

U. S. Army Corps of Engineers
Inland Marine Transportation System
Improvement Report

Appendix II

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This is Appendix II to the BRR Improvement Report. Note that Part A starts on page A-i; however, the pages internal to the Baseline Requirements Document are independently numbered starting with an unnumbered cover page. This facilitates extracting the Baseline Requirements Document from this Appendix.

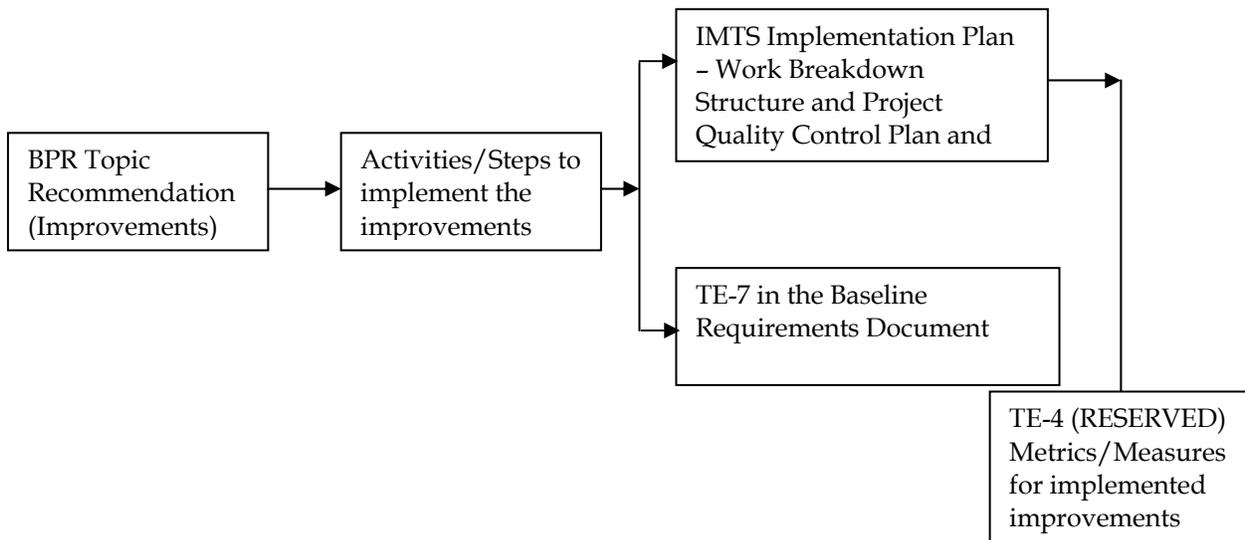
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PART A – BASELINE REQUIREMENTS DOCUMENT

This part augments Section II, paragraph 4.2 of the Improvement Report. The Baseline Requirements Document serves as the baseline against which improvements will be applied and measured.

The IMTS Baseline Requirements Document recognizes that the Navigation System is composed of multiple river systems, including river lock structures, dam structures, and channels, that must work as a system to optimize the waterways for commercial transportation. The Baseline Requirements Document describes the functions that must be performed to operate and maintain the Navigation locks and dams.

There are two Technical Exhibits (TEs) in the Baseline Requirements Document that tie to the improvements: TE-4 (RESERVED) and TE-7. The following depicts this tie:



The following explains this tie:

The BPR Topic Findings and Recommendations (Part B of this appendix) addresses the implementation of the recommendations (improvements) including activities/steps, schedule, the relationship of the improvements to the Baseline Requirements Document, and Quality Assurance (during the implementation phase).

Information from the Findings and Recommendations in each BPR Topic Findings (i.e. activities/steps, schedule and QA) are incorporated into the IMTS Implementation Plan (see Appendix III). The Work Breakdown Structure (WBS) in the plan incorporates the activities/steps necessary to implement the improvements. The

Project Quality Control Plan and Objective in the plan incorporates the QA and pertains to the implementation phase.

TE-7 in the Baseline Requirements Document presents the expected benefits from implementing the improvements. Once the improvements are implemented the related measurements/metrics will be incorporated into TE-4 which is currently reserved for that purpose.

The pages in the Baseline Requirements Document are numbered so that it can be extracted and stand alone.

**INLAND MARINE TRANSPORTATION
SYSTEM**

BASELINE REQUIREMENTS DOCUMENT

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WORK STATEMENT

PREFACE

This Baseline Requirements Document describes the performance requirements for the U.S. Army Corps of Engineers (USACE) Inland Marine Transportation System (IMTS), that is, the activities performed to manage, operate, and maintain the system. It is a performance-based document that focuses on desired outcomes rather than prescribing every activity step required to achieve them. It also addresses the entire system instead of each individual lock and dam, but does not imply any particular structure—local, regional, or national—for the IMTS.

IMTS is committed to:

1. Effective and efficient mission accomplishment,
2. Responding to the needs of our customers in the inland navigation industry,
3. Maximizing the use of the skills and abilities of our existing navigation workforce, and
4. Honoring commitments to local bargaining unit members through existing collective bargaining agreements.

This Baseline Requirements Document specifies performance-based outcomes for the IMTS that align with and contribute to the overall USACE goals of efficiency, safety, effectiveness, reliability, and environmental sustainability.

The format used for this IMTS Baseline Requirements Document follows the generally recognized format for a Performance Work Statement (PWS).

C.1. INTRODUCTION

USACE facilitates the safe, reliable, and economically efficient movement of vessels in the Nation's navigable harbors, rivers, waterways, and canals by operating and maintaining the IMTS series of locks and dams in these waterways. This IMTS includes operation and maintenance (O&M) of locks and dams, construction and maintenance of navigation channels, and regulation of water levels on inland rivers and waterways.

The system of navigation waterways developed and maintained by USACE is an integral and critical part of the Nation's intermodal (rail, highway, airway, and waterway) transportation system. More than 60 percent of domestic waterborne tonnage travels on the inland navigation system, including major commodities such as petroleum, coal, sand, gravel, and stone. The locks accommodate 80 percent of all

domestic barge traffic.¹ The inland and coastal waterway transportation system carries one-sixth of the Nation's volume of industrial materials, commodities, and products. Coastal ports and the Great Lakes furnish the deep and shallow draft capabilities important to the Nation's foreign trade, on which nearly 25 percent of the Nation's economic activity depends. The navigable harbors, rivers, waterways, and canals support the mobilization and sustainability of America's military and is critical to national defense.

This Baseline Requirements Document includes the functions, services, and tasks associated with managing, operating, and maintaining the critical parts of the navigation system for which USACE is responsible. The navigation mission is a subset of a much larger USACE watershed management function, so decisions concerning the IMTS affect other watershed management mission areas and, thus, must be made holistically. The O&M function of the IMTS must work in concert with other water management functions (flood damage reduction, hydropower, environmental, etc.) to avoid unintended consequences or adverse impacts on the execution of those other functions.

C.1.1. BACKGROUND INFORMATION

USACE maintains more than 12,000 miles of inland waterways and owns or operates 257 locks at 212 sites on inland waterways. These waterways – a system of rivers, lakes, canals, and coastal bays improved for commercial and recreational transportation – carry about one-sixth of the Nation's intercity freight, at about half the cost of rail or 1/10th the cost of trucks per ton-mile.

Waterways can move large volumes of bulk commodities over long distances. The cargo capacity of a typical barge is equivalent to that of 15 large railroad cars or 58 tractor-trailers. A representative 15-barge tow on a main-stem waterway moves the same cargo as 870 trucks stretching 35 miles on the Interstate Highway System. That same cargo would require two 100-car trains extending nearly 3 miles in length.

The 12,000 miles of inland and intracoastal waterways operate as a system, as do highways, and much of the commerce moves on multiple segments, which serve as connecting arteries, much as neighborhood streets help people reach interstate highways. USACE operates these waterways as multipurpose, multi-objective projects. They not only serve commercial navigation but, in many cases, provide hydropower, flood damage reduction, municipal water supply, and recreation.

¹ Source: USACE Waterborne Statistics Center.

C.1.2. USACE CIVIL WORKS NAVIGATION MISSION AND ORGANIZATION

USACE executes command and control through eight major subordinate commands (MSCs), also defined as USACE Engineer Divisions. Most of the work is performed by Engineer Districts that have a civil works mission, military programs mission, or a combination.

The watershed geography of the Nation's river systems dictates the boundaries and organization of the Engineer Divisions and Engineer Districts. As shown in Figure 1, the civil works operation is managed within major watershed areas, and those areas also define the civil works Engineer Division boundaries.

Figure 1 - Watershed Boundaries of USACE Divisions



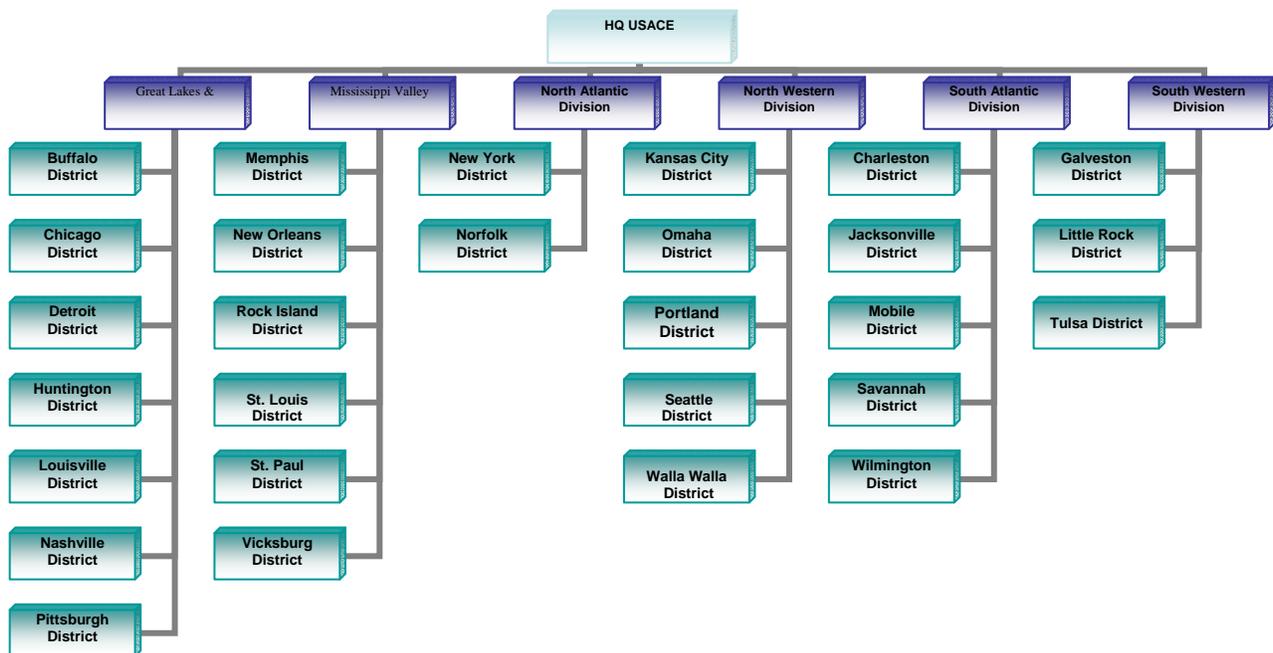
C.1.2.1. HQUSACE

Headquarters USACE in Washington, DC, (HQUSACE) consists of an Executive Office and 17 Staff Principals. The headquarters creates policy and plans the future direction of subordinate USACE organizations.

C.1.2.2. Divisions and Districts

USACE is organized geographically into 45 subordinate Engineer Districts in the United States, Asia, and Europe. Engineer Districts oversee project offices throughout the world. Not all Engineer Divisions and Engineer Districts have IMTS mission responsibility. Figure 2 is a general representation of Engineer Divisions and their subordinate Engineer District involved with the IMTS.

Figure 2 - Divisions & Districts Performing Operations & Maintenance



C.1.2.3. USACE Laboratories

The Engineer Research and Development Center (ERDC) is the USACE research and development command. It consists of seven unique laboratories that perform research in all functions of the navigation mission area.

C.1.2.4. Other USACE Organizations

Several other major organizations within USACE directly support the navigation mission:

1. The U.S. Army Engineering and Support Center (HNC), Huntsville, AL, provides engineering and technical services, program and project management, construction management, and innovative contracting initiatives for programs that are national or broad in scope or not normally provided by other USACE elements. The IMTS employees receive some training from this center.
2. The U. S. Army Corps of Engineers Finance Center (UFC), Millington, TN supports the finance and accounting functions throughout USACE, and provides payroll services for IMTS organizations.
3. The Humphreys Engineer Center (HEC), Alexandria, VA provides administrative and operational support for HQUSACE and its field offices. The Institute for Water Resources, within HEC, supports the HQUSACE Directorate of Civil Works and other USACE offices by developing and applying new planning evaluation methods, policies, and data in anticipation of changing water resources management conditions.
4. The Marine Design Center (MDC), Philadelphia, PA provides total project management, including planning, engineering, and shipbuilding contract management in support of USACE, Army, and national water resource projects in peacetime and augments the military construction capacity in time of national emergency or mobilization.

