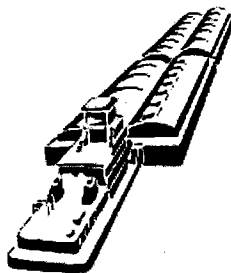


# Upper Mississippi River - Illinois Waterway System Navigation Study

---



## Quality Control Plan



**US Army Corps  
of Engineers**

**Revised DRAFT  
14 March 2003  
(Original release Dec. 1997)**

Rock Island District  
St. Louis District  
St. Paul District

*Encl. 3*

## QUALITY CONTROL PLAN

**PROJECT:** Upper Mississippi River -Illinois Waterway System Navigation Study

**LOCATION:** Illinois, Iowa, Minnesota, Missouri, Wisconsin

**PRODUCTS:** Enclosure A provides an updated listing of the various study related publications that have completed the QA/QC process as well as those that are still in development.

**\*\*NOTE\*\*** – This enclosure is still being updated from the previously released, 1997 version. For the purposes of this review DRAFT, we have included the 1997 version as a point of reference.

**1. PROJECT DESCRIPTION.** The project consists of preparing the above-referenced products as part of the Upper Mississippi River-Illinois Waterway System Navigation Feasibility Study. The restructured study is addressing the navigation efficiency needs of the UMR-IWW system, the ongoing cumulative effects of navigation, and the ecosystem restoration needs with a goal of attaining an environmentally sustainable navigation system. The study area extends from Minneapolis-St. Paul downstream to the confluence of the Ohio River and the Illinois Waterway from Grafton, Illinois, upstream through the Thomas J. O'Brien Lock in Chicago.

### 2. REFERENCES.

- a. Approved QCP dtd 19 December 1997.
- b. CELMV-ET Memorandum, dated 23 Sep 95, SUBJECT: Lower Mississippi Valley Division, Directorate of Engineering and Technical Services, Quality Control and Quality Assurance Guidance.
- c. EC 1165-2-203, dated 15 Oct 1996, *Technical and Policy Compliance Review*.

**3. PURPOSE.** The purpose of this Quality Control Plan (QCP) is to describe the procedures that will be employed during the execution of the Upper Mississippi River -Illinois Waterway System Navigation Feasibility Study to ensure compliance with technical and policy requirements.

**4. PHILOSOPHY.** All products described in the original Project Study Plan (PSP) and subsequent revisions, will be managed, planned, and executed in such a way that will provide the maximum level of quality commensurate to the level of committed resources. All individuals involved in product development are responsible to ensure quality in their efforts. In turn, specific individuals will lead the quality development of specific efforts/products, and an individual which is independent of the product development will lead the Independent Technical Review (ITR) of a specific product.

**5. DEFINITIONS.** Enclosure B contains definitions for application to this QCP.

**6. EXECUTION.** This QCP establishes the framework from which to accomplish the Quality Control and ITR for the Navigation Study. Specific ITR team members will be identified and secured for near term interim products and lead ITR team members for the draft Feasibility Report. Enclosure A will be updated by the Study Manager (or designee) when ITR members are identified and reviews completed, and then distributed to the Study Manager point-of-

contacts at CEMVP and CEMVS for coordination with their management and to the Project Manager. In addition, a more simplified comprehensive report listing, organized by study workgroups, will be created to serve as a quick reference to the study products and their respective author(s) and reviewers (Enclosure C).

**\*\*NOTE\*\*** – A draft version of Enclosure C is provided, still requires PF, HP, and PI listings.

## 7. RESPONSIBILITIES.

- a. **Project Manager (PM)** is responsible for managing the project parameters (cost, budget, schedule, scope and quality), as well as interfacing with those involved in the project process (customers, functional elements, government, and nongovernmental entities). For the Navigation Study, the PM efforts are further defined in the Project Study Plan (PSP).
- b. **Study Manager (SM)** For the purposes of the Navigation Study, the technical manager for study management/plan formulation is also termed "study manager" (SM), and the technical managers responsibilities are further defined in item 7(c).
- c. **Technical Managers (TM)** are responsible for individual product content and quality. The TM's are the point of contact between their respective division and the PM on all matters concerning execution of the project. During execution, the TM shall closely monitor progress of, the work and costs against the PMP. The TM shall advise the PM and SM of the status on a periodic basis, and of all significant developments as they arise.
- d. **Designer/Researcher/Developer (DRD)** is responsible for complying with the Quality Control Plan. The DRD should execute the work diligently and aggressively, and promptly advise the TM of all significant developments adversely impacting the quality, schedule, or cost of a product.
- e. **Independent Technical Review team members** are to perform their review of a product for compliance with established policy principles and procedures, and utilization of justified and valid assumptions. This effort includes review of: assumptions; methods; procedures; alternatives evaluated; the appropriateness of data used; and, reasonableness of results.

**8. FEASIBILITY STUDY TEAM.** The study is a multi-division and multi-district effort. The lead team members are as follows:

<u>Title</u>	<u>Office</u>	<u>Point-of-Contact</u>
Project Manager	CEMVR-PM	Denny Lundberg, P. E.
Study Manager	CEMVR-PM-M	Scott Whitney
Economics Technical Manager	CEMVN-PM-A	Richard Manguno
Engineering Technical Manager	CEMVS-ED-D	Bob Hughey, P. E.
Environmental Technical Manager	CEMVR-PM-A	Kenneth Barr
Public Involvement Technical Manager	CEMVP-PM-E	Kevin Bluhm
Division Representative	CEMVD-PM-E	Greg Ruff, P. E.
Headquarters Representative	CECW-PD	Richard Worthington

Numerous team members are involved from CEMVR, CEMVP, CEMVS, CEMVN, CEMVD, USACE HQ, USACE-ERDC, USACE-Institute for Water Resources (IWR), U. S. Geological Survey – Upper Mississippi Environmental Science Center (USGS-UMESC) and various other contract services.

**9. QUALITY CONTROL.** The QCP is a living document, and not intended to limit the inclusion of other appropriate measures to ensure the maximum level of quality.

- a. Approach.** Our approach is to educate all work elements on their requirement via detailed scopes of work, work initiation meetings, interim reports, in-progress review meetings, or any other appropriate means. Our approach includes involving decision-makers, State and Federal agencies, non-governmental organizations, the public, and industry as early as possible for all products. Work will be monitored by the applicable TM and/or their designee, to ensure that efforts are being followed in accordance with the intent of the PMP and scopes of work. As part of the quality control review, each listed product will be provided to the respective coordination committee for coordination and review.

In view of the study schedule and the numerous interim products that are part of this Navigation Study, the internal product review, coordination committee review, and ITR of a specific product may be performed concurrently for some products. Comment resolution will be accomplished in accordance with Item 10c. Furthermore, the study will progress utilizing draft information in consideration of maintaining the scheduled study completion date. Interim products receiving an ITR will not receive a subsequent review as part of the ITR for the draft Feasibility Report and Draft EIS.

The Feasibility Report and EIS will be completed in accordance with Engineering Regulation (ER) 1105-2-10028 December 1990, and subsequent guidance.

