. The final alternatives examined an earthen embankment dam with a concrete spillway and an inlet channel from Spring Canyon. Several different heights and configurations of the proposed dam were optimized. The proposed earthfill dam would be located just west of where the Colorado Drain and the Rodey Lateral meet. Borrow material for the dam would be obtained from directly behind the proposed dam. The outlet works would drain water from the reservoir into the Colorado drain. The inlet channel, which would bring water from the Spring Canyon to the dam, would be constructed with riprap. An additional channel would also be needed on the exterior of the dam to drain the water that collects there currently and direct it into the Colorado drain. Two relocations would have to be performed prior to any borrow excavation. These consist of a large leach field and an existing waterline both located within the reservoir area. In addition, an existing spoil levee, 1,100 feet in length, would have to be removed prior to the excavation of a new trapezoidal channel. The existing levee is located at the south end of the proposed reservoir, near the mouth of Spring Canyon.

The total project cost is about \$7.8 million, and the Doña Ana County Flood Control Commission, NM has been identified as project sponsor for this effort.

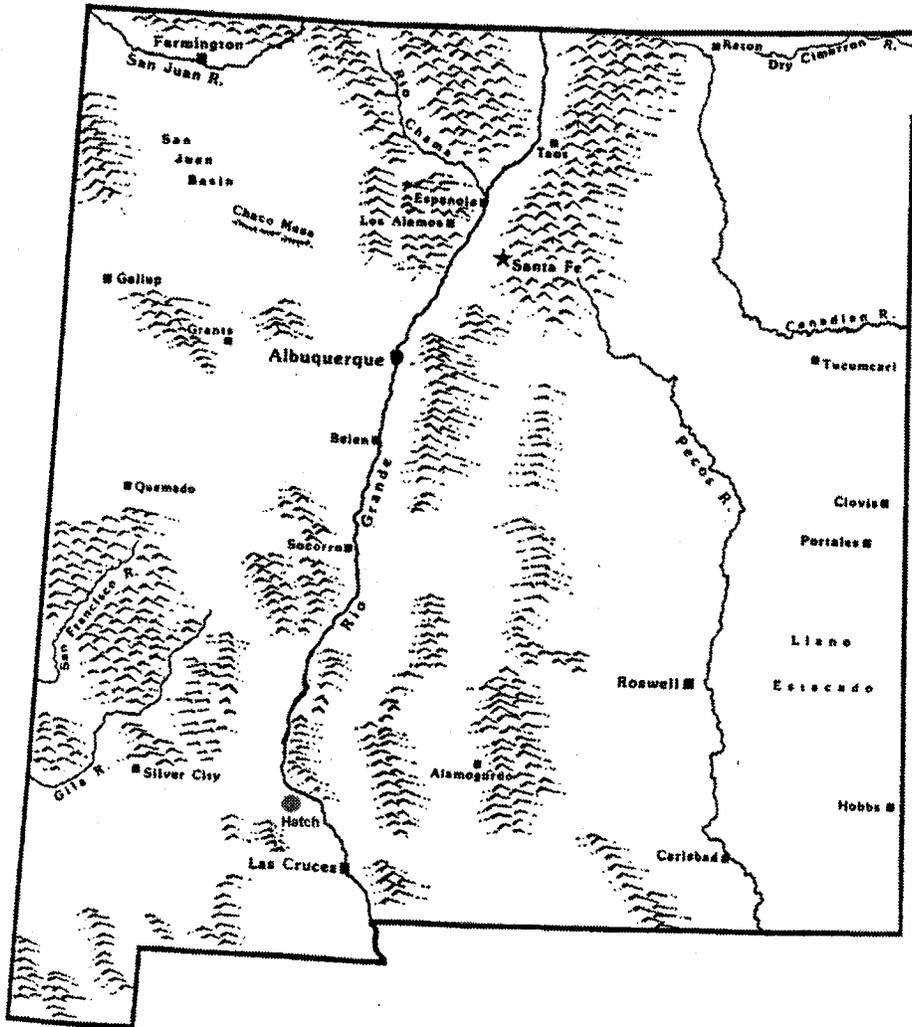
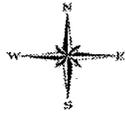
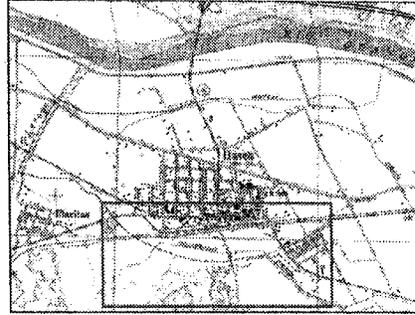
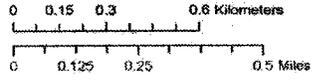