C.1.2.5 IMTS Coverage

The following figure shows the geographic coverage of rivers and waterways with which IMTS assets are involved.²

Figure 3 - IMTS Geographic Coverage.



C.1.3. OVERALL RESPONSIBILITIES

USACE is committed to long-term collaboration with waterway users and partners (e.g. U.S. Coast Guard) to balance consistent service with the risk and benefit of continuous innovation and process improvement. Organizations performing IMTS functions are responsible for managing, operating, and maintaining the IMTS. This responsibility extends to budget preparation and submission and the planning, control, and management needed to sustain a customer-focused, safe, cost-effective, and efficient IMTS.

The IMTS functions shall be accomplished in a systems-of-systems approach that instills best business practices as part of the USACE navigation mission culture and everyday operations. This approach is all encompassing and includes USACE resources, contracts, and inter/intra service support agreements (ISSAs), memorandums of agreement (MOAs), memorandums of understanding (MOUs), and letters of instruction

² See TE3-C Lock site locations for a list of locks included in the scope.

(LOIs) to meet the performance requirements listed in TE-1, Baseline Operating Objectives.

Under this system-of-systems approach IMTS will:

1. Operate the locks and dams as a safe system by making decisions that optimize the system functionality.
2. Operate to ensure sustainability of the environment.
3. Optimize and standardize lock and dam operations with similar conditions to best-in-class procedures.
4. Optimize and standardize the lock and dam maintenance with similar conditions to best-in-class procedures.
5. Optimize the channel conditions to support the system functionality.

The Baseline Requirements Document is focused on performance-based outcomes that are based on the above tenets.

C.1.4. ENVIRONMENTAL OPERATING PRINCIPLES

USACE has reaffirmed its commitment to the environment by formalizing a set of "*Environmental Operating Principles*", which apply to all its decision-making and programs. The principles are consistent with the National Environmental Policy Act, the *Army Strategy for the Environment* (with its emphasis on sustainability and triple bottom line of mission, environment, and community), other environmental statutes, and the Water Resources Development Acts that govern USACE activities. The principles also dovetail with the USACE 12 Actions for Change, especially Action Six, Focus on Sustainability.³

C.1.5. SECURITY REQUIREMENTS

IMTS employees and contractors must meet the security requirements to work in Government facilities.

C.1.6. MINIMUM PERSONNEL QUALIFICATIONS

USACE will staff the IMTS with experienced and qualified personnel having all the skills necessary to perform the work identified in this Baseline Requirements

³ USACE, *U.S. Army Corps of Engineers releases its "12 Actions for Change,"* August 24, 2006, <http://www.hq.usace.army.mil/cepa/releases/actionsforchange.htm>.

Document. Not all skills are required at all locations. IMTS personnel must have valid licenses and certifications when required to perform the work.

C.1.7. QUALITY CONTROL

The IMTS will establish a Quality Control Plan to ensure services and equipment meet the performance standards.

C.1.8. QUALITY ASSURANCE

The IMTS will monitor performance and timeliness as specified in TE-1, Baseline Operating Objectives.

C.1.9. NORMAL OPERATING HOURS

The hours of operation for locks and dams are set in accordance with the project's authorizing legislation, user demand, climatic conditions, and budget conditions. Given the variables across the IMTS, current hours of operation for individual locks are shown in TE-2, 2006 Lock Hours of Operation & Percent Availability of Lock Chamber.

C.1.10. EMERGENCY OPERATIONS

Emergency responses involve support of local, tribal, State, Federal, and international efforts. Activities may entail extended work shifts of 12-16 hours a day. Environmental conditions at work locations may range from excessive heat and humidity to extreme cold and rain. Mobilization and deployment may be required during emergency response activities.

C.2. ACRONYMS

C.2.1 Acronyms are listed in the appendix to this IMTS Baseline Requirements Document.

C.3. GOVERNMENT-FURNISHED PROPERTY

All property required (as budgeted) to support the IMTS is Government furnished. USACE identifies Government-furnished property (GFP) through the Real Estate Management Information System (REMIS) and hand receipts or property books. IMTS will direct and reposition GFP as required to maintain system availability.

C.4 IMTS-FURNISHED PROPERTY

IMTS will furnish property not otherwise provided as GFP to support the navigation mission. It will prepare and submit a budget request for additional property as required through the USACE budget process.

C.5. IMTS SCOPE

Organizations aligned with the IMTS functions will furnish the resources needed to command and control the IMTS, including managing, planning, controlling, operating, preparing maintenance engineering designs, and maintaining IMTS to meet the performance standards stated in this Baseline Requirements Document. IMTS is composed of multiple river systems; including river lock structures, dam structures, and channels that must work as a system to optimize the waterways for commercial transportation. IMTS will be responsible for the management, scheduling, and control of the maintenance fleets.

Paragraphs C.5.1 through C.5.11 describe the major components of the IMTS. The exclusion of a specific component does not relieve or minimize the responsibility to meet the performance requirements for the IMTS. The major components are not listed in a specific performance order or in order of importance for achieving the desired performance levels.

Note that *TE-7 – Business Process Review Improvements Tied to Baseline Requirements Section C.5.* correlates the improvements identified during the BPR to specific requirements in this section. As the improvements are implemented and where QC requirements are identified these will be added to TE-4 which is currently “Reserved”.

C.5.1. OPERATE LOCK

IMTS will operate locks in accordance with appropriations, annual authorization, Army and Engineer regulations, and policy and technical guidance. Lockages will be performed on demand or on schedule in accordance with priorities defined in TE-2, 2006 Lock Hours of Operation & Percent Availability of Lock Chamber. Queued vessels will transit the locks in accordance with established procedures and standards. To ensure effective lock operation and system availability, the following activities are required:

C.5.1.1. Monitor River for Approaching Traffic (Upstream/Downstream)

Monitor traffic upstream and downstream and communicate with customers to optimize the sequencing of lock operations. (TE-3, FY2006 Lockages by Vessel Type)

C.5.1.2. Respond to Lock Stoppage Conditions

Take appropriate corrective action to restore the lock to operational status when the lock stoppage requires a lock repair (see C.5.3.). Lock stoppages include weather, accident, damage, and electrical, mechanical, or structure failure.

C.5.1.3. Record Data

Enter lockage usage data and information into information systems, such as LPMS and OMNI. The systems are used per ER 1130-2-520 (Chapter 6). (TE-3, FY2006 Lockages by Vessel Type)

C.5.1.4. Operate Bridges

Operate bridges to allow safe vessel transit, using the bridge standard operating procedures.

C.5.1.5. Perform Emergency Preparation and Recovery

Prepare for and recover from flood events and other emergencies and maintain a plan to prepare for and respond to flood events. This may require evacuation of personnel and equipment, materials, and supplies to safeguard life and equipment.

C.5.1.6. Respond to Emergency Situations

Respond to lock safety emergencies resulting from inclement weather, national disasters, and other unexpected events and coordinate with other agencies as necessary.

C.5.2. OPERATE DAM

Effective dam operations are needed to meet IMTS availability and flood control expectations in accordance with appropriations, authorization, Army and Engineer regulations, and policy and technical guidance. Dam operations include all activities associated with the operation of a navigation dam structure and associated facilities and equipment. These dams release water through the operation of spillway gates and other outlet works, flood control, and maintenance of a navigation pool. To ensure effective dam operation and support system availability, the following activities are required:

C.5.2.1. Maintain Pool Level

Maintain the pool level at the level defined in the water control manual (and adjustments) and water control plan.

C.5.2.2. Communicate with NavLocks System Users and Public Regarding Pool Levels and Flow Conditions

Respond to inquiries from users and the public regarding pool level and flow conditions, particularly during high- and low-water conditions or events.

C.5.2.3. Public Emergency

Assist local users during emergencies in accordance with past practices and policies.

C.5.3. MAINTAIN AND REPAIR LOCK

The goal of the maintenance and repair program is to minimize unscheduled outages and unavailability to customers. To ensure system availability, the following activities are required:

C.5.3.1. Perform Lock Maintenance

Perform scheduled preventive maintenance (daily, weekly, monthly, periodic, and routine) according to the preventive maintenance schedule. Track scheduled maintenance using an approved Computerized Maintenance Management System (CMMS). (TE-5, Lock Site Locations)

C.5.3.2. Perform Lock Repair

Perform lock repair to minimize the impact on system availability. Lock repairs include scheduled and unscheduled work to repair or replace a lock, an equipment asset, or an associated component that has failed, broken, or worn out, affecting system readiness, availability, or use.

C.5.3.3. Perform Emergency Lock Maintenance and Repair

Perform emergency lock maintenance and repair to minimize the impact on system availability, including unscheduled repairs that need immediate attention to maintain a functional lock (unscheduled unavailability/stoppage). (TE-6A FY2006 Unscheduled Unavailable Hours by Lock Condition Category and TE-6B, Trends in Unscheduled Unavailable Hours by Reason Code Associated with Lock O&M).

C.5.3.4. Document All Maintenance

Document and store accurate records of all maintenance activities, including condition assessments and asset management information, and enter these data into an approved CMMS.

C.5.4. MAINTAIN AND REPAIR DAM

Perform routine and nonroutine maintenance and repair of dams and associated structures, such as spillways, embankments, outlet works, levees, pumping stations, and other structures. Perform project management and oversight of the maintenance and repair of a navigation dam structure and its associated facilities and equipment to achieve NavLocks System availability.

To ensure system availability, the following activities are required:

C.5.4.1. Perform Dam Maintenance

Perform scheduled preventive maintenance (daily, weekly, monthly, periodic, and routine) according to the preventive maintenance schedule.

Track NavLocks System scheduled maintenance in the Facilities and Equipment Maintenance (FEM) system or similar program.

C.5.4.2. Perform Dam Repair

Perform dam repairs to minimize the impact on system availability to customers. Dam repairs are scheduled or unscheduled work to repair or replace a dam, an equipment asset, or an associated component that has failed, broken, or worn out, affecting system readiness, availability, or use.

C.5.4.3. Perform Emergency Dam Maintenance and Repair

Perform emergency dam maintenance and repair, including immediate unscheduled repairs to maintain the pool levels, to minimize the impact on system availability.

C.5.4.4. Document All Maintenance

Document and store accurate records of all maintenance activities, including condition assessments and asset management information, and enter these data into an approved CMMS.

C.5.5. PERFORM MAJOR MAINTENANCE OF LOCKS AND DAMS

Perform major maintenance of locks and dams, including management and administrative activities related to major scheduled maintenance, repair, and emergency repair to ensure system availability. This may involve personnel at the lock and dam site, central maintenance facility, or mobile maintenance fleet. It may involve

personnel from other lock and dam sites inside or outside the parent District, Division, and HQUSACE or outside resources.

To ensure system availability, the following activities are required:

C.5.5.1. Conduct Scheduled Major Maintenance and Repairs

Perform all activities required for major maintenance and repairs, including planning, scheduling, communicating with users, closing the lock chamber, conducting the maintenance or repairs, and reopening the chamber. Major maintenance and repairs will be performed in a manner that minimizes the impact on system availability.

C.5.5.2. Conduct Emergency (Unscheduled) Repairs

Perform emergency repairs as needed to meet the performance requirements described in TE -1, Baseline Operating Objectives.

C.5.5.3. Maintenance Dredging at Lock and Dam Sites

Perform dredging to remove silt and debris buildup around facility structure and components that limit system availability or jeopardize structural stability.

C.5.6. MANAGE LOCK AND DAM RESOURCES AND ASSETS

These activities include personnel and staffing issues, preparing the annual budget, responding to data calls, managing government-furnished property (GFP) and Navigation System assets, purchasing within credit card limits, ensuring security, and conducting public relations.

To ensure system availability, the following activities are required:

C.5.6.1. Prepare Annual Lock and Dam O&M Budget

Prepare, coordinate, and submit the annual O&M budget according to annual USACE budget guidance and incorporate consideration of asset management. Execute the approved budget and adjust or realign it to meet changing needs with command approval. Develop the overhead budgets to support rate determinations and training, in coordination with other activities.

C.5.6.2. Data Calls

Manage and respond to data calls in accordance with local and higher authority record-keeping policy, guidance, and procedures. Data and information will be captured and maintained in manual and automated information systems.

C.5.6.3. Manage Assets

Manage and oversee personal and real property assets assigned to IMTS personnel.

C.5.6.4. Acquire Supplies, Materials, Parts, Equipment, and Minor Maintenance within Credit Card Purchasing Limits

Acquire supplies, materials, parts, equipment, and minor maintenance required to perform the work required under this Baseline Requirements Document.