- b. Coordination.** Numerous coordination mechanisms have been established for the Navigation Study to ensure information exchange and input in developing quality products. These mechanisms include: In-Progress Reviews (IPR's); work group meetings; Governor's Liaison Committee; Coordinating Committees for economics, engineering, environmental, and public involvement; Modeling Integration & Simulation Team (MIST); Engineering Steering Committee; technical managers' meetings; technical review conferences; Federal Principals Task Force (National), Regional Federal Task Force, Regional Navigation Design Team (RNDDT); Planning & Plan Formulation Steering Committee; public meetings and outreach; Alternative Formulation Briefing; and Feasibility Review Conference. These quality control mechanisms are further described in Enclosure 2 (Item c. Meetings). Through in-progress reviews, monthly management (PM, SM, and TM) meetings, respective coordination committees, and Public Involvement Workshops, each product or its results will be coordinated with or presented to the largest audience possible. This high level of coordination will result in a quality Feasibility Report and EIS that will be acceptable to the public and all decision-makers.
- c. Structure.** CEMVR-PM is responsible for the overall quality control for the Feasibility Study. The SM and TMs are responsible for implementing and monitoring the quality of their respective work in accordance with this QCP. The ITR leader for a specific product will be responsible for review oversight and administration, and coordination with management for resolution of outstanding comments and management certification of ITR completion.
- d. Scheduling.** Work shall be scheduled such that there will be adequate time to complete independent technical reviews and product finalization to keep the study on schedule. These

time frames have been included in the Navigation Study's PSP. All review and comment resolution time frames will be scheduled in such a way that they are not on the study's critical path. In instances where this is not possible, appropriate coordination efforts will be implemented to ensure that all comments are properly addressed and resolved as early as possible. The schedule will be reviewed and updated with the TM 's on a regular basis to ensure that all reviews occur within assigned durations.

- e. **Cost Control.** It is imperative that each product be developed within budget. So that all costs are not expended prior to review and comment resolution time frames, separate budgets will be established for review and comment resolution. Budgets will be analyzed regularly for all activities to ensure that work is being accomplished within budget.
- f. **Communications.** The study team managers will meet and coordinate monthly, or as necessary, to ensure that all issues are identified and resolved early. All communication media will be utilized. These media will include: face-to-face meetings, telephone, e-mail, memorandums for record, facsimiles, Internet WEB, internal mail, video teleconferences, etc.

**10. REVIEW PROCESS.** The two components are internal review and independent technical review. Internal review involves traditional District review by the product production team, management, and the appropriate coordination elements for this study. The independent technical review is a technical and policy review administered by the District(s) and performed by qualified individuals not involved with the product production. The ITR is typically performed subsequent to the internal review, but may be performed concurrently in consideration of the study schedule.

- a. **Internal Product Review.** Technical adequacy and quality shall be obtained through internal reviews by the study team members, work group technical managers, technical supervisors, and vendors. Numerous interim products leading to the Feasibility Report are reviewed for technical and policy adequacy by qualified staff. The internal review will be documented through written comments and responses. Review documentation for each product will include comment and response forms at Enclosures D and E. Utilization of these forms will ensure consistency among all work groups. A review of a first draft of an interim product will be performed by the primary study team prior to concurrent review of the subsequent draft by an ITR team and committee/agency reviewers. However, an ITR may occur concurrently in view of maintaining the overall Feasibility Study schedule.

Through product development, the effort receives peer review and input for ongoing quality control by various staff or group members as listed under the "Quality Control Review Team" column of Enclosure A. These individuals represent a tremendous source of technical expertise and diversity to the quality control process for the Navigation Study. The draft product is submitted by the lead study team member for the specific product to involved staff and their immediate management for review. Members of other work groups provide review as required based on document content (i.e., economic, engineering, and environmental information, plan formulation considerations, other). Comments are provided in writing to the lead study team member within 14 calendar days (unless otherwise specified) through use of Enclosure 4. The lead study team member will provide the comments within 5 calendar days to appropriate individuals for their response (on Enclosure D) within 14 calendar days.

Responses to comments are coordinated by the lead study team member with the reviewer and documented under a separate comment response form (Enclosure E) and supplemental documentation, as necessary, to bring closure within 10 calendar days. If resolution cannot be achieved among these parties, the matter will be resolved in accordance with Item 10c.

**b. Independent Technical Review (ITR).**

- (1) **General.** An ITR team shall consist of members not directly involved in the specific product development/production. Team size and membership shall be consistent with the risk, size, cost, complexity, and type of product. For the multiple products of this feasibility study, the ITR team and corresponding disciplines will vary according to the technical review needs of the specific product. A compliance checklist (Enclosure F) will be used for ITR certification. All comments resulting from the review process will be resolved and documented for incorporation into the review package to accompany the file copy of the product. The applicable TM, SM, and PM will receive copies of ITR correspondence to stay informed of the process status.
- (2) **Applicable Documents and Interim Products.** Products that have completed or are still to receive an ITR are identified in Enclosure A. The review documentation will be consolidated and maintained by CEMVR-PM branch per Item 10d. With the ongoing quality control and ITR for the numerous interim products of the Navigation Study, reviews will be completed at the time the draft interim products are completed and not delayed until the end of the study as part of the draft feasibility report quality control review and ITR. The completed interim products will not receive a second review as part of the review process for the draft feasibility report. Reference to and discussion of interim products can occur as needed in ITR's of subsequent study products.
- (3) **ITR Team Selection.** The Study Management Work Group will facilitate the overall process. An ITR team leader will be selected to administer the ITR process for a specific product (As appropriate, one individual can be selected leader for multiple products). The ITR team leader selection will be approved by the PM with specific product oversight being provided by the SM. ITR team membership will be coordinated with CEMVD, as appropriate, as part of their QA responsibilities. The ITR team leader is responsible to develop a list of proposed ITR team members, a short scope of work for the ITR review (Enclosure F), and to coordinate the package with the Study Manager and appropriate Project Management and/or Engineering Division Chief(s) for approval in consideration of available resources. The ITR team leader will then proceed with securing the ITR team and administering the review process for the specific product. The number of team members and disciplines will vary depending upon the product. ITR members will be notified of the product development schedule and their responsibility to perform the technical review (and policy compliance for certain products) and participate in the certification process for the specific product for technical (and policy, as applicable) adequacy in their area of expertise.
- (4) **Independent Technical Review (ITR).** The ITR Team leader will contact prospective reviewers to solicit their participation and describe the purpose and process for the ITR. Once they have consented to perform the ITR, the Team leader will secure the necessary contractual arrangements (if applicable) through the development of a product(s) specific

Scope of Work (SOW) (Enclosure F). The SOW will minimally provide each reviewer with the following information: (1) a brief project description; (2) specific objective; (3) materials being provided the reviewer; (4) work required from reviewer; (5) schedule; and (6) Technical and administrative POCs. The review package, comprised of the SOW, Draft Report, and an electronic copy of the reviewer comment form, will be sent to each reviewer to initiate the review process. ITR members will provide comments to the lead study team member within 14 calendar days (unless otherwise specified) of receipt of the review package by their organization. In reviewing the study products, the ITR team members will focus on the following considerations: assumptions; methods; procedures; alternatives evaluated; appropriateness of data, and reasonableness of results. Upon receipt of comments, the ITR team leader will provide comments within 5 calendar days to the appropriate study team members/author(s) for their response within 14 calendar days. Enclosure E is the comment response to be used for all products. Upon examination of the responses to their comments, the ITR members must return a signed Reviewer Certification Letter (Enclosure G). Comments that cannot be resolved by these parties will follow the process in Paragraph 10.c. The ITR process for a product is complete upon certification of the compliance checklist (Enclosure H) by the appropriate District(s) Technical Division Chief(s).

