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Regulation  
No. 1110-1-8168

30 April 2022

Engineering and Design  
POLICY, ROLES, AND RESPONSIBILITIES FOR THE INLAND NAVIGATION DESIGN  
CENTER MANDATORY CENTER OF EXPERTISE


1. Purpose. This engineer regulation (ER) establishes policy, roles, and responsibilities for the Inland Navigation Design Center (INDC) Mandatory Center of Expertise (MCX). Command and control is the responsibility of the Mississippi Valley Division (MVD). The overall leadership for the INDC MCX resides within Rock Island District (MVR). The Center has two geographic locations, one in MVR and one in Pittsburgh District (LRP).
2. Applicability. This regulation applies to U.S. Army Corps of Engineers (USACE) Commands responsible for Civil Works projects.
3. Distribution Statement. Approved for public release; distribution is unlimited.

FOR THE COMMANDER:

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A: Roles and Responsibilities Matrices

B: Lead Engineer Roles and Responsibilities

  
JOHN P. LLOYD  
COL, EN  
Chief of Staff

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\* This regulation supersedes ER 1110-1-8168, dated 29 July 2016.

1. Purpose. This ER establishes policy, roles, and responsibilities for the INDC MCX. Command and control is the responsibility of the MVD. The INDC MCX overall leadership resides in MVR. The Center has two geographic locations, one in MVR and one in LRP.
2. Applicability. This regulation applies to USACE Commands responsible for Civil Works projects.
3. Distribution Statement. Approved for public release; distribution is unlimited.
4. References.
  - a. ER 1110-1-8158, Corps-Wide Centers of Expertise Program.  
[https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-1-8158.pdf](https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-1-8158.pdf).
5. Records Management (Recordkeeping) Requirements. The records management requirement for all record numbers, associated forms, and reports required by this regulation are addressed in the Army Records Retention Schedule-Army (RRS-A). Detailed information for all related record numbers are located in Army Records Information Management System (ARIMS)/RRS-A at <https://www.arims.army.mil>. If any record numbers, forms, and reports are not current, addressed, and/or published correctly in ARIMS/RRS-A, see Department of the Army Pamphlet 25-403, Guide to Recordkeeping in the Army.
6. Background. In August 2007, the National Technical Competency Team was established to determine the technical competencies needed to meet future USACE needs, to analyze gaps in technical competency, and to make recommendations to enhance and maintain technical competency and professionalism. One recommendation was that USACE establish a design center for inland navigation projects: new designs, lock replacement designs, and major rehabilitations. Establishment of this center was approved by the USACE Command Council and directed by a 3 October 2012 memorandum from the Deputy Commanding General for Civil and Emergency Operations (DCG-CEO).
7. Guiding Principles. The mission of INDC is to provide engineering, design, analysis, and review services during planning/study, design, construction, and operation phases for new construction of navigation locks and/or dams,<sup>1</sup> major rehabilitation/major maintenance of inland navigation locks and dams, and standardization of lock and dam infrastructure and components. The INDC will promote quality design, and national consistency in design and technical competency. The following goals support this mission:

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<sup>1</sup> Work on navigation dams will be coordinated among the INDC MCX, the USACE Dam Safety Modification Mandatory Center of Expertise and its related Production Centers, and the Risk Management Center.

a. Goal 1. Develop, Maintain, and Strengthen Technical Competency.

(1) Lead a coordinated effort with major subordinate commands (MSC) and districts to develop, maintain, and strengthen technical competency within the engineering, design, and construction community for inland navigation.

(2) Consolidate existing technical expertise to facilitate efficient and effective delivery of specialized design and related engineering services for inland navigation projects, improve the quality of products, and provide a means for sustaining technical competence.

(3) Manage and lead the Inland Navigation Design Community of Practice (INDCoP).

(4) Collaborate and coordinate with national and international interests, such as U.S. Bureau of Reclamation, St. Lawrence Seaway, Tennessee Valley Authority, Rijkswaterstaat, Permanent International Association of Navigation Congresses (PIANC<sup>2</sup>) in the development of engineering standards and transfer of knowledge for inland navigation projects.

(5) Support research and update relevant USACE guidance documents.

b. Goal 2. Deliver Quality Products and Services.

(1) Integrate INDC resources into project delivery and study teams. As a member of the Project Delivery Team (PDT), collaborate with customers to ensure delivery of products and services that meet expectations.

(2) Conduct reviews following USACE regulations, policy, and guidance.

