DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND OR 97208-2870

CENWD-RBT

13 DEC 2012

MEMORANDUM FOR Commander, Portland District (CENWP-PM-PPM/Jean DesJalais)

SUBJECT: Review Plan (RP) Approval for Mill Creek Diversion Dam Issue Evaluation Study, Walla Walla, Washington, Walla Walla District

1. References:

a. Memorandum, CENWW-PM-PPM, 7 December 2012, subject: Mill Creek Diversion Dam Issue Evaluation Study, Walla Walla, Washington, Walla Walla District, Northwestern Division, Review Plan Submittal (Encl).

b. EC 1165-2-209 Change 1, Civil Works Review Policy, 31 January 2012.

2. Reference 1.a. above has been prepared in accordance with reference 1.b. above.

3. The RP has been coordinated with the Business Technical Division, Northwestern Division, U.S. Army Corps of Engineers, and with the Risk Management Center (RMC). The Review Plan includes District Quality Control and Agency Technical Review (ATR). The RMC is the Review Management Office (RMO) for the ATR; the RMO Point of Contact is Tom Bishop, 303-963-4556.

4. I hereby approve this RP, which is subject to change as circumstances require, consistent with the study development process and the Project Management Business Process. Subsequent revisions to this RP or its execution will require written approval from this office.

5. For further information, please contact Mr. Steve Bredthauer, NWD Technical Review Program Manager, at (503) 808-4053, or Ms. Laila Berre, NWD Dam Safety Program Manager, at (402) 996-3830.

Encl

ANTHONY C. FUNKHOUSER, P.E.
COL, EN
Commanding

CF: CENWD-DDE

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
201 NORTH THIRD AVENUE
WALLA WALLA, WASHINGTON 99362-1876

REPLY TO
ATTENTION OF

CENWW-PM-PPM

07 DEC 2012

MEMORANDUM FOR, Commander, Northwestern Division, (Dr. Bhamdipaty) P.O. Box 2870, Portland, OR 97208-2870

SUBJECT: Mill Creek Diversion Dam Issue Evaluation Study, Walla Walla, Washington, Walla Walla District, Northwestern Division, Review Plan Submittal

1. Enclosed for Major Subordinate Command (MSC) Commander approval is the Mill Creek Diversion Dam Issue Evaluation Study, Review Plan. This Review Plan has been prepared according to EC 1165-2-209, Civil Works Review Policy, and has been coordinated with the Risk Management Center (RMC).

2. If you have any further questions please of contact Mr. Jean DesJarlais, Project Manager, at 509-527-7292 or email at Jean.J.DesJarlais@usace.army.mil.

Encl

ANDREW D. KELLY
LTC, EN
Commanding

DEPARTMENT OF THE ARMY
RISK MANAGEMENT CENTER, CORPS OF ENGINEERS
13952 DENVER WEST PARKWAY SUITE 200
GOLDEN, CO 80401

REPLY TO
ATTENTION OF
CEIWR-RMC-WD

CEIWR-RMC 4 December 2012

MEMORANDUM FOR: Commander, Walla Walla District, ATTN: CENWW-PM-PPM

SUBJECT: Risk Management Center Endorsement – Mill Creek Diversion Dam IES, Review Plan

1. The Risk Management Center (RMC) has reviewed the Review Plan (RP) for the Mill Creek Diversion Dam IES, revised December 2012, and concurs that this RP provides for an adequate level of peer review and complies with the current peer review policy requirements outlined in EC 1165-2-209 "Civil Works Review Policy", dated 31 January, 2010.

2. This review plan was prepared by the Walla Walla District, reviewed by the Northwestern Division and the RMC, and all review comments have been satisfactorily resolved.

3. The RMC endorses this document to be approved by the MSC Commander. Upon approval of the RP, please provide a copy of the approved RP, a copy of the MSC Commander's approval memorandum, and a link to where the RP is posted on the District website to Tom Bishop, RMC Senior Review Manager (thomas.w.bishop@usace.army.mil).

4. Thank you for the opportunity to assist in the preparation of this RP. Please coordinate all aspects of the Agency Technical Review. For further information, please do not hesitate to contact me at (303) 963-4556.