**c. Issue Resolution.** All comments or issues resulting from the reviews will be resolved between the product principle, in coordination with the work group Technical Manager, and reviewer. The product principle will facilitate this resolution for the internal review, and the ITR leader for the specific product will facilitate resolution of the ITR comments. If resolution to the mutual satisfaction of these parties cannot be achieved, the District Planning and/or Engineering Division Chief(s) with specific product oversight will resolve the matter. Should the ITR member not accept the resolution, then the ITR member may opt to sign the Reviewer Certification letter noting the exception of the outstanding issue (option paragraph two). The lead team member will document the outstanding comment, and coordinate a resolution rationale with the appropriate Planning and/or Engineering Division Chief(s) who will then sign the compliance checklist to document their acceptance of the resolution and completion of the ITR process. For specific interim products, the District(s) Planning or Engineering Division Chief(s) with specific product lead/oversight will be responsible for certifying that the ITR is complete. For the draft Feasibility Report and Draft EIS, the ITR certification will be signed by the three districts in accordance with Reference 1(b) with final signature by CEMVR-DPM.

**d. File Retention.** The master file of draft and final reports and review documentation will be retained by Rock Island District for future reference as well as use during quality assurance visits. The Study Manager will coordinate with the product leaders and conduct an After Action Review (AAR) with the representative Technical Managers and ITR leader to help ensure that repeat comments or trends can be addressed early on for the benefit of the study team.

**11. REVIEW OBJECTIVES.** Review members will focus on assumptions, methods, procedures, alternatives evaluated, appropriateness of data, and reasonableness of results. The particular aspects of the products, for which the reviewers and ITR teams should concentrate their focus, include criteria from the following technical and policy sources:

- a. *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, 10 March 1983.
- b. Engineer Regulation 1105-2-100, *Guidance for Conducting Civil Works Planning Studies*, 28 December 1990.
- c. Engineer Regulation 111 O-2-1150, *Engineering and Design, Engineering and Design for Civil Works Projects*, 31 March 1994.
- d. CELMV-ET Memorandum, dated 23 Sep 95, SUBJECT: Lower Mississippi Valley Division, Directorate of Engineering and Technical Services, Quality Control and Quality Assurance Guidance.
- e. Engineering Circular 1165-2-203, *Technical and Policy Compliance Review*, 15 October 1996.
- f. Applicable Army Regulations (AR's), Engineer Circulars (EC's), Engineer Manuals (EM's), Engineer Pamphlets (EP's), Engineer Regulations (ER's), Technical Letters (TL's), and Policy Guidance Letters (PGL's).

**12. COMMUNICATION.** Product team members and reviewers are responsible for reading all appropriate written documents related to the project and process, as related to their area of expertise. Regularly scheduled project meetings are held during the project life and can be used as a forum for discussing issues related to product quality. Project team members and reviewers are responsible for attending project meetings as appropriate. At all times throughout the project life, individual team members and reviewers are responsible for communicating issues, concerns and problems, especially related to the project schedule and changing costs, to the affected team members, reviewers and managers (project, study, technical work group) as soon as they are recognized, so that appropriate solutions can be developed in a timely fashion.



**APPROVED FOR SUBMITTAL TO CEMVD:**

\_\_\_\_\_  
Scott D. Whitney.  
Study Manager/Asst. Regional Project Manager  
Rock Island District

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
Denny Lundberg, P.E.  
Regional Project Manager  
Rock Island District

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
Gary Loss, P.E.  
Chief, Planning, Programs and Project Management Division  
Rock Island District

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
Joe Kellett, P.E.  
Chief, Planning, Programs and Project Management Division  
St. Louis District

\_\_\_\_\_  
(Date)

\_\_\_\_\_  
Judith DesHarnais, P.E.  
Chief, Planning, Programs and Project Management Division  
St. Paul District

\_\_\_\_\_  
(Date)

**ENCLOSURE A - NAV STUDY REPORTS**

Work Group & Major Area/Objective		Product Description	Drafting		Review Period	Review Team (Office/Agency/Group)	Public Distrib. (Y/N)	Review Schedule	
			Office/Contractor					Initiate	Complete
STUDY TEAM:									
Scoping Package:		Scoping Package		CENVR-PD-W, CELMS-PD-AE	30 days	TM's, CENCR-PD Mgmt.	Y		
Plan Formulation:		General Assessment of Small-Scale Measures Report - Phase I	Sverdrup Corporation		60 days	Engr., Econ., Env., & S.M. WG's	Y		
		Small-Scale Measures Secondary Screening Report	SM, WG		60 days	Engr., Econ., Env., & S.M. WG's	Y		
		Large-Scale Improvements, Initial Site Screening Report - Phase I	CENCR-ED-DM		60 days	Engr., Econ., Env., & S.M. WG's, RNDT	Y		
		Large-Scale Measures Secondary Screening Report	S.M. WG		60 days	Engr., Econ., Env., & S.M. WG's	Y		
Draft Feasibility Report:		Main Report	SM, WG		60 days	ITR	Y		
		Economics Appendix	Econ. WG		60 days	ITR	Y		
		Engineering Appendix	Engr. WG		60 days	ITR	Y		
		Environmental Appendix	Env. WG		60 days	ITR	Y		
		Public Involvement Appendix	P.I. WG		60 days	ITR	Y		
		Historic Properties Appendix	H.P. Team		60 days	ITR	Y		
		Draft Environmental Impact Statement (EIS)	Env. WG		60 days	ITR	Y		
Final Feasibility Report:		Main Report	SM, WG		30 days	ITR	Y		
		Economics Appendix	Econ. WG		30 days	ITR	Y		
		Engineering Appendix	Engr. WG		30 days	ITR	Y		
		Environmental Appendix	Env. WG		30 days	ITR	Y		
		Public Involvement Appendix	PIWG		30 days	ITR	Y		
		Historic Properties Appendix	H.P. Team		30 days	ITR	Y		
		Environmental Impact Statement (EIS)	Env. WG		30 days	ITR	Y		
Detailed Site-Specific Report:									
		Main Report	SM, WG		30 days	ITR	Y		
		Economics Appendix	Econ. WG		30 days	ITR	Y		
		Engineering Appendix	Engr. WG		30 days	ITR	Y		
		Environmental Appendix	Env. WG		30 days	ITR	Y		
		Public Involvement Appendix	P.I. WG		30 days	ITR	Y		
		Historic Properties Appendix	H.P. Team		30 days	ITR	Y		
		Supplemental EIS	Env. WG		30 days	ITR	Y		
Project Management Plan:		Project Management Plan (PMP)	Project Management, TM's		60 days	ITR	Y		
ECONOMICS:									
Preliminary Work:		Refinement of General Equilibrium Model	CELMS-PD-E		60 days	CELMS-PD-E	N		