Figure 1- New Mexico Map



This map is a graphical representation provided for illustrative purposes only. The geographical data used to create this map are not the definitive source for determining area boundaries. The US Fish & Wildlife Service gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data.



Locator Map (not to scale)

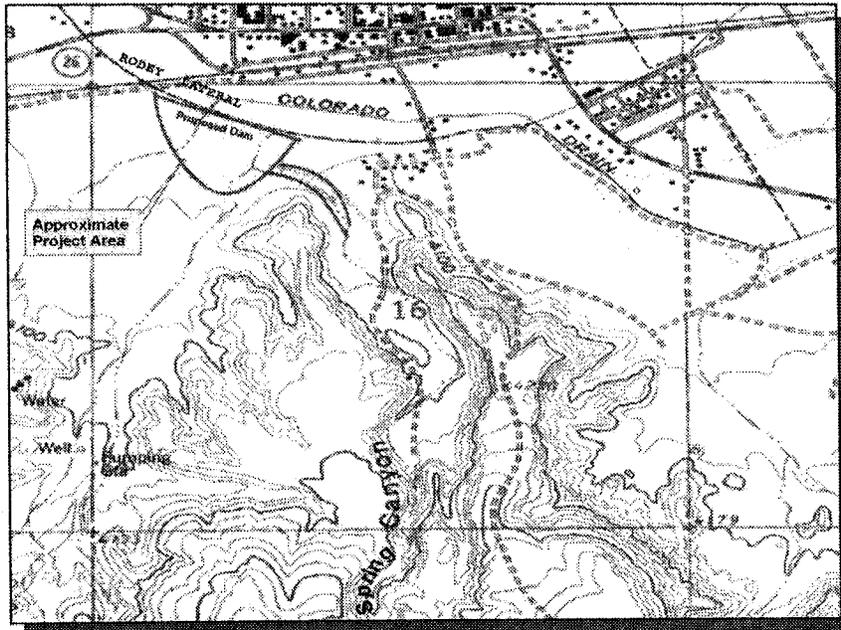


Figure 2- Hatch Topography Map

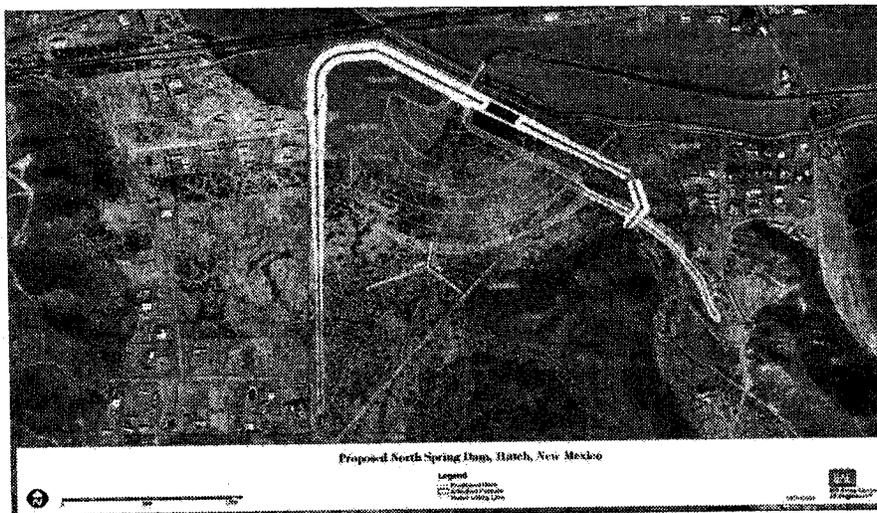


Figure 3- Project Location Map

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 evaluated:

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 decade's long project history through many personnel changes;
- (3) Rigorous schedules.