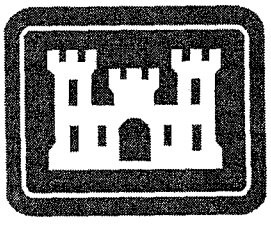
Sincerely,

THOMAS W. BISHOP, P.E.
Senior Review Manager
Risk Management Center

CF:
CEIWR-RMC-ZA (Mr. Snorteland)
CENWD-CE (Division Quality Manager)

Review Plan
U.S. Army Corps of Engineers
Walla Walla District
Northwestern Division

Mill Creek Diversion Dam
Issue Evaluation Study



US Army Corps
of Engineers®

December 2012

Contents

1. Introduction

a. Purpose

This Review Plan is intended to ensure a quality engineering Dam Safety Issue Evaluation Study (IES) developed by the US Army Corps of Engineers (USACE). Chapter 8 of USACE regulation ER 1110-2-1156, "Dam Safety Policy and Procedures" dated 28 Oct 2011, describes the IES Plan development, review, and approval process. This Review Plan developed for Mill Creek Diversion Dam was prepared in accordance with EC 1165-2-209, "Civil Works Review Policy", and covers the review process for the Mill Creek Diversion Dam Phase 1 IES Report. The IES is a study that may lead to additional studies, modeling, or NEPA consultation. NEPA compliance would occur during the Dam Safety Modification Study Phase. Because the Phase 1 IES is used to justify a Phase 2 Issue Evaluation Study and potentially Dam Safety Modification (DSM) studies, it is imperative that the vertical teaming efforts are proactive and well coordinated to assure collaboration of the report findings, conclusions, and recommendations, and that there is consensus at all levels of the organization with the recommended path forward.

b. Project Description and Information

Mill Creek Flood Control Project (FCP), a project within the Walla Walla District of USACE located near Walla Walla, Washington. The Screening Portfolio Risk Analysis (SPRA) Cadre determined Mill Creek FCP should be separated into two primary structures with separate downstream consequences: Mill Creek Storage Dam and Mill Creek Diversion Dam. Thus, Mill Creek FCP was analyzed as two dams, each receiving its own DSAC. Mill Creek Diversion Dam was screened by a national risk cadre on January 27, 2009 as part of the FY09 SPRA. Based on the results of this risk screening, the dam was categorized as a Dam Safety Action Classification (DSAC) II Urgent (Unsafe or Potentially Unsafe).The Mill Creek Storage Dam IES was completed in August 2011.

An Issue Evaluation Study for the Mill Creek Storage Dam was initiated to evaluate the primary concerns indentified in the SPRA, quantify the deficiencies, and to devise a clear path forward for initiation of a Dam Safety Modification Study (DSMS) if the IES investigation warrants such action.

The Mill Creek Diversion Dam IES is critical in obtaining a "system" risk assessment considering the two dams rely on each other and have different inundation areas, risks, and consequences.

The Mill Creek Diversion Dam consists of a diversion dike, a concrete spillway, and headworks for diversion of flows to Virgil B. Bennington Lake (Mill Creek Reservoir). The diversion dike is a rolled earthfill embankment, 2,200 ft long and 23 ft high at the maximum section. The embankment is a heterogeneous mixture of predominantly coarse grained alluvial soil, with a foundation of predominantly coarse grained (cobbles and gravel) alluvium. The stream-side face of the dike is protected with cobble.

The concrete spillway is a hollow structure with a 250-ft-long, 14-ft-high Ambursen ogee-crest type spillway with the crest at elevation 1261.0 (all elevations are feet above mean sea level). The concrete spillway is designed for a flow rate of 17,000 cubic feet per second (cfs). The spillway is founded directly on streambed alluvium without a foundation cutoff. A fish ladder is located in the south abutment of the concrete spillway with an intake invert elevation of 1250.25. Also in the south abutment, immediately north of the fish ladder, is a 6- by 8-ft radial sluice gate with a sill elevation of 1247. The sluice gate is used to regulate reservoir levels when the concrete spillway is not being used.

Four 8- by 18-ft radial gates are part of the intake canal headworks at the south end of the concrete spillway. The gates in the diversion dam headworks control the flow of water from Mill Creek into the intake canal and eventually into Mill Creek Reservoir. The only way for water to be diverted from Mill Creek to Mill Creek Reservoir is through the headworks gates.

Two debris facilities are in place to protect the diversion structure. The first is a 550-ft-long steel crib and cable debris barrier located in the forebay of the diversion dam. The cable debris barrier is designed to prevent floating debris from accumulating at the diversion dam and passing over the concrete spillway. The second debris facility is located at the intake canal headworks. It is a 90-ft-long steel panel shear wall designed to keep debris from impeding diversion operations.