## ENCLOSURE A - NAV STUDY REPORTS

Work Group & Major Area/Objective	Product Description	Drafting Office/Contractor	Review Period	Review Team (Office/Agency/Group)	Public Distrib. (Y/N)	Review Schedule	
						Initiate	Complete
	Refinement of WEEM Model	CELMS-PD-E, CENCR-PD-C	60 days	Econ. WG, ECC	N		
	Refinement of Delay Model	CELMS-PD-E, CENCR-PD-C	60 days	Econ. WG, ECC	N		
	Creation of Open Pass Model	CENCR-PD-C	60 days	Econ. WG, ECC	N		
	Employment Data Report	Econ. WG	30 days	Econ. WG, ECC	N		
Existing Conditions:	Existing Transportation Costs Report (includes Origins & Destinations)	TVA	60 days	Econ. WG, TVA	N		
	Existing Delay Cost Estimates	CELMS-PD-E	60 days	Econ. WG	N		
	Water Compelled Rate Study	TVA	60 days	Econ. WG, TVA	N		
Without Project:	Unconstrained Traffic Projections Report Review of Historic and projected Grain Traffic on the Upper Mississippi River and Illinois Waterway, An Addendum, July, 2002	Jack Faucett & Associates Jack Faucett & Associates	30 days 30 days	Econ. WG, MWR Econ. WG, MWR	Y Y		
	Future Delay Costs Estimates	CELMS-PD-E	30 days	Econ. WG	N		
	Relative Modal Cost Shifts Report	TVA	30 days	Econ. WG, ECC	N		
	Economic Scenarios and Resulting Demand for Barge Transportation, Final Report, May 2002	Sparks Companies Inc.	30 days	Econ. WG, ECC	Y		
	Economic Scenarios and Resulting Demand for Barge Transportation, Supplemental Scenario: Less Favorable, May 2002	Sparks Companies Inc.	30 days	Econ. WG, ECC	Y		
Regional Econ. Development	Regional Economic Development Model	MWR	60 days	Econ. WG, ECC, Peer	Y		
Support for:	Environmental:						
	Accident & Hazardous Spills Report	TRAC	60 days	Econ. WG, Env. WG	Y		
	Emissions & Fuel Use Report	CENCR-PD-C	60 days	Econ. WG, Env. WG	Y		
	Recreation Traffic Report	CENCS-PE-M	60 days	Econ. WG, Env. WG	Y		
	Commercial/Recreation Navigation Conflicts Rpt.	CENCS-PE-M	60 days	Econ. WG, Env. WG	Y		
ENGINEERING:							
Objective 1:	Baseline Operation & Maint. Reference Volumes	CEMVS-PE	60 days	Engr. WG	N		
(Baseline O&M)	Baseline Operation & Maintenance Report	CEMVR-ED	60 days	Engr. WG, Econ. WG, S.M. WG	N		

## ENCLOSURE A - NAV STUDY REPORTS

Work Group & Major Area/Objective	Product Description	Drafting Office/Contractor	Review Period	Review Team (Office/Agency/Group)	Public Distrib. (Y/N)	Review Schedule	
						Initiate	Complete
Objective 2: (Reliability)	Structural Models Report	CEMVS-PE	30 days	Engr. WG, Econ. WG	N		
	Mechanical & Electrical Models Report	CEMVR-ED-DG	30 days	Engr. WG, Econ. WG	N		
	Hydraulic (Channel) Reliability Report	CEMVR-ED-H	30 days	Engr. WG, Econ. WG	N		
	Geotechnical & Materials Models Report	ERDC	30 days	Engr. WG, Econ. WG	N		
	O'Brien Lock Replacement Report	CEMVR-ED	30 days	Engr. WG, Econ. WG	N		
	Reliability Analysis Report: (Overall Objective 2 Report)	CEMVR-ED	60 days	Engr. WG, Econ. WG, S.M. WG, RNDT	N		
Objective 3: (Small-Scale Measures)	Improved Tow Haulage Equipment Report	Sverdrup Corporation	30 days	Engr., Econ. Env., & S.M. WG's	N		
	Universal Couplers & Crew Training Report	Sverdrup Corporation	30 days	Engr., Econ. Env., & S.M. WG's	N		
	Guidewalls & Mooring Facilities Report	Engr. WG	30 days	Engr., Econ. Env., & S.M. WG's	N		
	Non-Structural Measures Report	Econ. WG, Engr. WG	60 days	Engr., Econ. Env., & S.M. WG's	N		
	Structural Measures Report	CEMVR-ED-DM	60 days	Engr., Econ. Env., & S.M. WG's, RNDT	N		
	Small-Scale Measures to Reduce Congestion	CEMVR-ED-DM	60 days	Engr., Econ. Env., & S.M. WG's, RNDT	N		
Objective 4: (Large-Scale Measures)	Obj. 4A: Conceptual Lock Design Report	Engr. WG	30 days	Engr. WG, RNDT	Y		
	Obj. 4B: Large-Scale Improvements, Site Adaptation Report - Phase 2	CEMVR-ED-D, CELMS-ED-D	60 days	Engr., Econ. Env., & S.M. WG's, RNDT	N		
	Obj. 4C: Hydraulic Impacts of New Lock Constr.	CEMVR-ED-H	60 days	Engr. WG, CEWES	N		
	Large-Scale Measures to Reduce Congestion	CEMVR-ED	60 days	Engr., Econ. Env., & S.M. WG's, RNDT	N		
Objective 5: (General Navigation Modeling)	Navigation Modeling Report	ERDC	60 days	Engr. WG, CEWES	N		
<b>ENVIRONMENTAL:</b>							
Site-Specific:	System Site-Specific Evaluation Report	Enr. WG, NBS	60 days	Enr. WG, NECC, ITR	Y		
Fish:	Study Plan	SENES Oak Ridge, Inc.	60 days	Enr. WG, NECC, ITR	N		
	Entrainment Effects on Early Life Stages Report	EMTC, NHS	60 days	Enr. WG, NECC, ITR	Y		
	Entrainment Mortality of Small Fishes Report	EMTC, NHS	60 days	Enr. WG, NECC, ITR	Y		
	Entrainment Mortality of Large Fishes Report	EMTC, NHS	60 days	Enr. WG, NECC, ITR	Y		
	Effects Not Directly Related to Mortality Report	EMTC, SIUC	60 days	Enr. WG, NECC, ITR	Y		
Plants:	Study Plan	EMTC, CEWES	60 days	Enr. WG, NECC, ITR	N		
	Resistance of Vegetation to Uprooting & Fragmentation Report (Waves)	CEWES, EMTC	60 days	Enr. WG, NECC, ITR	Y		