(3) Implement risk-informed approaches for design, analysis, and decision-making.

(4) Provide dedicated engineering and design services through INDC's leadership, subject matter experts, standardized processes, and centralized knowledge.

(5) Provide engineering support to USACE infrastructure strategy, management, and maintenance efforts. INDC will support USACE Headquarters (HQUSACE) in development of the USACE infrastructure and asset management investment strategies (for example, Capital Investment Strategy, Standardization) for inland navigation infrastructure.

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<sup>2</sup> PIANC – World Association for Waterborne Transport Infrastructure. Formerly named the Permanent International Association of Navigation Congresses.

c. Goal 3. Standardized lock and dam infrastructure and components.

(1) Lead a coordinated effort to provide common engineering and design services that result in common lock and dam infrastructure and components to reduce life-cycle costs and increase reliability, safety, and consistency while considering regional and local operational requirements.

(2) Promote the use of tested and proven composites, and other innovations, to reduce life-cycle operation and maintenance (O&M) costs.

8. Policy. USACE will use the INDC for engineering and design services to maintain quality, reliability, increase commonality of components and infrastructure (standardization), and cost effectiveness of inland navigation structures and components. MSCs, districts, laboratories, and Field Operating Activities are required to utilize INDC for mandatory functions and will coordinate with INDC prior to initiation of any inland navigation engineering and design work to determine the INDC involvement.

a. INDC will develop and revise, as necessary, national inland navigation policies affecting the engineering, design, rehabilitation, construction, and standardization of lock and dam infrastructure and components. INDC will provide support to HQUSACE to address issues elevated to HQUSACE.

b. MSCs will coordinate with INDC on the development of regional inland navigation policies affecting the engineering, design, rehabilitation, construction, and standardization of lock and dam infrastructure and components. Any regional inland navigation policies will be consistent and compliant with USACE policies and this engineering regulation.

c. The INDC is authorized to represent HQUSACE on technical committees related to inland navigation engineering, design, construction, and standardization of infrastructure and components.

9. Roles and Responsibilities.

a. Engineering and Design. INDC is the national mandatory center of expertise to provide engineering, technical direction, and design/analysis during planning, design, construction, and maintenance phases for inland navigation projects. INDC will integrate within project delivery teams to provide these services. The district will contact INDC prior to budget development, planning, design, or project initiation to determine the need and level of INDC involvement. During the project development and budgeting process, all proposed O&M work will be screened for opportunities to implement commonality and standardization by HQUSACE and assigned to Categories 2, 3, or 4 described below. The INDC level of involvement is based on the following categories of work:

(1) Category 1 – Mandatory INDC. This work is defined as engineering and design services for new locks; new navigation dams; major rehabilitation of existing navigation locks and dams; and lock and dam stability issues such as, but not limited to, dam pier and lock monolith stabilization, foundation issues, dewatering, and scour protection. The INDC is the designer of record; assigns and approves the lead engineer and key engineering staff; and provides engineering and design services. The INDC, in coordination with the home district, will assign the engineering members of the project delivery team, with technical staff identified as being qualified by the INDCoP.

(2) Category 2 – Commonality and Standardization. This work is defined as engineering and design/analysis services for implementing commonality and standardization of inland navigation lock and dam infrastructure and components. The MSC/home district, with the approval of the INDC, will assign the engineering members of the project delivery team with technical staff identified as being qualified by the INDCoP. The INDC will approve the lead engineer and key engineering staff.

(3) Category 3 – Significant O&M. This work is defined as engineering and design/analysis services for significant inland navigation lock and dam O&M projects that have low opportunity for standardization. The home district retains autonomy including overall leadership, management, budgeting, and operational management. The MSC/home district will assign the engineering members of the project delivery team with technical staff identified as being qualified by the INDCoP.

(4) Category 4 – Routine O&M. This work is generally defined as engineering and design/analysis services for routine O&M funded maintenance projects consistent with the National Programmatic Review Plan dated 20 December 2012. It is the MSC/home district's discretion to determine the level of INDC involvement.

(5) Excluded Work. The INDC is not responsible for the technical direction, oversight, and design/analysis during planning, design, and construction of painting, sidewalk, roads, utilities, buildings, channel maintenance dredging, bank protection, ports and harbors, and other work not located at lock and dam sites.

b. Execution.

(1) Technical staff identified as being qualified by the INDCoP will be used to deliver all inland navigation projects. MSC/home districts will prioritize inland navigation design work assignments for employees that are members of the INDCoP.