C.5.6.5. Perform Lock, Dam, and Facility Security

In accordance with USACE policy, provide the physical security and safety for the lock and dam sites according to the site security safety plan. Physical security may include the use of guards (when authorized), perimeter fences, gates (possibly with electronic entry controls), security plans, surveillance cameras, and security screening for those entering the lock and dam site.

C.5.6.6. Conduct Public Relations Activities as Required

Conduct site tours for the public and respond to general inquiries.

C.5.6.7. Administration of Services Contracts

Perform Contracting Officer Representative (COR) activities (if required) within the limits of delegation letters and support COR activities when required to meet the performance standards.

C.5.6.8. Capital Investment

Manage the capital investment program to ensure capital investments are identified, prioritized, supported, and requested. The Plant Replacement and Improvement Program (PRIP) may be used for some capital investments.

C.5.6.9. Safety Program

Follow the USACE safety manual, regulations, and policies.⁴

C.5.7. TECHNICAL SUPPORT

C.5.7.1. Engineering Support

Coordinate with USACE engineering organization elements to determine the most efficient and effective structure and procedures to procure technical services. These services will be aligned and funded to meet the quality, timeliness, and performance requirements of the IMTS in TE-1, Baseline Operating Objectives.

To ensure effective engineering support, the following activities are required:

C.5.7.1.1. Water Control Data Collection and Analysis

Coordinate with USACE engineering elements for water control data collection and analysis, including settings for tainter and roller gates on dams associated with navigation projects, forecasting of river levels, general gate settings (for example, keeping the pool within specified limits using gate settings determined by lock operators), or specific gate settings provided by District office personnel.

C.5.7.1.2. Water Quality

Coordinate with USACE engineering elements for water quality activities of navigation pools as required by State water quality certifications.

C.5.7.1.3. Lock and Dam Safety for Navigation

Coordinate with USACE engineering elements to support lock and dam safety activities associated with navigation structures, including periodic inspections, instrumentation for structural adequacy, hydraulic steel structure inspections, and bridge inspections.

To ensure effective lock and dam safety support, the following activities are required:

C.5.7.1.3.1. Periodic Inspections

Coordinate with USACE engineering elements to support an inspection program that acquires and funds periodic assessments and inspections of hydraulic, geotechnical, mechanical, structural, electrical, and security features.

C.5.7.1.3.2. Instrumentation for Structure Adequacy

⁴ EM 385-1-1, *Safety – Safety and Health Requirements*, 3 November 2003, <http://www.hq.usace.army.mil/soh/em385/current/current38511.htm>.

Coordinate with USACE engineering elements to support instrumentation readings (piezometer readings, movement indicators, settlement measurements, stress measurements, void-beneath-the-structure measurements, scour surveys, and other instruments) to evaluate the structural integrity of navigation locks and dams.

C.5.7.1.3.3. Periodic Assessments

Coordinate with USACE engineering elements to support a periodic assessment program, focused on failure modes, that acquires and funds a comprehensive periodic assessment of hydraulic, geotechnical, mechanical, structural, electrical, and security features of the navigation structure every ten years in addition to the periodic inspection that is accomplished every five years.

C.5.7.1.3.4. Portfolio Risk Assessment

Coordinate with USACE engineering elements to support the portfolio risk assessment program for navigation dams that acquires funds for a screening portfolio risk assessment, a potential failure mode analysis of the navigation structure, and an interim risk reduction measures program to reduce the risk at that navigation structure. The interim risk reduction measures program is an ongoing program until the risks at that navigation structure have been permanently resolved.

C.5.7.1.3.5. Hydraulic Steel Structure Inspections

Coordinate with USACE engineering elements to support the evaluation of steel structures that are fracture critical (failure of a structural member could result in the failure of the structure): bulkheads, tainter gates, lift gates, miter gates, etc.

C.5.7.1.3.6. Bridge Inspection Program

Coordinate with USACE engineering elements to support the inspection of and reports on the structural integrity of USACE-owned public and nonpublic bridges that cross locks, dams, and other IMTS structures.

C.5.7.1.4. Design Services

Coordinate with USACE engineering elements to determine the most efficient and effective structure and procedures for procuring design services. These services will be aligned and funded to meet the quality, timeliness, and performance requirements of the IMTS.

C.5.7.1.5. Supervision and Administration of Construction Projects

Coordinate with USACE construction elements to provide efficient and effective support as required for IMTS construction projects. These services will be aligned and funded to meet the IMTS quality, timeliness, and performance requirements.

C.5.7.1.6. Surveying (Land)

Coordinate with USACE engineering elements to support surveying services as required. These services will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

C.5.7.2. General and Administrative Services (Off-Site)

Coordinate with HQUSACE, Engineer Divisions, and Engineer Districts organizational elements to determine the most efficient and effective structure and procedures for providing general and administrative services. These services, which include functions such as security, safety, human resources, legal, finance, and accounting, will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

C.5.7.3. Real Estate Technical Support

Coordinate with USACE Real Estate function elements to determine the most efficient and effective structure and procedures for procuring real estate services. These services, which include right-of-entry permits for dredging, real property inventories, easement and lease negotiations, and in-grant and out-grant negotiations, will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

C.5.7.4. Planning, Programs, and Project Management

Coordinate with USACE Planning, Programs, and Project Management Division (PPPMD) elements to determine the most efficient and effective structure and procedures for procuring services. These services will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

To ensure effective PPPMD support for system availability, the following activities are required:

C.5.7.4.1. Environmental Services/Biological Opinions

Provide efficient and effective environmental support as required for IMTS activities. These services will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

C.5.7.4.2. Budgeting and Funding

Provide efficient and effective budgeting and funding support services as required for IMTS. These services will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

C.5.7.4.3. Planning, Programming, and Project Management Services

Provide efficient and effective planning, programming, and project management (PPPM) services as required for navigation activities. These services will be aligned and funded to meet IMTS quality, timeliness, and performance requirements.

C.5.7.5. Contracting Support

Coordinate with USACE contracting elements to determine the most efficient and effective structure and procedures for procuring services. These services will be aligned and funded to IMTS quality, timeliness, and performance requirements.

C.5.8. CHANNEL O&M

Perform all functions, including project management and oversight, of channel O&M within the IMTS. Conduct actions necessary to keep channels open to navigation to meet navigation performance standards.

To maintain channel (and system) availability, the following activities are required:

C.5.8.1. Dredging

Perform navigation channel dredging to meet IMTS performance requirements. This includes mechanical and hydraulic dredging of the IMTS and dredging in St. Mary's River, Missouri River, and intracoastal waterways. Excluded are hopper dredging, sidecast dredging and coastal dredging under normal conditions.

C.5.8.2. Dredge Material Management

Provide proper in-water or upland dredged material placement according to Federal and State requirements when the dredging occurs in the IMTS (this does not include placement of coastal dredged material).

C.5.8.3. Water Quality

Comply with State and Federal water quality terms and standards. Select and fund the provider of choice to perform water quality analysis.

C.5.8.4. Bank Stabilization, Dikes, and Revetments

Maintain bank stabilization, dikes, and revetments to ensure the navigability of the channels. Construct and repair river control structures, such as rock protection, wing, and closure dams (including dike and revetment notching).

C.5.8.5. Aids to Navigation (Fixed and Floating)

Identify and mark hazards to navigation, other than U.S. Coast Guard mandated aids to navigation (marker piles, stone mounds, etc., to help vessels avoid grounding).

C.5.8.6. Obstruction Removal

Remove natural occurring obstructions to maintain the IMTS functionality. Non-natural obstructions will be handled according to Federal and State laws and procedures and MOAs/MOUs with other agencies.

C.5.8.7. Channel Reconnaissance and Hydrographic Surveys (Channel Patrol)

Perform channel reconnaissance and hydrographic surveys to uncover channel impediments that could cause vessel groundings and restrict the use of navigation channels.

C.5.8.8. River Harbor Maintenance Dredging

Plan, schedule, and dredge harbors within the IMTS to ensure lock system availability.

C.5.9. MAJOR REHABILITATION AND NEW PROJECT CONSTRUCTION

Identify, request, and fund the planning and reporting activities required to request major rehabilitations and new construction. This work includes the O&M-funded preparation activities that precede a major rehabilitation. Specific tasks include data acquisition, data analysis (“what if” scenarios), and project justification documentation. These reports must be completed in accordance with Project Management Division guidance and formats.

C.5.10. MOORING/PROTECTION CELLS (BRIDGES, APPROACHES) REPAIR AND REPLACEMENT

Construct and repair Federal mooring and protection cells within the IMTS for the continuity and safety of the navigation mission, including periodic inspections to assess current condition.

C.5.11. NON-NAVIGATION EMERGENCY RESPONSE

Respond to emergency activities for which USACE has emergency response responsibility, assess the impact to performance of the IMTS mission, and report this assessment to higher management for resolution. (TE-8, FY2006 Emergency Response)

Provide support for natural disasters and public emergencies (such as hurricane response) in accordance with past practice and local staffing levels, and maintain adequate emergency response capabilities.

C.6. REFERENCES, REGULATIONS, FORMS, AND REPORTS

C.6.1. REFERENCES AND REGULATIONS

References and regulations are written directives that define and clarify how USACE tasks and missions should be performed. Regulations mandate performance requirements and standards of functional duties and actions that the IMTS must meet. References and regulations help USACE monitor and evaluate productivity and provide structure to the USACE working environment. To access USACE publications, go to <http://www.usace.army.mil/publications>. Army publications, including regulations (AR) and pamphlets (PAM) are found at <http://www.apd.army.mil/>. Department of Defense (DoD) issuances, including directives (DoDD), instructions (DoDI), and similar publications, are found at <http://www.dtic.mil/whs/directives/>.

Due to changes in the USACE work environment, references and regulations periodically change and may be superseded or become obsolete.

C.6.2. FORMS

Forms are documents with blanks for inserting information or details or a fixed order of words or procedures in accordance with specific criteria. Forms are used to request a variety of services, as documentation, and to revise and update services already in place. The use and maintenance of forms is a required part of the workflow process.

C.6.3. REPORTS

A report is a formal account of proceedings or transactions in written or verbal format. Reports document critical priorities and decisions, serving as important references and sources of information that enhance the successful completion of job tasks and greatly support research.

APPENDIX - ACRONYMS

AR	Army Regulation
CMMS	Computerized Maintenance Management System
COR	Contracting Officer Representative
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
ERDC	Engineer Research and Development Center
FEM	Facilities and Equipment Maintenance system
GFP	Government-furnished property
HEC	Humphreys Engineer Center
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HNC	Huntsville Engineer Center
ISSA	Inter/Intra service Support Agreement
IMTS	Inland Marine Transportation System
LOI	Letter of Instruction
MDC	Marine Design Center
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSC	Major Subordinate Command
NavLocks	Navigation Locks and Dams
O&M	Operation and Maintenance
PAM	Army Pamphlet
PPPM	Planning, Programming, and Project Management
PPPMD	Planning, Programs, and Project Management Division
PRIP	Plant Replacement and Improvement Program
PWS	Performance Work Statement
REMIS	Real Estate Management Information System
UFC	USACE Finance Center
USACE	U.S. Army Corps of Engineers

Technical Exhibit 1 - Baseline Operating Objectives

TE-1 Description: This TE references sections C.1.3 & C.1.8, C.5.5.2 and C.5.7.1 of the Baseline Requirements Document. The focus is performing services that ensure sustainability of the environment, optimization and standardization of lock and dam operations and maintenance along with system functionality.

Required Service	Outcome/Measure	Standard/Performance Requirement	Performance Measurement/Metric	Performance Metric
Operate Lock	System Availability/Lock availability	Lock availability meets or exceeds the 2006 performance described in TE 2.	Percent availability= ((Total open hours in a year-chamber unavailability hours)/Total open hours in a year)*100. See TE 2 for lock 2006 availability.	Deviation 10.0% Acceptable 91.0 to 100%. Unacceptable 90.9% or less
Maintain Pool Level Channel O&M	Channel Availability	Channel is available for traffic (based on middle 50% of authorized channel width)	System availability of navigation channel (being developed for OMB) :95% or greater	Acceptable range: 95% or above Unacceptable: below 95%
Perform Lock Maintenance	Availability	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock required service above.	Percent availability= ((Total open hours in a year-chamber unavailability hours)/Total open hours in a year)*100. See TE 2 for lock 2006 availability.	Deviation 10.0% Acceptable 91.0 to 100%. Unacceptable 90.9% or less

Technical Exhibit 1 - Baseline Operating Objectives

TE-1 Description: This TE references sections C.1.3 & C.1.8, C.5.5.2 and C.5.7.1 of the Baseline Requirements Document. The focus is performing services that ensure sustainability of the environment, optimization and standardization of lock and dam operations and maintenance along with system functionality.