## ENCLOSURE A - NAV STUDY REPORTS

Work Group & Major Area/Objective	Product Description	Drafting Office/Contractor	Review Period	Review Team (Office/Agency/Group)	Public Distrib. (Y/N)	Review Schedule	
						Initiate	Complete
	Establishment & Success of Reproductive Propagules Report	CEWES, EMTC	60 days	Env. WG, NECC, ITR	Y		
	Effects of Sediment Resuspension & Deposition on Plant Growth Report	CEWES, EMTC	60 days	Env. WG, NECC, ITR	Y		
Recreation:	Study Plan	CENCS-PE-M	60 days	Env. WG, NECC, ITR	N		
	Recreation Traffic Forecast Report (for pools)	EMTC, CENCS-PE-M, Contractor	60 days	Env. WG, NECC, ITR	Y		
	Wave Wake Model Report	CEWES	60 days	Env. WG, NECC, ITR	Y		
	Sediment Resuspension Model Report	CEWES	60 days	Env. WG, NECC, ITR	Y		
Mussels:	Study Plan	CEWES	30 days	Env. WG, NECC, ITR	N		
	Effects of Velocity on Mussels	CEWES	60 days	Env. WG, NECC, ITR	Y		
	Effects of Sediment on Mussels	CEWES	60 days	Env. WG, NECC, ITR	Y		
	Effects of Pulsed Physical Disturbances on Freshwater Mussels Rpt.	CEWES	60 days	Env. WG, NECC, ITR	Y		
Bank Erosion:	Study Plan	CENCR-ED-H	60 days	Env. WG, NECC, ITR	N		
	Literature Search Summary Document	CEWES	60 days	Env. WG, NECC, ITR	Y		
	Baseline Conditions Analysis Report	EMTC, ISWS	60 days	Env. WG, NECC, ITR	Y		
Math Modeling:	Numerical Modeling Study Plan	CEWES-HV-C	60 days	Env. WG, NECC, ITR	N		
	Hydraulic Classification of Aquatic Areas (Data)	EMTC, CEWES	60 days	Env. WG, NECC, ITR	N		
	Detailed Two-Dimensional Hydrodynamic Model for Mitigation & Physical Forces Analyses Report	CEWES	60 days	Env. WG, NECC, ITR	N		
	Sediment Transport Models for Long-Term and Short-Term Simulations	CEWES	60 days	Env. WG, NECC, ITR	N		
	Integrated Navigation Effects Modeling Framework	CEWES	60 days	Env. WG, NECC, ITR	N		
Physical Modeling:	Study Plan	Env. WG, Peers	60 days	Env. WG, NECC, ITR	N		
	Physical Effects Math Model Suitability Report	CEWES	60 days	Env. WG, NECC, ITR	N		
NEPA:	Draft Environmental Impact Statement (DEIS)	Environ. Work Group	ongoing	Env. WG, NECC, ITR	Y		
Historic Properties:	Lock & Dam Site-Specific Assessment Reports:						
	Illinois Waterway: - Structures Report	Illinois State Museum	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
	- Archeology Report	Illinois State Museum	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
	Upper Miss. River: - Structures Report	Contractor	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
	- Archeology Report	Bear Creek Archeology	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		

## ENCLOSURE A - NAV STUDY REPORTS

Work Group & Major Area/Objective	Product Description	Drafting Office/Contractor	Review Period	Review Team (Office/Agency/Group)	Public Distrib. (Y/N)	Review Schedule	
						Initiate	Complete
Geomorphology Model: - Rock Island District Boundary Report/Maps - St. Paul District Boundary Report/Maps Archeological System Impact Reports: - Illinois Waterway - Upper Miss. River - St. Paul District - Rock Island District - St. Louis District Programmatic Memorandum of Agreement		Bear Creek Archeology	4 months	H.P. Team	Y		
		Bear Creek Archeology	4 months	H.P. Team	Y		
		Contractor	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
		GLARC	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
		Bear Creek Archeology	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
<b>PUBLIC INVOLVEMENT:</b> Newsletters: Media Kit Public Outreach Meeting Products: Study Initiation: - Responses to Questions & Comments Mailing Problems and Opportunities: - Content Analysis Report Identification of Alternative Measures: - After-Action Report Formulation of Alternative Plans: - After-Action Report Roundtable Conference: - After-Action Report Study Conclusion: - After-Action Report		Contractor	4 months	H.P. Team, SHPO	Y (Exec. Sum. Only)		
		H.P. Team	3 months	Office of Counsel, SHPO, ACHP	N		
		PIWG, Schneider Comm.	2 weeks	TM's, CENCR-PA, CENCR-PD Mgmt	Y		
		PIWG, CEMVR-PA	30 days	TM's, CENCR-PD Mgmt	Y		
		PIWG, TM's	30 days	TM's, CENCR Mgmt	Y		
<b>LEGEND:</b> ACHP: Advisory Council on Historic Preservation EMTC: Environmental Management Technical Center, National Biological Service GLARC: Great Lakes Archeological Research Center NBS: National Biological Service, Fort Collins, CO NHS: Illinois Natural History Survey ISWS: Illinois State Water Survey WFR: Institute for Water Resources, Corps of Engineers		PMCL	30 days	TM's	Y		
		PIWG	2 weeks	TM's, Meeting Team	Y		
		PIWG	2 weeks	TM's, Meeting Team	Y		
		PIWG	2 weeks	TM's, Meeting Team	Y		
		PIWG	2 weeks	TM's, Meeting Team	Y		
		PMCL: Planning and Management Consultants, Ltd.		H.P. Team: Historic Properties Team			
		SHPO: State Historic Preservation Officer		ITR: Independent Technical Review Team			
		SIUC: Southern Illinois University - Carbondale		NECC: Navigation Environmental Coord. Committee			
		TRAC: Transportation Research and Analysis Center, Inc.		Peers: Field Experts Involved in Study Plan Development			
		Engr. WG: Engineering Work Group		P.I. WG: Public Involvement Work Group			
		ECC: Economics Coordination Committee		RNTD: Regional Navigation Design Team			
		Econ. WG: Economics Work Group		S.M. WG: Study/Project Management Work Group			
		Env. WG: Environmental Work Group		TM's: Technical Managers, including S.M. WG			

## ENCLOSURE B

### DEFINITIONS

**a. Decision Document.** Any draft or final report prepared for the purpose of:

- (1) Obtaining project implementation authorization or modification (reauthorization), Washington-level approval or Division-level approval as delegated, such as: Reconnaissance Reports, Feasibility Reports, General and Limited Reevaluation Reports, Post-Authorization Change Reports, Detailed Project Reports, Major Rehabilitation Evaluation Reports, Section 22 Reports, Dam Safety Reports, and Dredged Material Management Plans; or,
- (2) Obtaining the commitment of Federal funds for project implementation (i. e., Local Cooperation Agreements/Project Cooperation Agreements with the latest supporting document); or,
- (3) Obtaining approval to send and/or receive money as a result of entering into agreements with other agencies or entities (i. e., water supply contracts, credit agreements, Memorandums of Agreement, Feasibility Cost Sharing Agreements, and other similar documents).

**b. Independent Technical Review (ITR).** A review by a qualified team, not affiliated with the development of the project/product, for the purpose of confirming the proper application of clearly established criteria, regulations, laws, codes, principles, and professional procedures to ensure a quality product. Technical review also confirms the utilization of clearly justified and valid assumptions that are in accordance with policy.

**c. Meetings.**

- (1) *In-Progress Reviews.* An IPR can be requested by anyone at anytime. An IPR can be conducted in the form of face-to-face meetings, video teleconferences, or telephone conferences. The purposes of the IPR's are to report study progress, explore concerns, resolve critical issues, and receive guidance and direction. Participants include HQUSACE, CEMVD, CEMVR, CEMVS, and CEMVP.
- (2) *Work Group Meetings.* The five work groups representing the disciplines executing this feasibility study are: Economics, Engineering, Environmental (including Historic Properties), Public Involvement, and Study/Project Management. These work groups meet with their members and interact with other work groups throughout the study to discuss issues, maintain study focus, and review efforts for technical and policy adequacy. Work groups consist of staff from CEMVR, CEMVS, CEMVP, and primary support from CEMVD, CEERDC, and USGS-UMESC.
- (3) *Governors' Liaison Committee Meetings.* These meetings occur quarterly with membership from the Corps of Engineers and one representative from each of the five study area states. The forums allow for coordination, discussion of issues and concerns, and an exchange of information, ideas, and views for consideration during the study process.
- (4) *Coordination Committee Meetings.* Four committees have been established to contribute to ongoing coordination, input, review, and quality control to the feasibility study effort. These committees are: Economics Coordinating Committee; Engineering Coordinating Committee; Navigation Environmental Coordination Committee; and Public Involvement Coordinating Committee. The committees primarily consist of technical expertise from the Corps of Engineers, and other Federal and State agencies. The Economics and Environmental committees meet quarterly. The Engineering and Public Involvement committees meet during appropriate product development periods.