This project is considered to have significant overall life-safety risk because the population of Hatch would be at risk if the dam breached with a full reservoir during a precipitation event.

This study will require an IEPR due to life safety risk.

The PDT has determined that the study / project:

- (1) Is not expected to be controversial;
 - 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;
- (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;
 - Experience with similar Corps projects 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 with similar Corps projects 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 New Mexico 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 life safety risk.
- The Village of Hatch sits downstream of the proposed project in the study area.
 - There are a significant number of structures within the floodplain.
 - Floodplain flow velocities could reach 25 FPS immediately downstream of the dam.
 - Inundation in the event of a breach or overtopping could exceed five feet.
 - Warning time could be variable since the proposed structure will be operated as a dry dam.

This project does not have any significant interagency interest.

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 1165-2-209 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 design and implementation 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.

b.

In-Kind Contributions: Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC and ATR, similar to any products developed by USACE. 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.

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

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.

All District and Contractor products will undergo DQC review. Dr Checks review software will be used to document all DQC 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 been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

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 be performed throughout the study in accordance with the District and MSC Quality Management Plans. The ATR shall be documented and discussed at the Alternative Formulation Briefing (AFB) milestone. Certification of the ATR will be provided prior to the District Commander signing the final report. Products to undergo ATR include:
- (1) The Environmental Assessment (EA);
 - (2) 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 GI and supporting documentation during required review milestones for example ATR, IEPR, etc;
 - (3) The entire decision document, planning models, technical appendices and MII for the final document.

- b. Required ATR Team Expertise.** 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.

Note: SPA reserves the right to nominate specific reviewers by technical discipline. Final approval authority of review team rests with the FRM PCX.

The expertise of the review team may include, but is not limited to the following:

ATR Team Members/Disciplines	Expertise Required
ATR Lead	The ATR lead should be a senior professional preferably with experience in preparing Section 205 decision documents and conducting ATR. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process. Typically, the ATR lead will also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc). The ATR Lead MUST be from outside FRM PCX.
Planning	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.
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 the analysis.
Southwest Hydrology	The reviewer should have extensive knowledge of hydrology of the Rio Grande basin or similar.
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.
Natural Resources	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 and should have extensive experience in the National Environmental Policy Act and arid southwestern ecology.
Geotechnical Engineering	The reviewer should have a solid background in Geotechnical Engineering with regards to FRM structural alternatives, especially dams.
Structural Engineering	The reviewer should have a solid background in Structural Engineering with regards to FRM structural alternatives, especially dams.
Cost Engineering	The reviewer should have a solid background in Cost Engineering with regards to FRM structural alternatives, especially dams & must be Walla Wall Cost DX certified.

SPA Reservoir Control	The reviewer will ensure the development of a flood control diagram / water control manual as part of the total project.
SPA Dam Safety	The reviewer should have a solid background in Dam Safety with regards to FRM structural alternatives, especially dams.

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 normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the 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 1110-2-12 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 prior to the District Commander signing the final report. A sample Statement of Technical Review is included in Attachment 2.

- d. Per P.L. 99-662, Water Resources Development Act of 1986, Section 911, Review of Cost Effectiveness of Design, a Cost / Value Engineering review will follow the six-step Job Plan as prescribed by ASTM and SAVE International standards; Information, Function Analysis, Creativity, Evaluation, Development, and Presentation and shall include and document legitimate function analysis methodology and generation of alternatives and not be simply project review sessions. This review will take place at the approximately 35% design and cost between \$30-40K if performed in-house or \$40-60K if contracted out.

6. SAFETY ASSURANCE REVIEW

Purpose: To ensure that good science, sound engineering, and public welfare, safety and health are the most important factors that determine a project's fate.

Triggers

1. Where failure of the project will pose a significant threat to human life;
2. Cases where information is based on novel methods, present complex challenges for interpretations, contains precedent-setting methods or models, or presents conclusions that are likely to change prevailing practices;
3. The project involves the use of innovative materials or techniques;
4. The project design lacks redundancy, resiliency, or robustness
5. The project has unique construction sequencing;
6. The project has a reduced or overlapping design construction schedule; or
7. Directed by the Chief of Engineers.