Required Service	Outcome/Measure	Standard/Performance Requirement	Performance Measurement/Metric	Performance Metric
Perform Lock Emergency Maintenance & Repair	Availability	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock required service above.	Percent availability= ((Total open hours in a year-chamber unavailability hours)/Total open hours in a year)*100. See TE 2 for lock 2006 availability.	Deviation 10.0% Acceptable 91.0 to 100%. Unacceptable 90.9% or less
Maintain & Repair Dam	Availability	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock required service above.	Percent availability= ((Total open hours in a year-chamber unavailability hours)/Total open hours in a year)*100. See TE 2 for lock 2006 availability.	Deviation 10.0% Acceptable 91.0 to 100%. Unacceptable 90.9% or less

Technical Exhibit 1 - Baseline Operating Objectives

TE-1 Description: This TE references sections C.1.3 & C.1.8, C.5.5.2 and C.5.7.1 of the Baseline Requirements Document. The focus is performing services that ensure sustainability of the environment, optimization and standardization of lock and dam operations and maintenance along with system functionality.

Required Service	Outcome/Measure	Standard/Performance Requirement	Performance Measurement/Metric	Performance Metric
Conduct Scheduled Major Maintenance & Repairs (takes more than on-site staff or equipment). This includes life cycle replacement.	Performance	95 Percentage of scheduled/funded major maintenance actions completed on schedule by lock site.	Number of scheduled/funded major maintenance actions completed on-time by lock site divided by the total number of major maintenance actions by lock site for that month. Example the service provider for lock "X" completed only 90 % of scheduled major maintenance tasks within their schedule in a given month.	Acceptable range: 95% or above Unacceptable: below 95%

Technical Exhibit 1 - Baseline Operating Objectives

TE-1 Description: This TE references sections C.1.3 & C.1.8, C.5.5.2 and C.5.7.1 of the Baseline Requirements Document. The focus is performing services that ensure sustainability of the environment, optimization and standardization of lock and dam operations and maintenance along with system functionality.

Required Service	Outcome/Measure	Standard/Performance Requirement	Performance Measurement/Metric	Performance Metric
Conduct Emergency (unscheduled) Repairs	Response Time	Respond with an assessment within 2 hrs, develop a plan, obtains approval, and fulfill the objectives of the plan.	Number of EM&R events where plans were not developed within 2 hrs of event divided by the total EM&R events in that year. Number of EM&R events where the response plan objectives were not met divided by the total number of EM&R events in that year.	Acceptable range: Less than 2 hr response time Unacceptable: Greater than 2 hr response time
Prepare and Manage Annual Lock & Dam Operations & Maintenance Budget	Performance	100% of budgets completed on-time	Number of budgets completed on time divided by the total number of budgets required in that year.	Acceptable range: 100% Unacceptable: Anything less than 100%

Technical Exhibit 1 - Baseline Operating Objectives

TE-1 Description: This TE references sections C.1.3 & C.1.8, C.5.5.2 and C.5.7.1 of the Baseline Requirements Document. The focus is performing services that ensure sustainability of the environment, optimization and standardization of lock and dam operations and maintenance along with system functionality.

Required Service	Outcome/Measure	Standard/Performance Requirement	Performance Measurement/Metric	Performance Metric
Perform/execute Lock, Dam, & Facility Security	Performance	100% of security plans are maintained by lock site.	Number of lock sites that have maintained their security plans divided by the total number of lock sites.	Acceptable range: 100% Unacceptable: Anything less than 100%
Capital investment - (currently involves PRIP program management)	Performance	100 % of Capital Investment plans completed annually.	Number of Capital investment plans completed divided by the total number of plans requested in that year.	Acceptable range: 100% Unacceptable: Anything less than 100%

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
LRD	LRB	Blackrock River	Black Rock Lock	16 hrs per day Jun-Oct 8 hrs 5 days/wk Nov- Dec and Apr -Jun	3320
LRD	LRC	Chicago River	CHICAGO LOCK	24/7	8760
LRD	LRE	SOO River/ St. Marys River	MACARTHUR LOCK	24/7 Shut Down for annual Main Jan15 - Mar 25	8760
LRD	LRE	SOO River/ St. Marys River	POE LOCK	24/7 Shut Down for annual Main Jan15 - Mar 25	8760
LRD	LRE	SOO River/ St. Marys River	DAVIS LOCK	On call only	8760
LRD	LRE	SOO River/ St. Marys River	SABIN LOCK	Not used	8760
LRD	LRH	Kanawha	WINFIELD LOCKS AND DAM MAIN 1	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		River			
LRD	LRH	Kanawha River	WINFIELD LOCKS AND DAM MAIN 2	24/7	8760
LRD	LRH	Kanawha River	WINFIELD LOCK AND DAM MAIN 800	24/7	8760
LRD	LRH	Kanawha River	MARMET LOCKS AND DAM MAIN 1	24/7	8760
LRD	LRH	Kanawha River	MARMET LOCKS AND DAM MAIN 2	24/7	8760
LRD	LRH	Kanawha River	LONDON LOCKS AND DAM MAIN 1	24/7	8760
LRD	LRH	Kanawha River	LONDON LOCKS AND DAM MAIN 2	24/7	8760
LRD	LRH	Ohio River	BELLEVILLE LOCKS AND DAM	24/7	8760
LRD	LRH	Ohio River	BELLEVILLE LOCKS AND DAM AUX 1	24/7	8760
LRD	LRH	Ohio River	RACINE LOCKS AND DAM	24/7	8760
LRD	LRH	Ohio River	RACINE LOCKS AND DAM AUX 1	24/7	8760
LRD	LRH	Ohio River	GREENUP LOCKS AND DAM	24/7	8760
LRD	LRH	Ohio River	GREENUP LOCKS AND DAM	24/7	8760
LRD	LRH	Ohio River	CAPT ANT MELDAHL LOCKS AND DAM	24/7	8760
LRD	LRH	Ohio River	CAPT ANT MELDAHL LOCKS AND DAM AUX 1	24/7	8760
LRD	LRH	Ohio River	ROBERT C. BYRD LOCKS AND DAM	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
LRD	LRH	Ohio River	ROBERT C. BYRD LOCKS AND DAM AUX 1	24/7	8760
LRD	LRH	Ohio River	WILLOW ISLAND LOCKS AND DAM	24/7	8760
LRD	LRH	Ohio River	WILLOW ISLAND LOCKS AND DAM AUX	24/7	8760
LRD	LRL	Ohio River	MARKLAND LOCKS AND DAM	24/7	8760
LRD	LRL	Ohio River	MARKLAND LOCKS AND DAM AUX 1	24/7	8760
LRD	LRL	Ohio River	MCALPINE LOCKS AND DAM	24/7	8760
LRD	LRL	Ohio River	MCALPINE LOCKS AND DAM AUX 1	24/7	8760
LRD	LRL	Ohio River	LOCK AND DAM 52	24/7	8760
LRD	LRL	Ohio River	LOCK AND DAM 52 AUX 1	24/7	8760
LRD	LRL	Ohio River	LOCK AND DAM 53	24/7	8760
LRD	LRL	Ohio River	LOCK AND DAM 53 AUX 1	24/7	8760
LRD	LRL	Ohio River	CANNELTON LOCK AND DAM	24/7	8760
LRD	LRL	Ohio River	CANNELTON LOCK AND DAM AUX 1	24/7	8760
LRD	LRL	Ohio River	NEWBURGH LOCK AND DAM	24/7	8760
LRD	LRL	Ohio River	NEWBURGH LOCK AND DAM AUX 1	24/7	8760
LRD	LRL	Ohio River	John T. Myers Lock & Dam	24/7	8760
LRD	LRL	Ohio River	Olmstead Lock & Dam (under construction)	Will be 24/7	NA
LRD	LRL	Ohio River	SMITHLAND LOCK AND DAM	24/7	8760
LRD	LRL	Ohio River	SMITHLAND LOCK AND DAM AUX 1	24/7	8760
LRD	LRL	Green River	LOCK AND DAM 1	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
LRD	LRL	Green River	LOCK AND DAM 2	24/7	8760
LRD	LRN	Tennessee River	KENTUCKY LOCK	24/7	8760
LRD	LRN	Tennessee River	PICKWICK LANDING LOCK	24/7	8760
LRD	LRN	Tennessee River	PICKWICK LANDING LOCK AUX	24/7	8760
LRD	LRN	Tennessee River	WILSON LOCK	24/7	8760
LRD	LRN	Tennessee River	WILSON LOCK AUX	24/7	8760
LRD	LRN	Tennessee River	GEN JOS WHEELER LOCK	24/7	8760
LRD	LRN	Tennessee River	GEN JOS WHEELER LOCK AUX 1	24/7	8760
LRD	LRN	Tennessee River	GUNTERSVILLE LOCK	24/7	8760
LRD	LRN	Tennessee River	GUNTERSVILLE LOCK AUX 1	24/7	8760
LRD	LRN	Tennessee River	NICKAJAC LOCK	24/7	8760
LRD	LRN	Tennessee River	CHICKAMAUGA LOCK	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
LRD	LRN	Tennessee River	WATTS BAR LOCK	24/7	8760
LRD	LRN	Tennessee River	FORT LOUDON LOCK	12 hr/day	4380
LRD	LRN	Cumberland River	BARKLEY LOCK	24/7	8760
LRD	LRN	Cumberland River	CHEATHAM LOCK	24/7	8760
LRD	LRN	Cumberland River	CORDELL HULL LOCK	8hr per day	2080
LRD	LRN	Cumberland River	OLD HICKORY LOCK	20hr/day	7300
LRD	LRN	Clinch River	MELTON HILL LOCK	8 hr/seasonal	800
LRD	LRP	Monongahela River	LOCK AND DAM 2	24/7	8760
LRD	LRP	Monongahela River	LOCK AND DAM 2 AUX 1	24/7	8760
LRD	LRP	Monongahela River	LOCK AND DAM 3	24/7	8760
LRD	LRP	Monongahela River	LOCK AND DAM 3 AUX 1	24/7	8760
LRD	LRP	Monongahela River	LOCK AND DAM 4	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
LRD	LRP	Monongahela River	LOCK AND DAM 4 AUX 1	24/7	8760
LRD	LRP	Monongahela River	MAXWELL LOCK AND DAM	24/7	8760
LRD	LRP	Monongahela River	MAXWELL LOCK AND DAM AUX 1	24/7	8760
LRD	LRP	Monongahela River	GRAYS LANDING LOCK AND DAM	24/7	8760
LRD	LRP	Monongahela River	POINT MARION LOCK AND DAM	24/7	8760
LRD	LRP	Monongahela River	MORGANTOWN LOCK AND DAM	8 hrs/day	2920
LRD	LRP	Monongahela River	HILDEBRAND LOCK AND DAM	8 hrs WE and Hol	920
LRD	LRP	Monongahela River	OPEKISKA LOCK AND DAM	8 hrs WE and Hol	920
LRD	LRP	Allegheny River	LOCK AND DAM 2	24/7	8760
LRD	LRP	Allegheny River	LOCK AND DAM 3	24/7	8760
LRD	LRP	Allegheny River	LOCK AND DAM 4	24/7	8760
LRD	LRP	Allegheny River	LOCK AND DAM 5	8 hrs, 5 days/wk	2080