- (5) *Modeling Integration & Simulation Team (MIST)*. MIST meetings offer a forum for the environmental efforts to receive technical oversight and coordination among the various studies, to review environmental study plans and scopes of work to ensure integration, as well as to develop assessment scenarios, develop model interfaces, and apply various outputs and assist in application of models and the modeling system. Membership includes environmental staff from the three districts, CEERDC and UMESC staff, ecological risk assessment and biological response modeling contractors, and representation from the Economics and Study Management Work Groups.
  - (6) *Engineering Steering Committee Meetings*. The steering committee provides engineering technical management, input, and oversight for the engineering components of the study. The steering committee consists of designated Engineering Division branch chiefs and engineering technical managers from the three districts.
  - (7) *Technical Managers' Meetings*. Regularly scheduled meetings attended by work group technical managers, PM, Division representative(s), and other appropriate staff to discuss ongoing study efforts, products, progress, needs, issues, fiscal and schedule management, and other related study matters.
  - (8) *Technical Review Conference (TRC)*. These TRC meetings are held to discuss and establish engineering product development criteria and strategies, and for checkpoint and draft output and product reviews. Meeting participants include staff and management from the three districts, CENCD, CELMV, HQUSACE, and laboratories and technical contractors, as necessary.
  - (9) *Regional Navigation Design Team (RNDT)*. RNDT meetings are held to discuss and establish engineering product development for navigation projects on a regional basis which includes the Upper Mississippi River and Ohio River systems. Meeting participants include CEMVR, CELRD, CELRH, CELRL, CELRN, CELRP, and HQUSACE.
  - (10) *Alternative Formulation Briefing (AFB)*. CECW-PW Planning Guidance Letter 95-02, 25 July 1995, established procedures for Alternative Formulation Briefings. This process encourages earlier Washington-level participation in plan formulation and to discuss the proposed project and resolve policy issues. AFB participation will include HQUSACE, division, and district staff, with encouraged participation by appropriate Federal and State agencies and navigation industry representation.
  - (11) *Feasibility Review Conference (FRC)*. As detailed in CECW-PM Memorandum, dated 12 July 1991, subject: Feasibility Review Conference (FRC) Supplemental Guidance, the FRC provides a forum to facilitate Division-and Washington level review prior to the publication of the draft feasibility report. In addition, the FRC seeks Washington-level commitment to a potential project and to minimize the chance for significant modifications to a final report recommendation. Attendance will include functional elements from the districts, divisions, and Headquarters, appropriate Federal and State agency representatives, and navigation industry representation.
- d. **Project Management Plan (PMP)**. A living document used to define expected outcomes and guide project execution and control. Primary uses of the PMP are to facilitate communication among participants, assign responsibilities, define assumptions, and document decisions. Establishes baseline plans for scope, cost, schedule, and quality objectives against which performance can be measured, and to adjust these plans as actual performance dictates. The project delivery team (study team) develops the PMP.
- e. **Project Manager (PM)**. The individual responsible for managing the project parameters (cost, budget, schedule, scope and quality), as well as interfacing with those involved in the



project process (customers, functional elements, government, and nongovernmental entities). For the Navigation Study, the PM efforts are further defined in the PMP.

- f. **Quality.** Conformance to properly developed requirements.
- g. **Quality Assurance (QA).** A process that provides oversight of quality control and involves the verification of the quality control process.
- h. **Quality Control (QC).** The process employed to ensure the performance of a task that meets the agreed-upon requirements of the customer and appropriate technical and policy criteria, on schedule and within budget.
- i. **Quality Control Plan (QCP).** A written plan prepared by the District for each product/project which describes the procedures that will be employed to ensure compliance with all technical and policy requirements. A QCP is to be part of the Project Management Plan (PMP).
- j. **Quality Verification.** The process by which each technical manager verifies that the QCP is being applied and functioning, and that the desired service or product is being realized.
- k. **Technical Manager (TM).** Primary team members from the technical elements who are responsible for the content and quality of technical products. For the Navigation Study, TM's have been established for economics, engineering, environmental, public involvement, and study management/plan formulation. For the purposes of the Navigation Study, the technical manager for study management/plan formulation is also termed "study manager" (SM), and the TM's efforts are further defined in the Project Management P