A plan view of the Diversion, canal, and storage dam is presented in Figure (1) below.

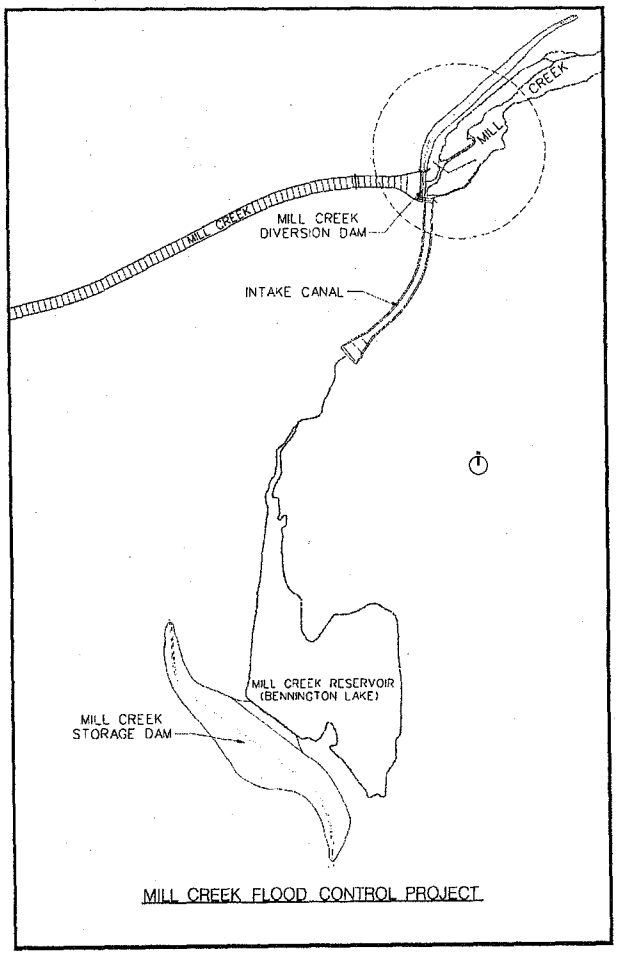


Figure 1: Location Map

The IES study will review the Project information, conduct a PFMA with qualitative risk assessment of failure modes and then develop quantitative risk assessment for the critical failure modes. The anticipated deliverables include a Potential Failure Mode Analysis (PFMA) and the IES report.

c. Levels of Review

IES Reviews shall include:

- District Quality Control (DQC)
- Agency Technical Review (ATR)
- RMC Reviews shall include:
    - Quality Control and Consistency Review (RMC staff and/or external experts)

Independent External Peer Review (IEPR) is applied in cases that meet certain criteria. This IES is not a decision document and does not cover work requiring a Type I or Type II IEPR. Issue Evaluation Studies are used to justify Dam Safety Modification Studies. If this project requires a Dam Safety Modification Study, both Type I and Type II IEPR will be conducted.

d. Review Team

Review Management Office: The USACE Risk Management Center (RMC) is the Review Management Organization (RMO) for dam safety related work, including this IES. Contents of this review plan have been coordinated with the RMC and theMajor Subordinate Command (MSC), Northwestern Division. Informal coordination with NWD will occur throughout the IES development, including briefings to the NWD Dam Safety Committee and Program Review Board updates. In-Progress Review (IPR) team meetings with the RMC, NWD, and Headquarters (HQ) will be scheduled on an "as needed" basis to discuss programmatic, policy, and technical matters. The NWD Dam

Safety Program Manager will be the POC for vertical team coordination. This review plan will be updated for each new project phase.

Agency Technical Review (ATR) Team:

Required ATR Team Expertise: The ATR team will be chosen based on each individual's qualifications and experience with similar projects.

ATR Lead: The ATR team is a senior professional with extensive experience in preparing Civil Works documents and conducting ATRs. The lead has 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.

Geotechnical Engineer - shall have experience in the field of geotechnical engineering, analysis, design, and construction of compacted earth embankment dams. The geotechnical engineer shall have experience in subsurface investigations, rock and soil mechanics, internal erosion (seepage and piping), slope stability evaluations, erosion protection design, and earthwork construction. The geotechnical engineer shall have knowledge and experience in the forensic investigation of seepage, settlement, stability, and deformation problems associated with dams and appurtenances constructed on rock and soil foundations.