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
LRD	LRP	Allegheny River	LOCK AND DAM 6	8 hrs WE and Hol	920
LRD	LRP	Allegheny River	LOCK AND DAM 7	8 hrs, 7 days/wk	2920
LRD	LRP	Allegheny River	LOCK AND DAM 8	8 hrs WE and Hol	920
LRD	LRP	Allegheny River	LOCK AND DAM 9	8 hrs WE and Hol	920
LRD	LRP	Ohio River	EMSWORTH LOCK AND DAM	24/7	8760
LRD	LRP	Ohio River	EMSWORTH LOCK AND DAM AUX 1	24/7	8760
LRD	LRP	Ohio River	DASHIELDS LOCK AND DAM	24/7	8760
LRD	LRP	Ohio River	DASHIELDS LOCK AND DAM AUX 1	24/7	8760
LRD	LRP	Ohio River	MONTGOMERY LOCK AND DAM	24/7	8760
LRD	LRP	Ohio River	MONTGOMERY LOCK AND DAM AUX 1	24/7	8760
LRD	LRP	Ohio River	NEW CUMBERLAND LOCK AND DAM	24/7	8760
LRD	LRP	Ohio River	NEW CUMBERLAND LOCK AND DAM AUX 1	24/7	8760
LRD	LRP	Ohio River	PIKE ISLAND LOCK AND DAM	24/7	8760
LRD	LRP	Ohio River	PIKE ISLAND LOCK AND DAM AUX 1	24/7	8760
LRD	LRP	Ohio River	HANNIBAL LOCKS AND DAM	24/7	8760
LRD	LRP	Ohio River	HANNIBAL LOCKS AND DAM AUX 1	24/7	8760
MVD	MVK	Red River	LINDY CLAIBORNE BOGGS L AND D	24/7	8760
MVD	MVK	Red River	JOHN H. OVERTON LOCK	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
MVD	MVK	Red River	LOCK AND DAM 3	24/7	8760
MVD	MVK	Red River	RUSSELL B. LONG LOCK	24/7	8760
MVD	MVK	Red River	JOE D WAGGONER JR LK AND DM	24/7	8760
MVD	MVK	Quachita/ Black Waterway	JONESVILLE LOCK AND DAM	24/7	8760
MVD	MVK	Quachita/ Black Waterway	COLUMBIA LOCK AND DAM	24/7	8760
MVD	MVK	Quachita/ Black Waterway	FELSENTHAL LOCK AND DAM	24/7	8760
MVD	MVK	Quachita/ Black Waterway	THATCHER LOCK AND DAM	24/7	8760
MVD	MVN	Gulf Intracoastal Waterway	BAYOU BOEUF LOCK	24/7	8760
MVD	MVN	Gulf Intracoastal Waterway	BAYOU SORREL LOCK	24/7	8760
MVD	MVN	ATCHAFA LAYA RIVER	BERWICK LOCK	16/7	5840
MVD	MVN	Gulf	HARVEY LOCK	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		Intracoastal Waterway			
MVD	MVN	Gulf Intracoastal Waterway	CALCASIEU LOCK	24/7	8760
MVD	MVN	Gulf Intracoastal Waterway	LELAND BOWMAN LOCK	24/7	8760
MVD	MVN	Gulf Intracoastal Waterway	ALGIERS LOCK	24/7	8760
MVD	MVN	Gulf Intracoastal Waterway	INNER HRBR NAVIGATION CANL LK	24/7	8760
MVD	MVN	Gulf Intracoastal Waterway	PORT ALLEN LOCK	24/7	8760
MVD	MVN	BAYOU TECHE	KEYSTONE LOCK	24/7	NA
MVD	MVN	OLD RIVER	OLD RIVER LOCK	24/7	8760
MVD	MVN	FRESHWA TER BAYOU	FRESHWATER BAYOU LOCK	24/7	8760
MVD	MVP	Mississippi	LOCK AND DAM 1 MAIN CHBR 1	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		River			
MVD	MVP	Mississippi River	LOCK AND DAM 1 MAIN CHBR 2	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 2	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 2 AUX 1	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 3	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 4	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 5	24/7	8760
MVD	MVP	Mississippi River	Lock & Dam 5A	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 6	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 7	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 8	24/7	8760
MVD	MVP	Mississippi River	LOCK AND DAM 9	24/7	8760
MVD	MVP	Mississippi	LOCK AND DAM 10	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		River			
MVD	MVP	Mississippi River	ST ANTHONY FALLS UPPER L AND D	24/7	8760
MVD	MVP	Mississippi River	ST ANTHONY FALLS LOWER L AND D	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 11	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 12	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 13	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 14 AUXILIARY 1	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 14	SEASONAL	800
MVD	MVR	Mississippi River	LOCK AND DAM 15	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 15 AUXILIARY 1	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 16	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 17	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 18	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		River			
MVD	MVR	Mississippi River	LOCK AND DAM 19	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 20	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 21	24/7	8760
MVD	MVR	Mississippi River	LOCK AND DAM 22	24/7	8760
MVD	MVR	Illinois Waterway	THOMAS J O'BRIEN	24/7	8760
MVD	MVR	Illinois Waterway	LOCKPORT LOCK	24/7	8760
MVD	MVR	Illinois Waterway	BRANDON ROAD LOCK AND DAM	24/7	8760
MVD	MVR	Illinois Waterway	DRESDEN ISLAND LOCK AND DAM	24/7	8760
MVD	MVR	Illinois Waterway	MARSIELLES LOCK AND DAM	24/7	8760
MVD	MVR	Illinois Waterway	STARVED ROCK LOCK AND DAM	24/7	8760
MVD	MVR	Illinois Waterway	PEORIA LOCK AND DAM	24/7	8760
MVD	MVR	Illinois	LAGRANGE LOCK AND DAM	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		Waterway			
MVD	MVS	Mississippi River	LOCK AND DAM 24	24/7	8760
MVD	MVS	Mississippi River	LOCK AND DAM 25	24/7	8760
MVD	MVS	Mississippi River	MEL PRICE LOCK AND DAM	24/7	8760
MVD	MVS	Mississippi River	MEL PRICE LOCK AND DAM AUX 1	24/7	8760
MVD	MVS	Mississippi River	CHAIN OF ROCKS L AND D 27 AX 1	24/7	8760
MVD	MVS	Mississippi River	CHAIN OF ROCKS LK AND DM 27	24/7	8760
MVD	MVS	Kaskaskia River	KASKASKIA RIVER NAVAGATION LK	24/7	8760
NAD	NAN	Hudson	TROY LOCK AND DAM	16/7 May 1 - Nov 30	3424
NAD	NAO	ACC	GREAT BRIDGE GUARD LOCK	24	8760
NAD	NAO	DSC	DEEP CREEK LOCK	8	2920
NAD	NAO	DSC	SOUTH MILLS LOCK	8	2920
NWD	NWP	Willamette	WILLAMETTE FALLS LOCKS 1 - 4	May 24-Sept. 30 8am - 4pm Wednesday - Sunday	752

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
NWD	NWP	Columbia	BONNEVILLE LOCK AND DAM-2	24/7	8760
NWD	NWP	Columbia	BONNEVILLE LOCK AND DAM-1	NA	NA
NWD	NWP	Columbia	THE DALLES DAM	24/7	8760
NWD	NWP	Columbia	JOHN DAY LOCK AND DAM	24/7	8760
NWD	NWS	LWSC	HIRAM M CHITTENDEN LOCKS	24/7	8760
	NWS	LWSC	HIRAM M CHITTENDEN LOCKS AUX 1	24/7	8760
NWD	NWW	Columbia	MCNARY LOCK AND DAM	24/7	8760
NWD	NWW	Snake	ICE HARBOR LOCK AND DAM	24/7	8760
NWD	NWW	Snake	LOWER MONUMENTAL LOCK AND DAM	24/7	8760
NWD	NWW	Snake	LITTLE GOOSE LOCK AND DAM	24/7	8760
NWD	NWW	Snake	LOWER GRANITE LOCK AND DAM	24/7	8760
SAD	SAJ	C&SF- OWW	ORTONA LOCK AND DAM	16	5840
SAD	SAJ	C&SF- OWW	W P FRANKLIN LCK AND CTL STRCT	16	5840
SAD	SAJ	C&SF- OWW	MOORE HAVEN LOCK	16	5840
SAD	SAJ	C&SF- OWW	ST LUCIE LOCK AND DAM	16	5840
SAD	SAJ	C&SF- OWW	PORT MAYACA LOCK	16	5840
SAD	SAJ	Canv. Project	CANAVERAL LOCK	16	5840

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
SAD	SAM	BWT System	JOHN HOLLIS BANKHAD LK AND DM	24/7	8760
SAD	SAM	BWT System	HOLT LOCK AND DAM	24/7	8760
SAD	SAM	BWT System	WILLIAM BACON OLIVER LK AND DM	24/7	8760
SAD	SAM	BWT System	ARMSTEAD I. SELDEN LOCK AND DM	24/7	8760
SAD	SAM	BWT System	DEMOPOLIS LOCK AND DAM	24/7	8760
SAD	SAM	BWT System	COFFEEVILLE LOCK	24/7	8760
SAD	SAM	Tenn-Tom System	HOWELL HEFLIN LOCK AND DAM	24/7	8760
SAD	SAM	Tenn-Tom System	TOM BEVILL LOCK AND DAM	24/7	8760
SAD	SAM	Tenn-Tom System	JOHN C. STENNIS LOCK AND DAM	24/7	8760
SAD	SAM	Tenn-Tom System	ABERDEEN LOCK AND DAM	24/7	8760
SAD	SAM	Tenn-Tom System	AMORY LOCK	24/7	8760
SAD	SAM	Tenn-Tom System	GLOVER WILKINS LOCK	24/7	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
SAD	SAM	Tenn-Tom System	FULTON LOCK	24/7	8760
SAD	SAM	Tenn-Tom System	JOHN RANKIN LOCK	24/7	8760
SAD	SAM	Tenn-Tom System	G.V. SONNY MONTGOMERY LOCK	24/7	8760
SAD	SAM	Tenn-Tom System	JAMIE L. WHITTEN LOCK AND DAM	24/7	8760
SAD	SAM	Alabama-Coosa River	ROBERT F. HENRY LOCK AND DAM	7 a.m. - 5 p.m. (7 days/week)	3650
SAD	SAM	Alabama-Coosa River	MILLERS FERRY LOCK AND DAM	6 a.m. - 2 p.m. & 6 p.m. - 2 a.m.	5840
SAD	SAM	Alabama-Coosa River	CLAIBORNE LOCK AND DAM	24/7	8760
SAD	SAM	ACF System	WALTER F GEORGE LOCK AND DAM	8 a.m. - 4 p.m.	2920
SAD	SAM	ACF System	GEORGE W ANDREWS LOCK AND DAM	8 a.m. - 4 p.m.	2920
SAD	SAM	ACF System	JIM WOODRUFF LOCK AND DAM	8 a.m. - 4 p.m.	2920
SAD	SAW	Cape Fear	LOCK AND DAM 1	8hrs/day, 5 days/week	2080

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
SAD	SAW	Cape Fear	LOCK AND DAM 2	8hrs/day, 5 days/week	2080
SAD	SAW	Cape Fear	WILLIAM O HUSKE LOCK AND DAM	8hrs/day, 5 days/week	2080
SWD	SWG	GIWW	COLORADO RIVER EAST LOCK and WEST LOCK	24	8760
SWD	SWG	GIWW	BRAZOS EAST GATE and WEST GATE	24	8760
SWD	SWL	Arkansas River	NORRELL LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	LOCK 2 AND WILBUR D. MILLS DAM	24	8760
SWD	SWL	Arkansas River	JOE HARDIN LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	EMMETT SANDERS LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	LOCK AND DAM 5	24	8760
SWD	SWL	Arkansas River	DAVID D TERRY LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	MURRAY LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	TOAD SUCK FERRY LOCK AND DAM	24	8760
SWD	SWL	Arkansas	ARTHUR V. ORMOND LOCK AND	24	8760

Technical Exhibit 2- 2006 Lock Hours of Operations & Percent Availability of Lock Chamber

TE-2 Description: This TE references sections C.1.9 & C.5 of the Baseline Requirements Document. The exhibit illustrates scheduled and unscheduled hours of unavailability by lock chamber as a percentage.

MSCs/ Centers/FOAs	Districts	River	Lock/Chamber Name	Open Hours	Total Open Hours in a Year
		River	DAM		
SWD	SWL	Arkansas River	DARDANELLE LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	OZARK LOCK AND DAM	24	8760
SWD	SWL	Arkansas River	JAMES W. TRIMBLE LOCK AND DAM	24	8760
SWD	SWT	Verdigris River	Chouteau Lock & Dam	24	8760
SWD	SWT	Verdigris River	Newt Graham Lock & Dam	24	8760
SWD	SWT	Arkansas River	W D MAYO LOCK AND DAM	24	8760
SWD	SWT	Arkansas River	RBRT S KERR LK AND DAM AND RES	24	8760
SWD	SWT	Arkansas River	WEBBERS FALLS LOCK AND DAM	24	8760

Technical Exhibit 3 - FY2006 Lockages by Vessel Type

TE-3 Description: This TE references sections C.5.1.1 & C.5.1.3 (Monitor River for Approaching Traffic & Record Data) of the Baseline Requirements Document. These are the number of FY06 commercial, recreational, and other lockages by Project/Lock Name.

Project/Lock Name	FY2006 Commercial Lockages (#)	FY2006 Recreational Lockages (#)	FY2006 Other Lockages	Total Lockages (#)
BLACK ROCK	321	1,088	49	1,458
CHICAGO	7,579	3,239	1,421	12,239
ST. MARYS	6,001	184	426	6,611
LONDON	1,656	187	20	1,863
MARMET	18,082	50	14	18,146
WINFIELD	2,580	199	64	2,843
BELLEVILLE	4,459	246	20	4,725
CAPTAIN ANTHONY MELDAHL	5,776	576	35	6,387
GREENUP	6,777	262	14	7,053
RACINE	4,666	245	22	4,933
ROBERT C. BYRD	5,481	219	39	5,739
WILLOW ISLAND	4,454	433	30	4,917
1 GREEN	2,488	923	9	3,420
2 GREEN	1,770	94	6	1,870
52 OHIO	10,410	370	41	10,821
53 OHIO	7,449	286	38	7,773
CANNELTON	5,523	441	33	5,997
JOHN T. MYERS	6,135	1,134	32	7,301
MARKLAND	4,972	973	14	5,959
MCALPINE	5,364	271	23	5,658
NEWBURGH	6,698	445	22	7,165
SMITHLAND	7,649	572	9	8,230
BARKLEY	1,641	538	13	2,192
CHEATHAM	2,113	508	22	2,643
CORDELL HULL		77	2	79
OLD HICKORY	1,852	1,300	16	3,168
CHICKAMAUGA	1,895	2,352	43	4,290
FORT LOUDON	630	1,091	39	1,760
GENERAL JOSEPH WHEELER	2,200	940	197	3,337
GUNTERSVILLE	1,239	1,179	29	2,447
KENTUCKY	5,873	239	35	6,147
MELTON HILL		21	4	25
NICKAJACK	719	902	32	1,653
PICKWICK LANDING	2,566	843	28	3,437

Technical Exhibit 3 - FY2006 Lockages by Vessel Type

TE-3 Description: This TE references sections C.5.1.1 & C.5.1.3 (Monitor River for Approaching Traffic & Record Data) of the Baseline Requirements Document. These are the number of FY06 commercial, recreational, and other lockages by Project/Lock Name.