(2) Design charrettes with INDC involvement and concurrence on scope of design work is required for Categories 1, 2, and 3 work. Design charettes are strongly encouraged for Category 4 work to enhance preplanning efforts, to understand issues more fully, and to provide better scoping of projects.

(3) INDC and MSC/districts will seek opportunities to implement commonality on all projects.

(4) Architect-Engineer (A-E) Services. Prior to contracting services, INDC will seek qualified USACE technical staff to perform work. If necessary, INDC will use district, division, or its own national A-E contracts to execute work.

c. Design Guidance Related to Inland Navigation Design and Engineering. INDC will update, maintain, and develop new USACE guidance pertaining to the design, analysis, and engineering of inland navigation structures as funding permits.

d. Knowledge Management. INDC will identify, capture, organize, implement, share, and apply knowledge to USACE's inland navigation design mission. Knowledge management includes lessons learned; engineering and construction experience; standardized designs, policies, and guidance; technical advancements; INDCoP membership directory; research and development (R&D) outcomes; and other related intellectual assets.

e. The INDC Director is the INDCoP leader.

f. Lead Engineer. A Lead Engineer, technically qualified by INDCoP, will be assigned to all projects. The lead engineer for Category 1 projects will be an INDC employee assigned by the INDC Director. The lead engineer for Category 2 projects will be chosen by the MSC/home district and approved by INDC Director. The lead engineer for Category 3 and 4 work will be assigned by the MSC/home district.

g. Key Engineering Staff. The key engineering staff, technically qualified by INDCoP, for all Category 1 and 2 projects will be approved by the INDC Director in coordination with MSC/home district.

h. USACE Inland Navigation Infrastructure Management Strategies and Tools. INDC will support HQUSACE in the development of USACE infrastructure and asset management investment strategies (for example, Capital Investment Strategy, Commonality of Components, Standardization) for inland navigation infrastructure.

i. Technical Skill Development and Maintenance. INDC will strengthen and maintain USACE technical skills required for the engineering and execution of inland navigation lock and dam projects.

j. INDC will be USACE's primary point of contact for inland navigation engineering, design, construction, and commonality of components/standardization. INDC will manage relationships (such as Memorandums of Understanding) and convene as needed with appropriate directors/managers of other key centers and groups with inland navigation interests such as: Engineer Research and Development Center (ERDC); Institute for Water Resources; Risk Management Center; Planning Center of Expertise for Inland Navigation; Dam Safety Modification Mandatory Center of Expertise; Walla Walla Cost Engineering Center of Expertise; Asset Management Team; Welding and Metallurgy Technical Center of Expertise; and other organizations for the purpose of achieving coordinated advancement of inland navigation engineering.

k. International Support. INDC will support HQUSACE by providing services to, and by its participation in, international organizations (such as PIANC) in the field of inland navigation lock and dam engineering.

l. Research and Development (R&D). INDC will collaborate with ERDC to assist with aligning and developing its research areas within the inland navigation lock and dam engineering mission. INDC will assist ERDC with technical transfer from the lab to field application.

#### 10. Reviews.

a. Consistent with ER 1165-2-217, the INDC is the Review Management Organization (RMO) for inland navigation engineering and design products, implementation documents, or other work products. INDC will support the PCXIN in the review of feasibility studies by providing ATR reviewers for engineering and design products. INDC will ensure quality and comprehensive independent review following USACE regulations, policy, and guidance.

#### 11. Governance.

a. HQUSACE Proponent. The HQUSACE proponent for INDC is the Chief of Engineering and Construction, CECW-EC.

b. INDOC. The Inland Navigation Design Oversight Committee (INDOC) is a committee that provides oversight and guidance to INDC. The chairman is the HQUSACE Chief of the Civil Works Branch, CECW-CE, and the co-chairman is the HQUSACE Chief of the Navigation Branch, CECW-CO-D. Other members include HQUSACE approved MSC-level representatives from MVD, LRD, SAD, SPD, SWD, NAD, NWD, POD, and ERDC. The INDOC advises the HQUSACE Chief of Engineering and Construction and HQUSACE Chief of Operations and Regulatory on engineering issues related to inland navigation.

c. Command and Control. MVD is responsible for INDC and has command and control. INDC has geographic locations in MVR and LRP. The overall INDC leadership is in MVR. The INDC Director is located in MVR and the INDC Deputy Director is located in LRP.