Engineering Geologist - shall have experience in assessing internal erosion (seepage and piping) beneath compacted earth embankment dams constructed on alluvial formations. The engineering geologist shall be familiar with identification of geological hazards, exploration techniques, field and laboratory testing, and instrumentation.

Hydraulic Engineer – shall have experience in the analysis and design of hydraulic structures related to dams including the design of hydraulic structures (e.g., spillways, outlet works, and stilling basins). The hydraulic engineer shall be knowledgeable and experienced with the routing of inflow hydrographs through multipurpose flood control reservoirs utilizing multiple discharge devices, Corps application of risk and uncertainty analyses in flood damage reduction studies, and standard Corps hydrologic and

hydraulic computer models used in drawdown studies, dam break inundation studies, hydrologic modeling and analysis for dam safety investigations.

Mechanical Engineer –shall have experience in machine design, machine rehabilitation and familiarity with design of mechanical gates and controls for flood control structures.

Structural Engineer – shall have experience and be proficient in performing stability analysis, finite element analysis, seismic time history studies, external stability analysis including foundations of mass concrete dams. The structural engineer shall have specialized experience in the design, construction and analysis of concrete dams.

Economist (or Consequence Specialist) – shall be knowledgeable of policies and guidelines of ER 1110-2-1156 as well as experienced in analyzing flood risk management projects in accordance with ER 1105-2-100, the Planning Guidance Notebook. The economist shall be knowledgeable and experienced with standard Corps computer models and techniques used to estimate population at risk, life loss, and economic damages.

2. Requirements

a. Reviews

The review of all work products will be in accordance with the requirements of EC 1165-2-209 by following the guidelines established within this review plan. All engineering and design products will undergo District Quality Control Reviews.

i. District Quality Control (DQC)

DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements. DQC will be performed for all district engineering products by staff not involved in the work and/or study. Basic quality control tools

include a plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc.

ii. Agency Technical Review (ATR)

ATR is an in-depth review, managed within USACE, and conducted by a qualified team outside of the home district that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assure that all the parts fit together as a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists, etc.), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team shall be from outside the home Major Subordinate Command (MSC).

iii. Independent External Peer Review (IEPR)

IEPR is the most independent level of review, and is applied in cases that meet certain criteria. This IES is not a decision document and does not cover work requiring a Type I or Type II IEPR. Issue Evaluation Studies are used to justify Dam Safety Modification Studies. If this project requires a Dam Safety Modification Study, both Type I and Type II IEPR will be conducted.

iv. Policy and Legal Compliance Review

Policy and Legal Compliance Review is required for decision documents. Since this IES is not a decision document it does not require a Policy and Legal Compliance Review. If this project requires a Dam Safety Modification Study, a Policy and Legal Compliance Review will be conducted.

v. Peer Review of Sponsor In-Kind Contributions

There will be no in-kind contributions for this IES.

b. Approvals

i. Review Plan Approval and Updates

The MSC for this IES is the Northwestern Division. The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving the Walla Walla District, MSC, RMC and HQUSACE members) as to the appropriate scope and level of review for the study and endorsement by the RMC. Like the PMP, the Review Plan is a living document and may change as the study progresses. The District is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC. Commander approval will be documented in an Attachment to this plan. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-endorsed by the RMC and re-approved by the MSC Commander following the process used for initially approving the plan.

ii. IES Report

The IES Report shall undergo a DQC and formal ATR. After the ATR, the PDT will present the IES to the Quality Control and Consistency (QCC) Panel for review. The district and the risk assessment cadre present the IES risk assessment, IES findings, conclusions, and recommendations for review. After the QCC meeting, the Risk Cadre and RMC will certify that the risk estimate was completed in accordance with the Corps' current guidelines and risk management best practices. The IES will then be presented to the Senior Oversight Group (SOG). The SOG generally consists of the following members: Special Assistant for Dam Safety (Chair); CoP & Regional Representatives to include Geotechnical and Materials CoP Leader, Structural CoP Leader, and Hydraulics and Hydrologic CoP Leader; Regional representatives determined by Special Assistant for Dam Safety; Corps Business Line & Program Representatives to include DSPM, Flood Damage Reduction, Navigation, Programs, and Director, Risk Management Center; and any other Representatives determined by the Special Assistant for Dam Safety. The District Dam Safety Officer (DSO), the MSC DSO, and the SOG Chairman will jointly approve the final IES after all comments are resolved.