Project/Lock Name	FY2006 Commercial Lockages (#)	FY2006 Recreational Lockages (#)	FY2006 Other Lockages	Total Lockages (#)
WATTS BAR	1,132	1,195	39	2,366
WILSON	3,611	686	97	4,394
2 ALLEGHENY	1,966	2,144	9	4,119
3 ALLEGHENY	1,814	1,283	9	3,106
4 ALLEGHENY	2,818	970	6	3,794
5 ALLEGHENY	272	546	6	824
6 ALLEGHENY	129	329	6	464
7 ALLEGHENY	131	425	4	560
8 ALLEGHENY	877	320		1,197
9 ALLEGHENY	10	23		33
2 MONONGAHELA	4,833	780	18	5,631
3 MONONGAHELA	7,342	442	22	7,806
4 MONONGAHELA	6,539	234	16	6,789
GRAYS LANDING	1,579	429	13	2,021
HILDEBRAND	81	105	8	194
MAXWELL	3,860	793	13	4,666
MORGANTOWN	443	183	13	639
OPEKISKA	81	184	8	273
POINT MARION	1,523	213	13	1,749
DASHIELDS	5,185	783	34	6,002
EMSWORTH	5,664	1,293	125	7,082
HANNIBAL	5,036	277	23	5,336
MONTGOMERY	5,305	517	66	5,888
NEW CUMBERLAND	4,223	551	16	4,790
PIKE ISLAND	4,846	497	18	5,361
BAYOU BOEUF	14,065		17	14,082
BAYOU SORREL	9,917	3	11	9,931
BERWICK	901	3,151		4,052
FRESHWATER BAYOU	13,504	466	35	14,005
ALGIERS	11,068	189	30	11,287
CALCASIEU	11,737	111	14	11,862
HARVEY	4,816	73	52	4,941
INNER HARBOR NAV CANAL	9,020		19	9,039
LELAND BOWMAN	12,508	2	25	12,535

Technical Exhibit 3 - FY2006 Lockages by Vessel Type

TE-3 Description: This TE references sections C.5.1.1 & C.5.1.3 (Monitor River for Approaching Traffic & Record Data) of the Baseline Requirements Document. These are the number of FY06 commercial, recreational, and other lockages by Project/Lock Name.

Project/Lock Name	FY2006 Commercial Lockages (#)	FY2006 Recreational Lockages (#)	FY2006 Other Lockages	Total Lockages (#)
PORT ALLEN	5,980	40	102	6,122
CATFISH POINT	255	997		1,252
SCHOONER BAYOU	440	266		706
OLD RIVER	3,482	16	70	3,568
BRANDON ROAD	3,768	500	24	4,292
DRESDEN ISLAND	4,015	771	35	4,821
LAGRANGE	4,306	175	23	4,504
LOCKPORT	3,687	445	13	4,145
MARSEILLES	3,894	679	26	4,599
PEORIA	4,790	773	33	5,596
STARVED ROCK	4,179	654	38	4,871
THOMAS J. OBRIEN	2,518	4,769	167	7,454
11 MISSISSIPPI	2,831	1,375	51	4,257
12 MISSISSIPPI	3,014	1,154	44	4,212
13 MISSISSIPPI	3,079	961	99	4,139
14 MISSISSIPPI	3,586	1,651	101	5,338
15 MISSISSIPPI	3,745	1,032	73	4,850
16 MISSISSIPPI	3,621	449	59	4,129
17 MISSISSIPPI	3,378	326	58	3,762
18 MISSISSIPPI	3,572	529	64	4,165
19 MISSISSIPPI	2,033	394	45	2,472
20 MISSISSIPPI	3,863	379	165	4,407
21 MISSISSIPPI	3,953	393	102	4,448
22 MISSISSIPPI	3,869	373	37	4,279
KASKASKIA	735	1,382	17	2,134
27 MISSISSIPPI	7,607	672	74	8,353
24 MISSISSIPPI	3,958	463	46	4,467
25 MISSISSIPPI	4,160	611	54	4,825
MELVIN PRICE	5,664	1,578	60	7,302
1 MISSISSIPPI	1,201	1,819	36	3,056
10 MISSISSIPPI	2,529	1,689	32	4,250
2 MISSISSIPPI	1,378	2,296	42	3,716
3 MISSISSIPPI	1,554	3,582	44	5,180
4 MISSISSIPPI	1,464	3,252	96	4,812

Technical Exhibit 3 - FY2006 Lockages by Vessel Type

TE-3 Description: This TE references sections C.5.1.1 & C.5.1.3 (Monitor River for Approaching Traffic & Record Data) of the Baseline Requirements Document. These are the number of FY06 commercial, recreational, and other lockages by Project/Lock Name.

Project/Lock Name	FY2006 Commercial Lockages (#)	FY2006 Recreational Lockages (#)	FY2006 Other Lockages	Total Lockages (#)
5 MISSISSIPPI	1,598	2,112	54	3,764
5a MISSISSIPPI	1,538	2,601	62	4,201
6 MISSISSIPPI	1,797	2,181	58	4,036
7 MISSISSIPPI	1,963	2,628	49	4,640
8 MISSISSIPPI	1,836	1,652	39	3,527
9 MISSISSIPPI	2,068	1,873	34	3,975
LOWER SAINT ANTHONY FALLS	1,081	1,087	18	2,186
UPPER SAINT ANTHONY FALLS	1,337	1,045	18	2,400
COLUMBIA	1,027	83	16	1,126
FELSENTHAL	210	928	3	1,141
H. K. THATCHER	208	1,091	9	1,308
JONESVILLE	1,139	328	20	1,487
3 RED	424	481	29	934
JOE D. WAGGONER	200	3,057	13	3,270
JOHN H.OVERTON	915	1,121	31	2,067
LINDY CLAIBORNE BOGGS	945	909	30	1,884
RUSSELL B. LONG	303	1,267	15	1,585
TROY	111	2,514	31	2,656
GREAT BRIDGE	1,563	3,595	140	5,298
DEEP CREEK	23	862	9	894
SOUTH MILLS	16	834	1	851
BONNEVILLE	2,629	249	47	2,925
JOHN DAY	2,050	82	33	2,165
THE DALLES	2,341	84	27	2,452
WILLAMETTE FALLS	161	303	4	468
HIRAM M. CHITTENDEN	6,050	8,193	833	15,076
ICE HARBOR	1,344	295	212	1,851
LITTLE GOOSE	1,078	94	15	1,187
LOWER GRANITE	751	190	19	960
LOWER MONUMENTAL	1,207	119	131	1,457
MCNARY	1,971	142	15	2,128
CANAVERAL	1,591	7,207	414	9,212
PORT MAYACA	1,350	3,555	74	4,979
W. P. FRANKLIN	1,486	5,317	95	6,898

Technical Exhibit 3 - FY2006 Lockages by Vessel Type

TE-3 Description: This TE references sections C.5.1.1 & C.5.1.3 (Monitor River for Approaching Traffic & Record Data) of the Baseline Requirements Document. These are the number of FY06 commercial, recreational, and other lockages by Project/Lock Name.

Project/Lock Name	FY2006 Commercial Lockages (#)	FY2006 Recreational Lockages (#)	FY2006 Other Lockages	Total Lockages (#)
MOORE HAVEN	386	4,033	94	4,513
ORTONA	416	4,777	38	5,231
ST. LUCIE	744	4,562	41	5,347
CLAIBORNE	26	227	7	260
GEORGE W. ANDREWS		271	10	281
ARMISTEAD I. SELDON	27	15		42
DEMOPOLIS	2,532	414	39	2,985
HOLT	1,104	149	18	1,271
JIM WOODRUFF	4	259	7	270
ABERDEEN	1,296	846	29	2,171
AMORY	1,341	714	41	2,096
FULTON	1,349	727	23	2,099
G.V. SONNY" MONTGOMERY"	1,331	684	14	2,029
GLOVER WILKINS	1,349	716	27	2,092
HOWELL HEFLIN	1,505	654	22	2,181
JAMIE WHITTEN	1,318	745	15	2,078
JOHN C. STENNIS	1,467	1,005	22	2,494
JOHN E. RANKIN	1,331	715	19	2,065
TOM BEVILL	1,512	788	52	2,352
WALTER F. GEORGE		278	13	291
BRAZOS EAST	10,030	28	2	10,060
BRAZOS WEST	9,989	29	2	10,020
COLORADO RIVER EAST	9,096	21	5	9,122
COLORADO RIVER WEST	8,704	20	5	8,729
DARDANELLE	1,237	221	51	1,509
2 ARKANSAS	1,664	133	101	1,898
5 ARKANSAS	1,470	548	39	2,057
ARTHUR V. ORMOND	1,171	94	70	1,335
DAVID D. TERRY	1,406	439	39	1,884
EMMETT SANDERS	1,609	307	71	1,987
JAMES W. TRIMBLE	771	248	36	1,055
JOE HARDIN	1,501	440	115	2,056
MONTGOMERY POINT	1,464	572	77	2,113
MURRAY	1,333	969	47	2,349

Technical Exhibit 3 - FY2006 Lockages by Vessel Type

TE-3 Description: This TE references sections C.5.1.1 & C.5.1.3 (Monitor River for Approaching Traffic & Record Data) of the Baseline Requirements Document. These are the number of FY06 commercial, recreational, and other lockages by Project/Lock Name.

Project/Lock Name	FY2006 Commercial Lockages (#)	FY2006 Recreational Lockages (#)	FY2006 Other Lockages	Total Lockages (#)
NORRELL	1,667	112	89	1,868
TOAD SUCK FERRY	1,189	199	51	1,439
OZARK - JETA TAYLOR	763	169	40	972
CHOUTEAU	874	270	26	1,170
NEWT GRAHAM LOCK	895	149	26	1,070
W.D. MAYO	1,032	257	58	1,347
ROBERT S. KERR	1,019	193	43	1,255
WEBBERS FALLS	999	194	26	1,219

TE-4 RESERVED For Future QC Plan

Technical Exhibit 5 - Lock Site Locations

Division		LRD			
District		LRB			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Black Rock River	BLACK ROCK LOCK	BUFFALO, NY			S
District		LRC			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Chicago River	CHICAGO LOCK	CHICAGO, IL			S
District		LRE			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
St. Mary's River	MACARTHUR LOCK	SAULT STE. MARIE, MI			
St. Mary's River	NEW POE LOCK	SAULT STE. MARIE, MI			
St. Mary's River	DAVIS LOCK	SAULT STE. MARIE, MI			
St. Mary's River	SABIN LOCK	SAULT STE. MARIE, MI			
District		LRH			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Repair Station	MARRIETTA REPAIR STATION	MARIETTA, OH	X		
Kanawha River	WINFIELD LOCKS AND DAM MAIN 1	REDHOUSE, WV			M
Kanawha River	WINFIELD LOCKS AND DAM MAIN 2	REDHOUSE, WV			M
Kanawha River	WINFIELD LOCK AND DAM MAIN 800	REDHOUSE, WV			M
Kanawha River	MARMET LOCKS AND DAM MAIN 1	BELLE, WV			M
Kanawha River	MARMET LOCKS AND DAM MAIN 2	BELLE, WV			M