12. Funding. INDC is a reimbursable organization. Funding for all INDC activities will be provided by the supported organization.

a. Category 1, 2, 3 and 4 Projects. The MSC/home district will provide project funds to INDC for all work.

b. HQUSACE will provide funding for national initiatives, non-project related activities, and policy/guidance/criteria updates. Some examples are, but not limited to:

(1) Providing engineering support to HQUSACE on infrastructure strategy, management, and maintenance efforts such as Capital Investment Strategy, asset management program, national standardization program, and policy issue resolution.

(2) Development of inland navigation guidance and policy updates.

(3) INDCoP leadership, management, and increasing USACE workforce inland navigation engineering technical competency.

(4) Inland navigation engineering and design knowledge management including lessons learned and best practices.

(5) Assisting ERDC in the development of models and studies, and transferring/applying ERDC research, new technologies, and new materials to inland navigation projects.

13. Exceptions. All exceptions to this Engineer Regulation must be approved by the HQUSACE Chief of Engineering and Construction, or their delegated authority.



Appendix A  
Roles and Responsibilities Matrices

This appendix contains the USACE INDC MCX Roles and Responsibilities. Mandatory requirements are noted. Tables A-1 and A-2 list role and organizational symbols. Tables A-3 to A-5 list specific roles and responsibilities.

Table A-1  
Role Symbols

<b>Symbol</b>	<b>Meaning</b>
P	Primary: Primarily executes the role/task.
O	Oversight: Oversees execution of the role/task.
S	Support: This organization is expected to be involved in supporting this activity on a regular basis. (It is noted that all the organizations will support every function as necessary, but the “S” indicates the expectation of a more routine and higher level of support.)
M	Mandatory: This is a mandatory role/function for this organization due to the advent of INDC. Other mandatory requirements that are located within other USACE guidance are generally not repeated herein. For mandatory items, USACE organizations must use and INDC must maintain this capability/function.
A	Approval: Approval authority for this item/function.

Table A-2  
Organizational Symbols

<b>Symbol</b>	<b>Meaning</b>
HQ	Headquarters, U.S. Army Corps of Engineers
MSC	Major Subordinate Commands (Regions/Divisions)
District	Local Geographic Corps of Engineers District, Home District
INDOC	Inland Navigation Design Oversight Committee
INDC	Inland Navigation Design Center Mandatory Center of Expertise
RMC	Risk Management Center
ERDC	Engineering Research and Development Center
PCXIN	Planning Center of Expertise for Inland Navigation
Cost	Walla Walla Cost Engineering Center of Expertise
DSM	Dam Safety Modification Mandatory Center of Expertise

Table A-3  
 Inland Navigation Design Center Overall Program Management

Responsibilities	District	INDC	MSC	INDOC	HQ	RMC	DSM	ERDC	PCXIN
Periodic Review/Approval of INDC		S	O	O	P				
Select/Appoint/Approve INDC Director and Deputy Director		S	M	O	O				
Develop and Sustain National SMEs in Inland Navigation Design	S	M	O	O	O				
Quality Management for INDC Products		M	O	O	O				
Knowledge Management	S	M	O	O	O	S			
Lead the Inland Navigation Design CoP	S	M	O	O	M			S	
Dam Safety Program	S	S	O		S	M	P		S
Budget Development for the INDC	S	M	O	O	O				
Policies/Procedures	S	P	O	O	M	S <sup>1</sup>			
Initiate and Manage Strategic Partnerships		M	O	O	O	S	S	S	S
Infrastructure Management and Investment Prioritization Efforts	S	S	S	S	P	S	S	S	S
Asset Management	S	S	P		O	S			S
R&D		S		O	P/S			P	
Maintain National A-E Contracts for Navigation Engineering	S	M	S	O					
Project Risk Communication	P	S	O	O	O	S	S		