3. Guidance and Policy References

- ER 5-1-11, USACE Business Process
- EC 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- ER 1110-2-1156, Safety of Dams – Policy and Procedure, 28 Oct 2011
- ER 1110-1-12, Quality Management, 31 Mar 2011
- NWWOM 5-1-10, Quality Mangement Plan, 22 May 2009

4. Summary of Required Levels of Review

The dam safety program follows the policy review process described in EC1165-2-209, Civil Works Review Policy. The RMC will be the review management office for the ATR, and the RMC must certify that the risk assessment was completed in accordance with the USACE current guidelines and best risk management practices. A Quality Control and Consistency (QCC) review will be conducted including the district, MSC, and RMC. The district and the risk assessment cadre will present the IES risk assessment, IES findings, conclusions, and recommendations for review. After resolution of QCC review comments, the MSC and HQUSACE will complete quality assurance and policy compliance review.

5. Models

a. General

The use of certified or approved models for all planning activities is required by EC 1105-2-407. The EC defines planning models as any models and analytical tools that planners use to define water resources management problems and opportunities, to

formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives, and to support decision-making. The EC does not cover engineering models. Engineering software is being addressed under the Engineering and Construction (E&C) Science and Engineering Technology (SET) initiative. Until an appropriate process that documents the quality of commonly used engineering software is developed through the SET initiative, engineering type models will not be reviewed for certification and approval. 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.

b. List

This IES does not include Planning models, therefore no certification and approval is required.

6. Review Schedule

Project Phase / Submittal	Review Start	Review Complete
DQC Review	Jan-14	Feb-14
ATR Review	Feb-14	Mar-14
Report Revisions and Backcheck	Mar-14	Apr-14
Submit Report to QCC	Apr-14	
QCC Review	Apr-14	May-14
Report Revisions	May-14	Jun-14
Submit Report to SOG	Jun-14	
SOG Review	Jun-14	Jul-14
Report Revisions	Sep-14	Oct-14

7. Public Participation

Public participation will not take place until the IES phase is completed. Public and stakeholder coordination has been performed to inform interested parties about the DSAC 2 rating and ongoing IES. Findings of the Final IES will also be shared with appropriate stakeholders. If this project results in a Dam Safety Modification Study (DSMS), future public coordination will occur for NEPA compliance.

8. Cost Estimate

Task Description	Review Start	Review Cost
DQC Review	Jan-14	$30,000
ATR Review	Feb-14	$105,000
QCC Review	Apr-14	$85,000
SOG Review	Jun-14	$20,000

9. Execution Plan

a. District Quality Control

i. General

DQC will be conducted after completion of the final draft IES. DQC requires both supervisory oversight and District technical experts. The district will conduct a robust DQC in accordance with EC 1165-2-209, Civil Works Review Policy, the District's

Quality Management Plan, and ER 1110-2-12, Quality Management. Documentation of DQC activities is required and will be in accordance with the District and MSC Quality manuals. The DQC and ATR will be concurrent. Comments and responses from DQC will be available for the ATR team to review through ProjNet DrChecks.

ii. DQC Review and Control

The District DSAC Project Manager will schedule DQC review meetings. The in progress review meetings should include PDT members from Geotechnical, Dam Safety, Hydrology & Hydraulics, Structures, Mechanical, General Engineering, Cost Engineering, Project Management, Planning, and Operations as applicable. DQC Review will be conducted on the completed final draft IES including all Sections and Appendixes and will include comments, backcheck and IES revisions. ProjNet DrChecks review software will be used to document reviewer comments, responses and associated resolutions. Comments should be limited to those that are required to ensure the adequacy of the product.

b. Agency Technical Review

i. General

ER 1110-2-1156, Chapter 8 describes the purpose, process, roles and responsibilities for an IES in addition to the submittal, review, and approval process. The Risk Management Center (RMC) is responsible for coordinating and managing agency technical review of the IES Report in accordance with EC 1165-2-209. The ATR Lead will be an RMC team member unless otherwise approved by the RMC Director. The ATR Lead in cooperation with the PDT, MSC, and vertical team will determine the final make-up of the ATR team.