Kanawha River	LONDON LOCKS AND DAM MAIN 1	LONDON, WV			M
Kanawha River	LONDON LOCKS AND DAM MAIN 2	LONDON, WV			M
Ohio River	BELLEVILLE LOCKS AND DAM	REEDSVILLE, OH			M
Ohio River	BELLEVILLE LOCKS AND DAM AUX 1	REEDSVILLE, OH			M
Ohio River	RACINE LOCKS AND DAM	LETART, WV			M
Ohio River	RACINE LOCKS AND DAM AUX 1	LETART, WV			M
Ohio River	GREENUP LOCKS AND DAM	GREENUP, KY			M
Ohio River	CAPT ANT MELDAHL LOCKS AND DAM	CHILO, OH			M
Ohio River	CAPT ANT MELDAHL LOCKS AND DAM AUX 1	CHILO, OH			M
Ohio River	ROBERT C. BYRD LOCKS AND DAM	GALLIPOLIS FERRY, WV			M
Ohio River	ROBERT C. BYRD LOCKS AND DAM AUX 1	GALLIPOLIS FERRY, WV			M
Ohio River	WILLOW ISLAND LOCKS AND DAM	RENO, OH			M
Ohio River	WILLOW ISLAND LOCKS AND DAM AUX	RENO, OH			M
REPAIR STATION	LOUISVILLE REPAIR STATION	LOUISVILLE, KY	X		
District		LRL			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off- Site Support	Project Office	Single "S" or Multiple "M" Chamber
Ohio River	MARKLAND LOCKS AND DAM	WARSAW, KY			M
Ohio River	MARKLAND LOCKS AND DAM AUX 1	WARSAW, KY			M
Ohio River	MCALPINE LOCKS AND DAM	LOUISEVILLE, KY			M

Ohio River	MCALPINE LOCKS AND DAM AUX 1	LOUISEVILLE, KY			M
Ohio River	LOCK AND DAM 52	BROOKPORT, IL			M
Ohio River	LOCK AND DAM 52 AUX 1	BROOKPORT, IL			M
Ohio River	LOCK AND DAM 53	GRAND CHAIN, IL			M
Ohio River	LOCK AND DAM 53 AUX 1	GRAND CHAIN, IL			M
Ohio River	CANNELTON LOCK AND DAM	CANNELTON, IN			M
Ohio River	CANNELTON LOCK AND DAM AUX 1	CANNELTON, IN			M
Ohio River	NEWBURGH LOCK AND DAM	NEWBURGH, IN			M
Ohio River	NEWBURGH LOCK AND DAM AUX 1	NEWBURGH, IN			M
Ohio River	John T. Myers Lock & Dam	MT. VERNON, IL			M
Ohio River	Olmstead Lock & Dam (under construction)	OLMSTED, IL			
Ohio River	SMITHLAND LOCK AND DAM	BROOKPORT, IN			M
Ohio River	SMITHLAND LOCK AND DAM AUX 1	BROOKPORT, IN			M
Green River	LOCK AND DAM 1	SPOTTSVILLE, KY			S
Green River	LOCK AND DAM 2	CALHOUN, KY			S
District		LRN			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
REPAIR STATION	TENNESSEE RIVER OPERATIONS CENTER (TROC)	FLORENCE, AL	X		N/A
REPAIR STATION	CUMBERLAND RIVER OPERATIONS CENTER (CROC)	OLD HICKORY, TN	X		N/A

Tennessee River	KENTUCKY LOCK	GRAND RIVERS, KY			S
Tennessee River	PICKWICK LANDING LOCK	PICKWICK DAM, TN			M
Tennessee River	PICKWICK LANDING LOCK AUX	PICKWICK DAM, TN			M
Tennessee River	WILSON LOCK	FLORENCE, AL			M
Tennessee River	WILSON LOCK AUX	FLORENCE, AL			M
Tennessee River	GEN JOS WHEELER LOCK	ROGERSVILLE, AL			M
Tennessee River	GEN JOS WHEELER LOCK AUX 1	ROGERSVILLE, AL			M
Tennessee River	GUNTERSVILLE LOCK	GRANT, AL			M
Tennessee River	GUNTERSVILLE LOCK AUX 1	GRANT, AL			M
Tennessee River	NICKAJAC LOCK	JASPER, TN			S
Tennessee River	CHICKAMAUGA LOCK	CHATTANOOGA, TN			S
Tennessee River	WATTS BAR LOCK	DECATUR, TN			S
Tennessee River	FORT LOUDON LOCK	LENOIR CITY, TN			S
Cumberland River	BARKLEY LOCK	GRAND RIVERS, KY			S
Cumberland River	CHEATHAM LOCK	ASHLAND CITY, TN			S
Cumberland River	CORDELL HULL LOCK	CARTHAGE, TN			S
Cumberland River	OLD HICKORY LOCK	OLD HICKORY, TN			S
Clinch River	MELTON HILL LOCK	LENOIR CITY, TN			S

District		LRP			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
REPAIR STATION	PEWARS REPAIR STATION AND FLEET	NEVILLE ISLAND, PA	X		S
Monongahela River	LOCK AND DAM 2	BRADDOCK, PA			M
Monongahela River	LOCK AND DAM 2 AUX 1	BRADDOCK, PA			M
Monongahela River	LOCK AND DAM 3	ELIZABETH, PA			M
Monongahela River	LOCK AND DAM 3 AUX 1	ELIZABETH, PA			M
Monongahela River	LOCK AND DAM 4	BELLE VERNON, PA			M
Monongahela River	LOCK AND DAM 4 AUX 1	BELLE VERNON, PA			M
Monongahela River	MAXWELL LOCK AND DAM	EAST MILLSBORO, PA			M
Monongahela River	MAXWELL LOCK AND DAM AUX 1	EAST MILLSBORO, PA			M
Monongahela River	GRAYS LANDING LOCK AND DAM	MASONTOWN, PA			M
Monongahela River	POINT MARION LOCK AND DAM	DILLINER, PA			S
Monongahela River	MORGANTOWN LOCK AND DAM	MORGANTOWN, WV			S
Monongahela River	HILDEBRAND LOCK AND DAM	MORGANTOWN, WV			S
Monongahela River	OPEKISKA LOCK AND DAM	MORGANTOWN, WV			S
Allegheny River	LOCK AND DAM 2	PITTSBURGH, PA			S
Allegheny River	CW BILL YOUNG LOCK AND DAM 3	NEW KENSINGTON, PA			S
Allegheny River	LOCK AND DAM 4	NATRONA HEIGHTS, PA			S

Allegheny River	LOCK AND DAM 5	FREEPORT, PA			S
Allegheny River	LOCK AND DAM 6	FREEPORT, PA			S
Allegheny River	LOCK AND DAM 7	KITTANNING, PA			S
Allegheny River	LOCK AND DAM 8	TEMPLETON, PA			S
Allegheny River	LOCK AND DAM 9	TEMPLETON, PA			S
Ohio River	EMSWORTH LOCK AND DAM	EMSWORTH, PA			M
Ohio River	EMSWORTH LOCK AND DAM AUX 1	EMSWORTH, PA			M
Ohio River	DASHIELDS LOCK AND DAM	GLENWILLARD, PA			M
Ohio River	DASHIELDS LOCK AND DAM AUX 1	GLENWILLARD, PA			M
Ohio River	MONTGOMERY LOCK AND DAM	MONACA, PA			M
Ohio River	MONTGOMERY LOCK AND DAM AUX 1	MONACA, PA			M
Ohio River	NEW CUMBERLAND LOCK AND DAM	STRATTON, PA			M
Ohio River	NEW CUMBERLAND LOCK AND DAM AUX 1	STRATTON, PA			M
Ohio River	PIKE ISLAND LOCK AND DAM	WHEELING, WV			M
Ohio River	PIKE ISLAND LOCK AND DAM AUX 1	WHEELING, WV			M
Ohio River	HANNIBAL LOCKS AND DAM	HANNIBAL, OH			M
Ohio River	HANNIBAL LOCKS AND DAM AUX 1	HANNIBAL, OH			M
Division		MVD			
District		MVK			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber

Red River	LINDY CLAIBORNE BOGGS LOCK AND DAM	LARTO, LA			S
Red River	JOHN H. OVERTON LOCK	RUBY, LA			S
Red River	RED RIVER LOCK AND DAM 3	COLFAX, LA			S
Red River	RUSSELL B. LONG LOCK	COUSHATTA, LA			S
Red River	JOE D WAGGONNER JR LOCK AND DAM	CASPIANA, LA			S
Red River	CENTRAL MAINTENANCE UNIT	COLFAX, LA	X		
Quachita/ Black Waterway	JONESVILLE LOCK AND DAM	JONESVILLE, LA			S
Quachita/ Black Waterway	COLUMBIA LOCK AND DAM	RIVERTON, LA			S
Quachita/ Black Waterway	FELSENTHAL LOCK AND DAM	FELSENTHAL, AR			S
Quachita/ Black Waterway	THATCHER LOCK AND DAM	CALION, AR			S
Quachita/ Black Waterway	CENTRAL MAINTENANCE UNIT	MONROE, LA	X		
District		MVM			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
	ENSLEY ENGINEER YARD	MEMPHIS, TN	X		
District		MVN			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Gulf Intracoastal Waterway	BAYOU BOEUF LOCK	Morgan City, LA			
	MAINT SECTION – FLOATING UNIT A	NEW ORLEANS, LA	X		
	MAINT SECTION – FLOATING UNIT B	NEW ORLEANS, LA	X		
	MAINT SECTION – FLOATING UNIT C	NEW ORLEANS, LA	X		

	MAINT SECTION (UNIT D)	MORGAN CITY, LA	X		
	MAINT SECTION – DISTRICT S&A	NEW ORLEANS, LA	X		
	FACILITIES MANAGEMENT- MECH TOOLS & EQUIP	NEW ORLEANS, LA	X		
	FACILITIES MANAGEMENT- MISC EQUIP & ELEC	NEW ORLEANS, LA	X		
	FACILITIES MANAGEMENT – PLANT- CRANES, FORKLIFTS AND BARGES	NEW ORLEANS, LA	X		NA
	FACILITIES MANAGEMENT (DISTRICT S&A)	NEW ORLEANS, LA	X		NA
	TECHNICAL SUPPORT BRANCH	NEW ORLEANS, LA	X		NA
Gulf Intracoastal Waterway	BAYOU BOEUF LOCK	MORGAN CITY, LA			S
Gulf Intracoastal Waterway	BAYOU SORREL LOCK	IBERVILLE PARISH			S
Atachafalaya River	BERWICK LOCK	BERWICK, LA			S
Gulf Intracoastal Waterway	HARVEY LOCK	HARVEY, LA			S
Gulf Intracoastal Waterway	CALCASIEU LOCK	CALCASIEU PARISH			S
Gulf Intracoastal Waterway	LELAND BOWMAN LOCK	VERMILION PARISH			S
Gulf Intracoastal Waterway	ALGIERS LOCK	NEW ORLEANS, LA			S
Gulf Intracoastal Waterway	INNER HARBOR NAV CANAL LOCK	NEW ORLEANS, LA			S
Gulf Intracoastal Waterway	PORT ALLEN LOCK	W BATON ROUGE PARISH			S
Bayou Teche	KEYSTONE LOCK	NEW ORLEANS, LA			
Old River	OLD RIVER LOCK	POINTE COUPEE PARISH			S
Freshwater Bayou	FRESHWATER BAYOU LOCK	VERMILION PARISH			S

Bayou Teche	SCHOONER BAYOU CONTROL STRUCTURE	VERMILION PARISH	X		S
Mermentau River	CATFISH POINT CONTROL STRUCTURE	CAMERON PARISH	X		S
Calcasieu River	CALCASIEU RIVER SALTWATER BARRIER	CALCASIEU PARISH	X		S
District		MVP			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Mississippi River	LOCK AND DAM 1 MAIN CHBR 1	MINNEAPOLIS, MN			S
Mississippi River	LOCK AND DAM 1 MAIN CHBR 2	MINNEAPOLIS, MN			S
Mississippi River	LOCK AND DAM 2	HASTINGS, MN			S
Mississippi River	LOCK AND DAM 2 AUX 1	HASTINGS, MN			S
Mississippi River	LOCK AND DAM 3	WELCH, MN			S
Mississippi River	LOCK AND DAM 4	ALMA, WI			S
Mississippi River	LOCK AND DAM 5	MINNESOTA CITY, MN			S
Mississippi River	Lock & Dam 5A	FOUNTAIN CITY, WI			S
Mississippi River	LOCK AND DAM 6	TREMPEALEAU, WI			S
Mississippi River	LOCK AND DAM 7	LACRESCENT, MN			S
Mississippi River	LOCK AND DAM 8	EASTMAN, WI			S
Mississippi River	LOCK AND DAM 9	GUTTENBERG, IA			S
Mississippi River	LOCK AND DAM 10	MINNEAPOLIS, MN			S
Mississippi River	ST ANTHONY FALLS UPPER LOCK AND DAM	MINNEAPOLIS, MN			S