Table A-4  
 Category 1 Work with INDC as Designer of Record

Responsibilities <sup>3</sup>	District	INDC	MSC	INDOC	HQ	RMC	ERDC	PCXIN	Cost
<b>FEASIBILITY STUDY FOR NEW LOCKS &amp; DAMS</b>									
Main Report	P	S	A	O	A			S	
Lead Engineer and Engineering Team <sup>4</sup>	S	M/A		O					
Engineering Alternatives Analysis	S	M						S	
Engineering Appendix	S	M							
Cost Estimating Appendix									
<i>MCACES</i>	S	P							O
<i>Cost Schedule Risk Analysis (CSRA)</i>	S	P							P
Value Management	P	S	O		O				O
Quality Management									
<i>Project Review Plan</i>	P	S	A					O	
<i>Design Quality Control (DQC)</i>	S	P	O						
<i>Agency Technical Review (ATR)</i>	S	S	O					P	S
<i>Independent External Peer Review (IEPR)</i>	S	S						P	
<b>MAJOR REHABILITATION EVALUATION REPORTS</b>									
Main Report	P	S	A	O	A			S	
Lead Engineer and Engineering Team <sup>4</sup>	S	M/A		O					
Engineering Appendix									
<i>Engineering and Reliability</i>	S/P	M				S		S	
<i>Alternative Strategies</i>	S/P	M				S		S	
<i>Consequences</i>	S/P	M				S		S	
<i>Cost Estimating Appendix</i>									
<i>MCACES</i>	S	M							O
<i>CSRA</i>	S	M							P
Value Management	P	S	O	O					O
Quality Management									
<i>Project Review Plan</i> <sup>5</sup>	S	M	A					S	
<i>DQC</i>	S	M	O					S	
<i>ATR</i>	S	M	O					S	S
Knowledge Management	S	M						S	
<b>DESIGN</b>									

<sup>3</sup> The risk assessment, study, design, repair, and construction activities for navigation dams will be coordinated among the RMC, DSM MCX, and INDC MCX to determine roles and responsibilities

<sup>4</sup> The lead engineer and engineering team will be technical certified by INDCoP.

<sup>5</sup> INDC endorsement of the review plan is required prior to MSC approval. INDC will support the home district in development of the review plan.

<b>Responsibilities<sup>3</sup></b>	<b>District</b>	<b>INDC</b>	<b>MSC</b>	<b>INDOC</b>	<b>HQ</b>	<b>RMC</b>	<b>ERDC</b>	<b>PCXIN</b>	<b>Cost</b>
Design Charrette	S	M	O	O					S
DDR	S	M	O				S		S
Designer of Record Documentation	S	M							
Lead Engineer and Engineering Team <sup>4</sup>	S	M/A		O					
Special Studies	S	M	O	O					
Plans and Specs	S	M	O	O					
Current Working Estimate	S	M							O
Independent Government Estimate	S	M							
Engineering Considerations and Instructions to Field Personnel (ECIFP)	S	M							
Value Management	P	S	O		O				S
Quality Management									
<i>Project Review Plan<sup>4</sup></i>	P	M/S	A			S			
<i>DOC</i>	S	M	O						S
<i>ATR</i>	S	M	O						S
<i>Safety Assurance Review (SAR)</i>	S	S	O			P			
<i>Biddability, Constructability, Operability, Environmental, &amp; Sustainability (BCOES)</i>	P	S	O						
Knowledge Management	S	M							
Contracting									
<i>Acquisition Strategy</i>	P	S							
<i>Proposal Evaluation</i>	P	S							
<i>Advertise and Award</i>	P	S							
<b>CONSTRUCTION</b>									
Lead Engineer and Engineering Team <sup>4</sup>	S	M/A		O					
Engineering During Construction (EDC)	S	P							
Special Studies	S/P	M	O	O					
Quality Assurance (QA)	P	S							
Construction Documents	P	S							
Engineering Documents	S	P							
O&M Manuals	S	P	O						
SAR	S	S	O			P			

Table A-5  
Category 2 Commonality / Standardization Projects

Responsibilities	District	INDC MCX	MSC	INDOC	HQ	RMC	ERDC	PCXIN	COST MCX
<b>DESIGN</b>									
Design Charrette	S	P	O						
DDR	P	S	O						
Lead Engineer and Engineering Team <sup>4</sup>	P	A	O						
Plans and Specs <sup>6</sup>	P	P	O	O					
Special Studies	S	P	O	O					
Cost Engineering									
<i>Current Working Estimate</i>	P	S							O
<i>Independent Government Estimate<sup>6</sup></i>	P	S							O
ECIFP	P	S							
Value Management	P	S	O						
Quality Management									
<i>Project Review Plan<sup>7</sup></i>	P	M/S	A						
<i>DQC</i>	P	S	O						
<i>ATR</i>	S	M	O						
<i>BCOES</i>	P	S							
Knowledge Management <sup>8</sup>	S	M							
Contracting									
<i>Acquisition Strategy</i>	P	S	O						
<i>Proposal Evaluation</i>	P	S	O						
<i>Advertise and Award</i>	P	S	O						
<b>CONSTRUCTION</b>									
Lead Engineer and Engineering Team <sup>4</sup>	P	A							
EDC	P	S							
Special Studies	P	S/P	O	O					
Contract Administration	P	S							
QA	P	S							
Construction Documents	P	S							
Engineering Documents	P	S							
O&M Manuals	P	S							

<sup>6</sup> The plans and specification and cost estimate will have joint district E&C and INDC signature.