ii. ATR Review and Control

Reviews will be conducted in a fashion which promotes dialogue regarding the quality and adequacy of the IES and baseline risk assessment necessary to achieve the

purposes of the IES. The ATR team will review the IES report which includes supporting risk and stability analysis documentation. A QCC of the baseline risk estimate and supporting documentation will be performed under the leadership of the RMC. Therefore, the level of effort for each ATR reviewer is expected to be between 16 and 32 hours. DrChecks review software will be used to document reviewer comments, responses and associated resolutions. Comments should be limited to those that are required to ensure the adequacy of the product. The RMC in conjunction with the MSC, will prepare the charge to the reviewers, containing instructions regarding the objective of the review and the specific advice sought. A kick off meeting will be held with the ATR team to familiarize reviewers with the details of the project.

The four key parts of a review comment will normally include:

(1) The review concern – identify the product's information deficiency or incorrect application of policy, guidance, or procedures.

(2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not been properly followed.

(3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability.

(4) The probable specific action needed to resolve the concern – identify the action(s) that the PDT must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to then assess whether further specific concerns may exist. The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including

any vertical coordination, and lastly the agreed upon resolution. The ATR team will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution. Review Reports will be considered an integral part of the ATR documentation and shall also:

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

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

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

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

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

10. Review Plan Points of Contact

Name/Title	Organization	Email/Phone
Jean DesJarlais / District Project Manager	**CENWW-PM-PPM**	**Jean.j.desjarlais@usace.army.mil / 509-527-7292**
Kevin Crum / District Quality Manager	**CENWW-EC-C**	**Kevin.e.crum@usace.army.mil / 509-527-7557**
Tom Bishop / Review Manager	**CEIWR-RMC**	**Thomas.w.bishop@usace.army.mil / 303-963-4556**

ATTACHMENT 1

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[sm].

SIGNATURE

Name Date

ATR Team Leader

Office Symbol/Company

SIGNATURE

Jean DesJarlais Date

Project Manager (home district)

CENWW-PM-PPM

SIGNATURE

Name Date

Architect Engineer Project Manager[1]

Company, location

SIGNATURE

Nathan Snorteland Date

CEIWR-RMC

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 Date

Chief, Engineering Division (home district)

Office Symbol

SIGNATURE

Name Date

Dam Safety Officer[2] (home district)

Office Symbol

[1] Only needed if some portion of the ATR was contracted

[2] Only needed if different from the Chief, Engineering Division.

ATTACHMENT 2: TEAM ROSTERS

Walla Walla District PDT

NWW Dam Safety Officer
NWW Dam Safety Program Manager
Mill Creek Diversion Dam IES Project Manager
Chief Design Branch
Chief Structural Design
Chief Geotechnical (and Geology)
Chief Mechanical
Chief General Engineering
Chief Hydrology and Hydraulics
Chief Cost Branch
Chief Planning Division (and Economists)
Chief Operations Division
Mill Creek Operations Manager
Geotechnical Engineer, NWW Lead
Electrical Engineer

Structural Engineer	[redacted]
Hydrologic Engineer	[redacted]
Economist	[redacted]

RMC Risk Cadre

Cadre Lead	[redacted]
Project Manager	[redacted]
Geotech	[redacted]
Mechanical	TBD
Electrical	TBD
Economics	TBD
Hydraulics	[redacted]

Vertical Team

NWW Dam Safety Program Manager	[redacted]
NWW Dam Safety Officer	[redacted]
NWD Dam Safety Program Manager	[redacted]
NWD Dam Safety Officer	[redacted]
HQUSACE Special Assistant for Dam and Levee Safety	[redacted]
HQUSACE Dam Safety Program Manager	[redacted]
RMC Advisor	[redacted]
RMC Review Manager	[redacted]
RMC Chief (Western Division)	[redacted]
RMC Director	[redacted]

District Quality Control (DQC) Team

Engineering Geologist	TBD
Geotechnical Engineer	TBD

Hydrologic Engineer	TBD
Structural Engineer	TBD
Mechanical Engineer	TBD
Cost Engineer	TBD
Economics	[redacted]
Operations	TBD

Agency technical Review (ATR) Team

ATR Lead	TBD
Engineering Geologist	TBD
Geotechnical Engineer	TBD
Hydrologic Engineer	TBD
Water Management	[redacted]
Structural Engineer	TBD
Mechanical Engineer	TBD
Cost Engineer	TBD
Economics	TBD
Operations	TBD