Definitions

- Redundancy - The use of multiple lines of defense that are linked to potential failure modes. The most vulnerable failure modes need the greatest redundancy.
- Resilience - The use of enhancements to improve the ability of the system to sustain loads greater than the design load to achieve gradual failure modes over some duration rather than sudden failure modes.
- Robustness - The use of more conservative assumptions to increase capacity to compensate for greater degrees of uncertainty and risk.

PED, Construction Phase and Operations and Maintenance Phases

During the PED and Construction phases the peer review shall focus on whether the assumptions made for hazards remain valid as additional knowledge is gained and the state-of-the-art evolves. In addition, the peer review team shall advise whether project features adequately address redundancy, robustness, and resiliency; and findings during construction reflect the assumptions made during design.

SAR Panel Members/Disciplines	Expertise Required	Cost Estimate
Safety Assurance Review Panel	Three or four reviewer should have extensive experience with the processes used in evaluation of flood risk management projects	\$75,000.00 - \$100,000.00

	and have recent experience in safety assurance reviews for flood risk management feasibility studies during PED and Construction.	
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7. 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 analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.

For Section 103 and 205 decision documents prepared under the model National Programmatic Review Plan, Type I IEPR may or may not be required.

- **Type II IEPR / Safety Assurance Review (SAR).** 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. This review will also consider / evaluate non-structural measures.

For Section 103 and 205 decision documents prepared under the model National Programmatic Review Plan, Type II IEPR may or may not be anticipated to be required in the design and implementation phase. The decision on whether Type II IEPR is required will be verified and documented in the review plan prepared for the design and implementation phase of the project.

- Decision on IEPR.** It is the policy of USACE that Section 205 project decision documents should undergo Type I IEPR unless ALL of the following criteria are met:

- Federal action is not justified by life safety or failure of the project would not pose a significant threat to human life;
- Life safety consequences and risk of non-performance of a project are not greater than under existing conditions;
- There is no request by the Governor of an affected state for a peer review by independent experts;
- The project does not require an EIS;
- The project/study is not likely to involve significant public dispute as to the size, nature, or effects of the project;
- The project/study is not likely to involve significant public dispute as to the economic or environmental cost or benefit of the project;
- The information in the decision document or anticipated project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices;
- The project design is not anticipated to require redundancy, resiliency, and/or robustness, unique construction sequencing, or a reduced or overlapping design construction schedule; and
- There are no other circumstances where the Chief of Engineers or Director of Civil Works determines Type I IEPR is warranted.

Further, if Type I IEPR will not be performed:

- Risks of non-performance and residual flooding must be fully disclosed in the decision document and in a public forum prior to final approval of the decision document;
- The non-Federal sponsor must develop a Floodplain Management Plan, including a risk management plan and flood response plan (and evacuation plan if appropriate for the conditions), during the feasibility phase; and
- The non-Federal sponsor must explicitly acknowledge the risks and responsibilities in writing in a letter or other document (such as the Floodplain Management Plan) submitted to the Corps of Engineers along with the final decision document.

The decision on whether the above criteria are met (and a Type I IEPR exclusion is appropriate) is the responsibility of the MSC Commander. Additional factors the MSC Commander might consider include in deciding if an exclusion is appropriate include, but are not limited to: Hydrograph / period of flooding, warning time, depth of flooding, velocity of flooding, nature of area protected, and population protected.

Type I IEPR will be required. It is recommended that the panel conduct a site visit if possible.

The IEPR will be conducted by a contractor and managed by the FRM-PCX. The FRM-PCX will follow the process established in EC 1165-2-209 in managing the IEPR.

Type II IEPR will be required on design and construction activities.

- b. Products to Undergo Type I IEPR.** In addition to the design and specifications, additional documents that will require IEPR include the EA, 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.

- c. **Required Type I IEPR Panel Expertise.** 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.

d.