**ENCLOSURE C - Report QA/QC Summary**

ENVIRONMENTAL Nav Study Documents Released for Public Distribution					
ENV No.	TITLE	Primary Author	ITR Reviewers		NECC Review
1	Flume study investigations of the direct impacts of navigation-generated waves on submersed aquatic macrophytes in the Upper Miss. River.	STEWART	MADSEN	SKOGERBOE	YES
2	Rates of net fine sediment accumulation in selected backwater types of Pool 8, Upper Mississippi River.	ROGALA	SOONG		YES
3	Physical Forces Study, Kampsville, Illinois Waterway	MAYNORD	NA - Data Report		YES
4	Prediction of vessel-generated waves with reference to vessels common to the Upper Miss. River System.	SORENSEN	NA - Literature Review		YES
5	Physical Forces Study, Clarks Ferry, Upper Mississippi River	MAYNORD	NA - Data Report		YES
6	Upper Mississippi River navigation and sedimentation field data collection summary report.	PRATT	NA - Data Report		YES
7	Site Specific Habitat Assessment	FRISTIK	BURKS	SCHROEDER	YES
8	Bank Erosion Field Survey Report of the Upper Mississippi River and Illinois Waterway	ISWS/IHR	HAGERTY	MELLEMA	YES
9	Identification of Potential Commercial Navigation Related Bank Erosion Sites	LANDWEHR	CHAMBERLAIN	MAYNORD	YES
10	A two-dimensional flow model for vessel-generated currents	STOCKSTILL	BERNARD	HUDDLESTON	YES
11	Application of UNET Model to Vessel Drawdown in Backwaters of Navigation Channels	MAYNORD	MARTIN	SOONG	YES
12	Effects of Waves on the Early Growth of <i>Vallisneria americana</i>	DOYLE	KIMBER	BEST	YES
13	Data collection methodology for bathymetry and sediment data used in navigation feasibility studies	ROGALA	AIDALA	GAUGUSH	YES
14	Comparison of NAVEFF Model to Field Return Velocity and Drawdown Data	MAYNORD	MARTIN	SOONG	YES
15	Wave height predictive techniques for commercial tows on the UMRS	MARTIN	MAYNORD	KIMBER	YES
16	Ecological risk assessment of the effects of the incremental increases of commercial navigation traffic on larval fish entrainment	BARTELL	JENSEN	CADA	YES
17	Ecological risk assessment of the effects of the incremental increase of commercial navigation traffic on submerged aquatic plants.	BARTELL	KIMBER	CARPENTER	YES
18	Effects of Rec. Boating: Traffic Allocation and Forecasting Model	CARLSON	WARD		YES
19	Physical Forces Near Commercial Tows	MAYNORD	MARTIN	GARCIA	YES
20	Wave-Induced Sediment Resuspension Near the Shorelines of Upper Mississippi River Study	PARCHURE	MEHTA	GAILANI	YES
21	Water velocities behind wing dams (Flume Study)	MAYNORD	DAVINROY	POKREFKE	YES
22	Stranding potential of young fishes.	ADAMS	CADA	THOMERSON	YES
23	Hull shear mortality of eggs and larval fish.	MAYNORD	CADA	GARCIA	YES
24	Shear stress on the hull of shallow draft barges.	MAYNORD	MARTIN	GARCIA	YES
25	Inflow zone and discharge through propeller jets.	MAYNORD	MARTIN	GARCIA	YES
26	Computer model for transport of larvae between barge tows in rivers.	HOLLEY	MAYNORD	SCHNEIDER	YES
27	Definitions, Boundary Delineations, and Measurements of Attributes for the Hydraulic Classification of Aquatic Areas	NICKELS	POKREFKE	GAUGUSH	YES
	Hydraulic Classification Analysis (Appendix to Classification Definitions Report)	POKREFKE	BIEDENHARN	GAUGUSH	YES
28	Effects of Sediment Resuspension and Deposition on Plant Growth and Reproduction	DOYLE	KIMBER	BEST	YES
29	Abundance of fishes in the navigation channels of the Mississippi and Illinois Rivers, and estimation of entrainment mortality caused by towboats	GUTREUTER	SCHAEFFER	VANWINKLE	YES
30	Effects of propeller entrainment on riverine ichthyoplankton.	KILLGORE	CADA	VANWINKLE	YES
31	Physiological effects on freshwater mussels (Family: Unionidae) of intermittent exposure to physical effects of navigation traffic.	PAYNE	DOWNING	WATTERS	YES
32	Determination of the fate of fish displaced from low-velocity habitats at low temperatures.	SHEEHAN	THOMERSON	SCHAEFFER	YES
33	Determination of the tolerance of fish in low-velocity habitats to hydraulic disturbance at low temperatures.	SHEEHAN	THOMERSON	SCHAEFFER	YES
34	Effects of pressure changes induced by commercial navigation traffic on mortality of fish early life stages.	KEEVIN	CADA	MAYNORD	YES
35	Mortality of fish early life stages resulting from hull shear associated with passage of commercial navigation traffic.	KEEVIN	CADA	VANWINKLE	YES
36	Mortality of animals due to highway and railroad collisions	SCHAEFFER	GEHRT		YES
37	Entrainment and Transport of Sediments by Towboats in the Upper Mississippi River and Illinois Waterway, Numerical Model Study	COPELAND	HOLLEY	HALL	YES
38	Ecological Models and Approach to Risk Assessment	BARTELL	JENSEN	CADA	YES
			KIMBER	CARPENTER	
			DOWNING		

**ENCLOSURE C - Report QA/QC Summary**

39	Ecological risk assessment of the effects of the incremental increases of commercial navigation traffic on mussels	BARTELL	DOWNING		YES
40	Cumulative Effects Study	WEST	POKREFKE	BEST	YES
			BAYLEY	THORTON	
41	Tow Induced Backwater and Secondary Channel Sedimentation, Upper Mississippi River System	POKREFKE	SOONG	LANDWEHR	YES
Reprint	Users Manual for Application of HIVEL Hydrodynamic Model on the Upper Mississippi River	STOCKSTILL	BERNARD	HUDDLESTON	NA

**ECONOMIC Nav Study Documents Released for Public Distribution**

ECON No.	TITLE	Primary Author	ITR Reviewers		ECC Review
1	Transportation Rate Analysis: Upper Mississippi River Navigation Study	TVA	ECC		YES
2	Rail Rates and the Availability of Water Transportation: The Upper Mississippi Basin	TVA	ECC		YES
3	Waterway Traffic Forecasts for the Upper Mississippi River Basin	FAUCETT	ECC, HURT		YES
4	The Incremental Cost of Transportation Capacity in Freight Railroad	MARSHALL UNIVERSITY	ECC		YES
5	A Spatial Price Equilibrium Based Navigation System NED Model for the Upper Mississippi River Illinois Waterway Navigation System Feasibility Study	USACE-MVS	ECC		YES
6	Calculating the Value of Upper Mississippi River Navigation: Methodological Review and Recommendations	MARSHALL UNIVERSITY	ECC		
7	Commercial/Recreational Navigation Conflicts	USACE-MVR	ECC		YES
8	Regional Impacts of Nine Construction Options for Infrastructure Modernization on the Upper Mississippi River & Illinois Waterway	TVA	ECC		
9	Analysis of Environmental and Social Impacts for Ten Alternative Plans for Improvement to the Upper Mississippi River-Illinois Waterway System	EARTH TECH and TOLLIVER	TVA	BURTON	YES
10	Fleet Analysis	USACE-MVR	ESTERGARD		YES
11	Upper Mississippi River and Illinois Waterway Navigation Study, Economic Scenarios and Resulting Demand for Barge Transportation, Final Report, May	SPARKS CORP.	URBANCHUCK	RAY	YES
12	Review of Historic and projected Grain Traffic on the Upper Mississippi river and Illinois Waterway: An Addendum	MARMORSTEIN	HOMMES		YES
			BITZAN	TOLLIVER	

**ENGINEERING Nav Study Documents Released for Public Distribution**

ENG No.	TITLE	Primary Author	ITR Reviewers	
1	Engineering Objective 1 Report, Baseline Operation and Maintenance	ENGINEERING WORK GROUP	Eng. ITR Review Team*	
2	System Significant Components, Engineering Reliability Models Report	"	Eng. ITR Review Team*	
3	General Assessment of Small-Scale Measures	"	Eng. ITR Review Team*	
4	Improved Tow Haulage Equipment	"	Eng. ITR Review Team*	
5	Universal Couplers and Crew Training	"	Eng. ITR Review Team*	
6	Detailed Assessment of Small-Scale Measures	"	Eng. ITR Review Team*	
7	Summary of Small-Scale Measures Screening	"	Eng. ITR Review Team*	
8	Large-Scale Measures of Reducing Traffic Congestion, Conceptual Lock Designs	"	Eng. ITR Review Team*	
9	Large-Scale Measures of Reducing Traffic Congestion, Hydraulic Impacts of New Lock Construction	"	Eng. ITR Review Team*	
10	Large-Scale Measures of Reducing Traffic Congestion, Location Screening	"	Eng. ITR Review Team*	
11	Structural Small Scale Measures Mississippi River Locks 22 & 25: Extended Guidewalls, Powered Traveling Kevels, Approach Channel Improvements	"	Schwenk	
12	Navigation Conditions at Lock and Dam 25, Mississippi River	"	ERDC	
13	Navigation Conditions at Lock and Dam 22, Mississippi River	WOOLEY	ERDC	

\*Engineering ITR Team: Leicht, Polizzano, Keathley, Miller, Napolitano, Riley, Conolly, Nites, Buccini, Durett.