<sup>7</sup> INDC endorsement of the review plan is required prior to MSC approval. INDC will support the home district in development of the review plan.

<sup>8</sup> Knowledge Management is listed as a Mandatory role of the INDC as it greatly contributes to increasing technical competency, knowledge, and promotes standardized designs

Table A-6  
 Category 3 Significant O&M projects

Responsibilities	District	INDC MCX	MSC	INDOC	HQ	RMC	ERDC	PCXIN	COST MCX
<b>DESIGN</b>									
Design Charrette	P	S	O						
DDR	P	S	O						
Lead Engineer and Engineering Team <sup>4</sup>	P	S							
Plans and Specs	P	S	O	O					
Special Studies	P	S	O	O					
Cost Engineering									
<i>Current Working Estimate</i>	P	S							O
<i>Independent Government Estimate</i>	P	S							O
Engineering Considerations and	P	S							
Value Management	P	S	O						
Quality Management									
<i>Project Review Plan</i> <sup>7</sup>	P	M/S	A						
<i>DQC</i>	P	S	O						
<i>ATR</i>	S	M	O						
<i>BCOES</i>	P	S							
Knowledge Management <sup>8</sup>	S	M							
Contracting									
<i>Acquisition Strategy</i>	P	S	O						
<i>Proposal Evaluation</i>	P	S	O						
<i>Advertise and Award</i>	P	S	O						
<b>CONSTRUCTION</b>									
Lead Engineer and Engineering Team <sup>4</sup>	P	S							
EDC	P	S							
Special Studies	S	P	O						
Contract Administration	P	S							
QA	P	S							
Construction Documents	P	S							
Engineering Documents	P	S							
O&M Manuals	P	S							

Table A-7  
 Category 4 Routine O&M projects

Responsibilities	District	INDC MCX	MSC	INDOC	HQ	RMC	ERDC	PCXIN	COST MCX
<b>DESIGN</b>									
Design Charrette	P	S	O						
DDR	P	S	O						
Lead Engineer and Engineering Team <sup>4</sup>	P	S							
Plans and Specs	P	S	O	O					
Special Studies	P	S	O	O					
Cost Engineering									
<i>Current Working Estimate</i>	P	S							O
<i>Independent Government Estimate</i>	P	S							O
Engineering Considerations and	P	S							
Value Management	P	S	O						
Quality Management									
<i>Project Review Plan</i> <sup>9</sup>	P	S	A						
<i>DQC</i>	P	S	O						
<i>BCOES</i>	P	S							
Knowledge Management <sup>8</sup>	S	M							
Contracting									
<i>Acquisition Strategy</i>	P	S	O						
<i>Proposal Evaluation</i>	P	S	O						
<i>Advertise and Award</i>	P	S	O						
<b>CONSTRUCTION</b>									
Lead Engineer and Engineering Team <sup>4</sup>	P	S							
EDC	P	S							
Special Studies	P	S	O	O					
Contract Administration	P	S							
QA	P	S							
Construction Documents	P	S							
Engineering Documents	P	S							
O&M Manuals	P	S							

<sup>9</sup> If a project in Category 4 requires an ATR, the project should be reclassified in Category 3.

## Appendix B Lead Engineer Roles and Responsibilities

The Lead Engineer duties include, but are not limited to the following:

- a. Leading the technical development of the study, design, and plans and specifications for the project. Providing the oversight, control, and responsibility for the technical development of all engineering products produced and for engineering support during construction. Serving as the technical point of contact with the home district Engineering PDT members for the coordination of project development and product reviews.
- b. Coordinating with the resource providers to establish the engineering team members who are competent and capable personnel are resourced to the project.
- c. Working with the Project Manager to develop the project schedules and funding requirements.
- d. Coordinating with the cost estimating team during all project phases.
- e. Leading a design charrette meeting before the design start to review and refine project scope and design intent.
- f. Providing engineering and design support to the resident construction staff during construction.
- g. Reviewing changes in field conditions to evaluate impact on the design.
- h. Preparing design and construction lessons learned.