IEPR Panel Members/Disciplines	Expertise Required	Cost Estimate
Economics	The reviewer should have extensive experience 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 the analysis.	\$25,000.00
Natural Resources	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 and should have extensive experience in the National Environmental Policy Act and arid southwestern ecology.	\$25,000.00
Engineering (Geotechnical Engineer)	The reviewer should have an extensive experience in geotechnical evaluation of flood risk management structures such as static and dynamic slope stability evaluation, evaluation of the seepage through earthen embankments and underseepage through the foundation of the flood risk management structures, including dam and levee embankments, floodwalls, closure structures and other pertinent features, and in settlement evaluation of the structure.	\$25,000.00
Southwest Hydrology	The reviewer should have extensive knowledge of hydrology of the Rio Grande basin or similar.	\$25,000.00
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.	\$25,000.00
Geotechnical	The reviewer should have a solid	

Engineering	background in Geotechnical Engineering with regards to FRM structural alternatives, especially dams.	\$25,000.00
Structural Engineering	The reviewer should have a solid background in Structural Engineering with regards to FRM structural alternatives, especially dams.	\$25,000.00
Cost Engineering	The reviewer should have a solid background in Structural Engineering with regards to FRM structural alternatives, especially dams.	\$25,000.00

e. **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.

8. 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.

9. 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. For decision documents prepared under the National Programmatic Review Plan Model, Regional cost personnel that are pre-certified by the DX will conduct the cost engineering ATR. The DX will provide the Cost Engineering DX certification. The RMO will coordinate with the Cost Engineering DX on the selection of the cost engineering ATR team member.

10. MODEL CERTIFICATION AND APPROVAL

EC 1105-2-407 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 1105-2-407 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 (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.	Certified

- b. **Engineering Models.** The following engineering 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	Approval Status
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.	
MCACES	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	

11. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** 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. An ITR team was identified in the past, but an ATR team has not been selected. TRSS will occur when they have been identified. It is anticipated that TRSS will occur in June 2010.

Value Engineering (VE) studies will be in the Design and Implementation phase in accordance with CESP R 1110-1-8.

b. **Safety Assurance Review**

SAR Schedule and Cost: The Albuquerque District shall provide labor funding by cross charge labor codes. Funding for travel will be provided through a government order if needed. The Project Manager will work with the SAR reviewer 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.

Once actual costs are determined, this RP will be revised. Until then, ATR review and assistance is estimated to be between \$30,000 and \$150,000.00 for the study.

PED, Construction Phase and Operations and Maintenance Phases

During the PED and Construction phases the peer review shall focus on whether the assumptions made for hazards remain valid as additional knowledge is gained and the state-of-the-art evolves. In addition, the peer review team shall advise whether project features

adequately address redundancy, robustness, and resiliency; and findings during construction reflect the assumptions made during design.

SAR Panel Members/Disciplines	Expertise Required	Cost Estimate
Safety Assurance Review Panel	Three or four reviewer should have extensive experience with the processes used in evaluation of flood risk management projects and have recent experience in safety assurance reviews for flood risk management feasibility studies during PED and Construction.	\$75,000.00 - \$100,000.00

c. Type I IEPR Schedule and Cost.

Village of Hatch MILESTONE SCHEDULE		
Task	Activity	Estimated Completion Date
Finalize Draft Report	DQC of Draft Report	25 July 2012
	Incorporate Comments	8 August 2012
	DQC Backcheck	22 August 2012
	Final Document	30 July 2010
SPD Alternative Resolution Conference	Review	16 Nov – 3 Jan 2013
	ARC	4 – 10 Jan 2013
	Policy Guidance Memo	22 Jan 2013
	Policy Compliance Memo	20 Feb 2013
NEPA / Public Review	Review	21 Mar – 1 May 2013
	Incorporate Comments	10 April 2013
IEPR	A/E Review of IEPR SOW	31 Jan – 29 Feb 2013
	Award Contract	8 Mar 2013
	Review	21 Mar – 21 Jun 2013
	Incorporate Comments	5 July 2013
	IEPR Backcheck	19 July 2013
Finalize Draft Report	DQC of Draft Report	9 Aug 2013
	Incorporate Comments	23 Aug 2013
	DQC Backcheck	9 Sep 2013

	Review	23 Sep 2013
Agency Technical Review	Incorporate Comments	7 Oct 2013
	ATR Backcheck	22 Oct 2013
Final Draft to SPD	Review Start	23 Oct 2013
Sign PPA		Jan 2014

Since the focus of the IEPR is Life Safety, the number of members on the IEPR panel should be minimal and include economics, H&H and plan formulation. The estimated cost of IEPR is \$200, 000.