**ENCLOSURE D – COMMENT FORM**

<b>Project Review Comments</b>			<b>Type:</b> <b>Concept:</b> <b>Final:</b> <b>Other:</b>	<b>Date:</b>
<b>Project:</b> <b>Location:</b>			<b>Reviewer:</b> <b>Name:</b> <b>Organization:</b>	
<b>Comment Number</b>	<b>Drawing/ Number</b>	<b>Page/ Space</b>	<b>COMMENT</b>	
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				
31.				
32.				
33.				

CENCR FORM 44-E, 1 Oct. 98 (Revised)

**ENCLOSURE E – COMMENT RESPONSE FORM**

<b>Project Comment Response Form</b>			Type: Concept:      Final: Other:	<b>Date:</b>
			<b>Project:</b> <b>Location:</b>	
Comment Number	Drawing/ Number	Page/ Space	<b>COMMENT RESPONSE</b>	
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				
31.				
32.				
33.				

CENCR FORM 44-E, 1 Oct. 98 (Revised)

## **ENCLOSURE F – ITR SCOPE OF WORK**

### **Independent Technical Review**

#### **Upper Mississippi River / Illinois Waterway Navigation Study**

1. **Project Description:** The UMR-IWW Navigation Study is currently investigating the feasibility of capacity expansion for commercial navigation on the Upper Mississippi and Illinois Rivers. This six year study will require environmental studies to evaluate potential systemic and site-specific impacts due to increased traffic and specific construction activities, respectively. As part of the overall study Quality Control Plan (QCP), independent technical reviews (ITRs) will be conducted on various study reports. The general objective is to have a team, not specifically involved in a product's development, conduct a review of the assumptions, methods, procedures, alternatives evaluated, appropriateness of data, and reasonableness of results.
  
2. **Specific Objective:** Technical review of the following reports:
  - a.) "Ecological Models and Approach to Ecological Risk Assessments" by Bartell et al., 135 pp.
  - b.) "Ecological Risk Assessment of the Effects of the Incremental Increase of Commercial Navigation Traffic (Improvement Scenarios 2 and 3) on Freshwater Mussels in the Main Channel and Main Channel Borders" by Bartell et al., 109 pp. and Appd. 31 pp.

Reviewer should consider the objectives of the study, the approach used to conduct the analyses, the conclusions reached, and degree to which the objectives were met. The overall flow and structure of the report, as well as clarity of figures, tables, and appendices should also be reviewed.
  
3. **To Be Provided To the Reviewer:**
  - ? One copy of the Draft Reports.
  - ? Other supporting documentation or information as required.
  - ? Certification form (provided at appropriate time after comment/response process).
  
4. **Work Required From Reviewer:**
  - ? Review draft report and provide comments on the specified 'comment sheet' (Attachment 1, reviewer is responsible for making required copies).
  - ? Contact the appropriate POC in the event of questions or need for clarification.
  - ? Forward comments to the study team leader within the time frame specified below.
  - ? Review responses to comments and return signed 'response letter' (Attachment 2).
  
5. **Schedule:** Reviewer comments for this report will be provided to the **Study Team Leader** (see item 8a for name and address) within **30 calendar days of the receipt of the review package**. The study team leader will forward reviewer comments to the appropriate study team members to provide their response within 30 calendar days. The ITR process is considered complete when comments are satisfactorily resolved between the reviewers and the study team leader in coordination with the Navigation Study Environmental work group technical manager and Rock Island District Planning Division Chief.
  
6. **Reviewer:** Dr. John Downing, 2300 Red Oak Circle, Ames, IA 50014. Ph. (515) 294-2734
  
7. **Points of Contact:**

<b>(a) Study Team Leader:</b> Tom Keevin CEMVS-PD-A 1222 Spruce Street St. Louis, MO 63103-2833 Ph. (314) 331-8462 Fax: (314) 331-8806 E-mail: <a href="mailto:Thomas.M.Keevin@usace.army.mil">Thomas.M.Keevin@usace.army.mil</a>	<b>(b) ITR Coordinator:</b> Scott D. Whitney CEMVR-PD-E P.O. Box 2004, Clock Tower Bldg. Rock Island, IL 61204-2004 Phone: (309) 794-5386 Fax: (309) 794-5157 E-Mail: <a href="mailto:Scott.D.Whitney@usace.army.mil">Scott.D.Whitney@usace.army.mil</a>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## ENCLOSURE G – REVIEWER CERTIFICATION LETTER

Date

U.S. Army Corps of Engineers, Rock Island District  
Attn.: CEMVR-PM-M (Whitney)  
Clock Tower Building  
P.O. Box 2004  
Rock Island, Illinois 61204 -2004

Dear Mr. Loss:

I reference an E-mail from Scott D. Whitney (CEMVR -PM-M) dated July 5, 2000, which forwarded Bartell et al. (authors) responses to my comments on the interim products to the Upper Mississippi River – Illinois Waterway System Navigation Study titled, " *Ecological Risk Assessment of the Effects of the Incremental Increase of Commercial Navigation Traffic on Freshwater Mussels in the Main Channel and Main Channel Borders (Rpt. #32)* " and " *Ecological Models and Approach to Risk Assessment (16B)* ". My comments were made as part of the Independent Technical Review (ITR) team for this interim product.

---

### Option Paragraph One:

I have reviewed the Corps responses to my comments. I am satisfied that my comments will be adequately addressed if the final interim product is revised in accordance with the Corps responses. Therefore, I consider this interim product to be technically sound and look forward to receiving a final copy.

---

### Option Paragraph Two:

I have reviewed the Corps responses to my comments, and am satisfied with the responses with the exception of the following item(s):

...List item(s) of concern and brief reason/rationale...

I understand that the Corps will make a decision(s) on my concern(s) and finalize the interim product based on that decision(s). I look forward to receiving a final copy of the product.

---

Should you have any questions, please contact me at telephone number .

Sincerely,

## ENCLOSURE H – ITR CERTIFICATION

### UPPER MISSISSIPPI RIVER-ILLINOIS WATERWAY SYSTEM NAVIGATION STUDY

#### COMPLETION OF INDEPENDENT TECHNICAL REVIEW FOR INTERIM PRODUCT:

##### EXAMPLE:

**ENV Report 38** “*Ecological Models and Approach to Ecological Risk Assessment*” by Steve Bartell, Kym Rouse Campbell, Erin Miller, Shyam Nair, Elly Best, and David Schaeffer. (Rpt. # 16B)

Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project, as defined in the Quality Control Plan. During the independent technical review, compliance with established technical 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 of data obtained; and reasonableness of the results. The independent technical review was accomplished by:

- 1.) Alvin Jensen, PhD, Professor, Biologist, Univ. of MI, Ann Arbor, MI.
- 2.) Glen Cada, PhD, Biologist, Larval Fish Expert, ORNL, Oak Ridge, TN.
- 3.) Dr. Ann Kimber, PhD, P.E., Prairie Roots Consulting Ltd., Ames, IA.
- 4.) Dr. Steve Carpenter, Ph.D, University of Wisconsin Madison, Madison, WI
- 5.) John Downing, PhD, Professor of Aquatic Ecology, University of Iowa, Ames, IA.

#### CERTIFICATION OF INDEPENDENT TECHNICAL REVIEW:

Significant concerns and the explanation of the resolution are as follows: See attached comments and responses.

As noted above, all concerns resulting from independent technical review of the project have been considered.

---

(Signature)  
Gary L. Loss, P.E.  
Chief, Planning, Programs and  
Project Management Division

---

(Date)