- d. **Model Certification/Approval Schedule and Cost.** For decision documents prepared under the model National Programmatic Review Plan, use of existing certified or approved planning models is encouraged. Where uncertified or unapproved model are used, approval of the model for use will be accomplished through the ATR process. The ATR team will apply the principles of EC 1105-2-407 during the ATR to ensure the model is theoretically and computationally sound, consistent with USACE policies, and adequately documented. If specific uncertified models are identified for repetitive use within a specific district or region, the appropriate PCX, MSC(s), and home District(s) will identify a unified approach to seek certification of these models.

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

12. PUBLIC PARTICIPATION

State and Federal resource agencies may be invited to participate in the study covered by this review plan as partner agencies or as technical members of the PDT, as appropriate. Agencies with regulatory review responsibilities will be contacted for coordination as required by applicable laws and procedures. The ATR team will be provided copies of public and agency comments. Public involvement is anticipated throughout the Feasibility Study. Two public workshops were held. Public comments were received during those public meetings and were addressed as requested.

Public Comment Action	Estimated Date
Public Meetings	2011
Public Comments or Questions	Ongoing
Draft EA Public Meetings	2011

The public will have opportunity to provide written comments on draft EA in 2011.

Dissemination of Public Comment

Release of the draft EA for public review will occur after issuance of the SPD 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.

13. REVIEW PLAN APPROVAL AND UPDATES

The home MSC Commander is responsible for approving this review plan and ensuring that use of the Model Programmatic Review Plan is appropriate for the specific project covered by the plan. The review plan is a living document and may change as the study progresses. The home district is responsible for keeping the review plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the review plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. Significant changes may result in the MSC Commander determining that use of the Model Programmatic Review Plan is no longer appropriate. In these cases, a project specific review plan will be prepared and approved in accordance with EC 1165-2-209. The latest version of the review plan, along with the Commanders' approval memorandum, will be posted on the home district's webpage.

14. REVIEW PLAN POINTS OF CONTACT

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

- Kris Schafer- SPA Contact, Planning Chief (505-342-3201)
- Eric Thaut- PCX Director, (415-503-6852)
- PCX Reviewer,
- Paul Devitt- SPD Reviewer, District Support Team Lead, (415-503-6558)

ATTACHMENT 1: TEAM ROSTERS

<u>Name</u>	<u>Discipline</u>	<u>Phone</u>
Lynette Giesen	Project Management	505-342-3187
Robert Browning	Economics	505-342-3366
David Henry	Environmental Engineering	505-342-3139
Bruce Jordan	Geotechnical Studies	505-342-3427
Jud Lee	Hydrology & Hydraulics	505-342-3429
Dana Price	Ecological Studies	505-342-3378
Jeremy Decker	Cultural Resources	505-342-3671
Kathy Skalbeck	Plan Formulation	505-342-3204
John Stages	Architectural/ Structural	505-342-3442
Ted Solano	General Engineering	505-342-3419
Michael Prudhomme	Cost Engineering	505-342-3401

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 Draft Feasibility Report with Appendices for Village of Hatch, New Mexico, Section 205, Continuing Authorities Program. 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.

SIGNATURE

Name

ATR Team Leader

Office Symbol/Company

Date

SIGNATURE

Name

Project Manager (home district)

Office Symbol

Date

SIGNATURE

Name

Architect Engineer Project Manager¹

Company, location

Date

SIGNATURE

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

Name

Chief, Engineering Division (home district)

Office Symbol

Date

SIGNATURE

Name

Chief, Planning Division (home district)

Office Symbol

Date

¹ Only needed if some portion of the ATR was contracted

ATTACHMENT 3: REVIEW PLAN REVISIONS

Revision Date	Description of Change	Page / Paragraph Number

NOTE: Revisions to the Review Plan since it was last approved by the MSC Commander should be documented in Attachment 3. Significant changes (such as a change in the level or scope of review) require re-approval by the MSC Commander following the process used for initially approving the plan. DELETE THIS TEXT BOX BEFORE FINALIZING THE REVIEW PLAN.

ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

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

NOTE: This attachment is optional. The PDT can modify the table as desired. DELETE THIS TEXT BOX BEFORE FINALIZING THE REVIEW PLAN.