Mississippi River	ST ANTHONY FALLS LOWER LOCK AND DAM	MINNEAPOLIS, MN			S
SERVICE BASE	FOUNTAIN CITY SERVICE BASE (MAINT & REPAIR CREWS)	FOUNTAIN CITY, WI	X		NA
District		MVR			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off- Site Support	Project Office	Single "S" or Multiple "M" Chamber
Mississippi River	LECLAIR REPAIR STATION	PLEASANT VALLEY, IA	X		NA
Mississippi River	LOCK AND DAM 11	DUBUQUE, IA			S
Mississippi River	LOCK AND DAM 12	BELLEVUE, IA			S
Mississippi River	LOCK AND DAM 13	FULTON, IL			S
Mississippi River	LOCK AND DAM 14 AUX 1	PLEASANT VALLEY, IA			M
Mississippi River	LOCK AND DAM 14	PLEASANT VALLEY, IA			
Mississippi River	LOCK AND DAM 15	ROCK ISLAND, IL			M
Mississippi River	LOCK AND DAM 15 AUX 1	ROCK ISLAND, IL			
Mississippi River	LOCK AND DAM 16	ILLINOIS CITY, IL			S
Mississippi River	LOCK AND DAM 17	NEW BOSTON, IL			S
Mississippi River	LOCK AND DAM 18	GLADSTONE, IL			S
Mississippi River	LOCK AND DAM 19	KEOKUK, IA			S
Mississippi River	LOCK AND DAM 20	CANTON, MO			S
Mississippi River	LOCK AND DAM 21	QUINCY, IL			S
Mississippi River	LOCK AND DAM 22	SAVERTON, MO			S

Illinois Waterway	PEORIA REPAIR STATION	PEORIA, IL	X		NA
Illinois Waterway	THOMAS J O'BRIEN	CHICAGO, IL			S
Illinois Waterway	LOCKPORT LOCK	LOCKPORT, IL			S
Illinois Waterway	BRANDON ROAD LOCK AND DAM	JOLIET, IL			S
Illinois Waterway	DRESDEN ISLAND LOCK AND DAM	MORRIS, IL			S
Illinois Waterway	MARSIELLES LOCK AND DAM	MARSEILLES, IL			S
Illinois Waterway	STARVED ROCK LOCK AND DAM	OTTAWA, IL			S
Illinois Waterway	PEORIA LOCK AND DAM	CREVE COEUR, IL			S
Illinois Waterway	LAGRANGE LOCK AND DAM	VERSAILLES, IL			S
District		MVS			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Mississippi River	LOCK AND DAM 24	CLARKSVILLE, MO			S
Mississippi River	LOCK AND DAM 25	WINFIELD, MO			S
Mississippi River	MEL PRICE LOCK AND DAM	E. ALTON, IL			M
Mississippi River	MEL PRICE LOCK AND DAM AUX 1	E. ALTON, IL			
Mississippi River	CHAIN OF ROCKS LOCK AND DAM 27 AUX 1	GRANITE CITY, IL			M
Mississippi River	CHAIN OF ROCKS LOCK AND DAM 27	GRANITE CITY, IL			M
Kaskaskia River	KASKASKIA RIVER NAVAGATION LK	MODOC, IL			S
Division		NAD			

District		NAN			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Hudson River	TROY LOCK AND DAM	TROY, NY			S
District		NAO			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
AIWW-Albemarle & Chesapeake Canal	GREAT BRIDGE GUARD LOCK	CHESAPEAKE, VA			S
AIWW-Dismal Swamp Canal	DEEP CREEK LOCK	CHESAPEAKE, VA			S
AIWW-Dismal Swamp Canal	SOUTH MILLS LOCK	CAMDEN, NC			S
Division		NWD			
District		NWP			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Willamette River	WILLAMETTE FALLS LOCKS 1 - 4	CASCADE LOCKS, OR			S
Columbia River	BONNEVILLE LOCK AND DAM 1	CASCADE LOCKS, OR			S
Columbia River	BONNEVILLE LOCK AND DAM 2	CASCADE LOCKS, OR	ON SITE		S
Columbia River	THE DALLES DAM	THE DALLES, OR			S
Columbia River	JOHN DAY LOCK AND DAM	RUFUS, OR			S
District		NWS			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Lake Washington Ship Canal	HIRAM M CHITTENDEN LOCKS	SEATTLE, WA			1M & 1S
Lake Washington Ship Canal	HIRAM M CHITTENDEN LOCKS AUX 1	SEATTLE, WA	X		

District		NWW			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Columbia River	MCNARY LOCK AND DAM	UMATILLA, OR	ON SITE		S
Snake River	ICE HARBOR LOCK AND DAM	PASCO, WA	ON SITE		S
Snake River	LITTLE GOOSE LOCK AND DAM	STARBUCK, WA	ON SITE		S
Snake River	LOWER MONUMENTAL LOCK AND DAM	KAHLOTUS, WA	ON SITE		S
Snake River	LOWER GRANITE LOCK AND DAM	POMEROY, WA			S
Division		SAD			
District		SAJ			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Central & Southern Florida-Okeechobee WW	SOUTH FLORIDA OPERATIONS OFFICE	CLEWISTON, FL	X		S
Central & Southern Florida-Okeechobee WW	ORTONA LOCK AND DAM	LABELL, FL			S
Central & Southern Florida-Okeechobee WW	W P FRANKLIN LCK AND CTL STRCT	ALVA, FL			S
Central & Southern Florida-Okeechobee WW	MOORE HAVEN LOCK	MOORE HAVEN, FL			S
Central & Southern Florida-Okeechobee WW	ST LUCIE LOCK AND DAM	STUART, FL			S
Central & Southern Florida-Okeechobee WW	PORT MAYACA LOCK	CANAL POINT, FL			S
Canaveral Harbor	CANAVERAL LOCK	CANAVERAL, FL			S
District		SAM			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Black Warrior Tombigbee Rivers	BWT/AL-COOSA PROJECT MANAGEMENT OFFICE	TUSCALOOSA, AL		X	
Black Warrior Tombigbee Rivers	JOHN HOLLIS BANKHAD LOCK AND DAM	ADGER, AL			S

Black Warrior Tombigbee Rivers	HOLT LOCK AND DAM	PETERSON, AL			S
Black Warrior Tombigbee Rivers	WILLIAM BACON OLIVER LOCK AND DAM	NORTHPORT, AL			S
Black Warrior Tombigbee Rivers	ARMSTEAD I. SELDEN LOCK AND DAM	SAWYERVILLE, AL			S
Black Warrior Tombigbee Rivers	DEMOPOLIS LOCK AND DAM	DEMOPOLIS, AL			S
Black Warrior Tombigbee Rivers	COFFEEVILLE LOCK	COFFEEVILLE, AL			S
Tennessee-Tombigbee Waterway	HOWELL HEFLIN LOCK AND DAM	GAINESVILLE, AL			S
Tennessee-Tombigbee Waterway	TOM BEVILL LOCK AND DAM	PICKENSVILLE, AL			S
Tennessee-Tombigbee Waterway	JOHN C. STENNIS LOCK AND DAM	COLUMBUS, MS			S
Tennessee-Tombigbee Waterway	ABERDEEN LOCK AND DAM	ABERDEEN, MS			S
Tennessee-Tombigbee Waterway	AMORY LOCK	AMORY, MS			S
Tennessee-Tombigbee Waterway	GLOVER WILKINS LOCK	SMITHVILLE, MS			S
Tennessee-Tombigbee Waterway	FULTON LOCK	FULTON, MS			S
Tennessee-Tombigbee Waterway	JOHN RANKIN LOCK	FULTON, MS			S
Tennessee-Tombigbee Waterway	G.V. SONNY MONTGOMERY LOCK	FULTON, MS			S
Tennessee-Tombigbee Waterway	JAMIE L. WHITTEN LOCK AND DAM	DENNIS, MS			S
Alabama-Coosa River	ROBERT F. HENRY LOCK AND DAM	LOWNDESBORO, AL			S
Alabama-Coosa River	MILLERS FERRY LOCK AND DAM	CAMDEN, AL			S
Alabama-Coosa River	CLAIBORNE LOCK AND DAM	FRANKLIN, AL			S
Apalachicola Chattahoochee & Flint Rivers	WALTER F GEORGE LOCK AND DAM	FT. GAINES, GA			S

Apalachicola Chattahoochee & Flint Rivers	GEORGE W ANDREWS LOCK AND DAM	COLUMBIA, AL			S
Apalachicola Chattahoochee & Flint Rivers	JIM WOODRUFF LOCK AND DAM	CHATTAHOOCHEE, FL			S
District		SAW			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Cape Fear River	CAPE FEAR SYSTEM	ACME, ELIZABETHTOWN & FAYETTEVILLE, NC			S
Cape Fear River	LOCK AND DAM 1	RIEGELWOOD, NC			S
Cape Fear River	LOCK AND DAM 2	ELIZABETHTOWN, NC			S
Cape Fear River	WILLIAM O HUSKE LOCK AND DAM	FAYETTEVILLE, NC			S
Division		SWD			
District		SWG			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
Gulf Intracoastal Waterway	COLORADO RIVER EAST LOCK and WEST LOCK	MATAGORDA, TX			S
Gulf Intracoastal Waterway	BRAZOS EAST GATE and WEST GATE	FREEPORT, TX			S
District		SWL			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
McClellan-Rerr Arkansas River Navigation System	MONTGOMERY POINT LOCK AND DAM	TICHNOR, AR			S
McClellan-Rerr Arkansas River Navigation System	DARDENELLE MARINE TERMINAL	RUSSELLVILLE, AR	X		
McClellan-Rerr Arkansas River Navigation System	PINE BLUFF MARINA TERMINAL	PINE BLUFF, AR	X		
McClellan-Rerr Arkansas River Navigation System	NORRELL LOCK AND DAM	TICHNOR, AR			S
McClellan-Rerr Arkansas River Navigation System	LOCK 2 AND WILBUR D. MILLS DAM	TICHNOR, AR			S
McClellan-Rerr Arkansas River Navigation System	JOE HARDIN LOCK AND DAM	SWAN LAKE, AR			S

McClellan-Rerr Arkansas River Navigation System	EMMETT SANDERS LOCK AND DAM	PINE BLUFF, AR			S
McClellan-Rerr Arkansas River Navigation System	LOCK AND DAM 5	TUCKER, AR			S
McClellan-Rerr Arkansas River Navigation System	DAVID D TERRY LOCK AND DAM	SCOTT, AR			S
McClellan-Rerr Arkansas River Navigation System	MURRAY LOCK AND DAM	LITTLE ROCK, AR			S
McClellan-Rerr Arkansas River Navigation System	TOAD SUCK FERRY LOCK AND DAM	CONWAY, AR			S
McClellan-Rerr Arkansas River Navigation System	ARTHUR V. ORMOND LOCK AND DAM	MORRILTON, AR			S
McClellan-Rerr Arkansas River Navigation System	DARDANELLE LOCK AND DAM	RUSSELLVILLE, AR			S
McClellan-Rerr Arkansas River Navigation System	OZARK LOCK AND DAM	OZARK, AR			S
McClellan-Rerr Arkansas River Navigation System	JAMES W. TRIMBLE LOCK AND DAM	BARLING, AR			S
District		SWT			
River or Waterway	Lock Name	Duty Station	Maintenance Facility or Off-Site Support	Project Office	Single "S" or Multiple "M" Chamber
	SALLISAW MARINE TERMINAL	SALLISAW, OK	X		
McClellan-Rerr Arkansas River Navigation System	CHOUTEAU LOCK & DAM	PORTER, OK			S
McClellan-Rerr Arkansas River Navigation System	NEWT GRAHAM LOCK & DAM	INOLA, OK			S
McClellan-Rerr Arkansas River Navigation System	W D MAYO LOCK AND DAM	SPIRO, OK			S
McClellan-Rerr Arkansas River Navigation System	RBRT S KERR LK AND DAM AND RES	SALLISAW, OK			S
McClellan-Rerr Arkansas River Navigation System	WEBBERS FALLS LOCK AND DAM	GORE, OK			S

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
ACC	GREAT BRIDGE				4	30					34
ACF System	GEORGE W. ANDREWS										0
ACF System	JIM WOODRUFF										0
ACF System	WALTER F. GEORGE										0
Alabama-Coosa River	CLAIBORNE										0
Alabama-Coosa River	MILLERS FERRY										0
Alabama-Coosa River	ROBERT F. HENRY										0
Allegheny River	2 ALLEGHENY										0
Allegheny River	3 ALLEGHENY			3		1	0				4
Allegheny River	4 ALLEGHENY					1					1
Allegheny River	5 ALLEGHENY										0
Allegheny River	6 ALLEGHENY										0
Allegheny River	7 ALLEGHENY										0
Allegheny River	8 ALLEGHENY				5						5
Allegheny River	9 ALLEGHENY										0
Arkansas River	2 ARKANSAS			6				11			17
Arkansas River	5 ARKANSAS							1			1
Arkansas River	ARTHUR V. ORMOND					2					2

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Arkansas River	CHOUTEAU										0
Arkansas river	DARDANELLE							36			36
Arkansas River	EMMETT SANDERS	5		12				33			50
Arkansas River	JAMES W. TRIMBLE			14				5			19
Arkansas River	JOE HARDIN			2				4			6
Arkansas River	MURRAY										0
Arkansas River	NEWT GRAHAM LOCK										0
Arkansas River	NORRELL			33	1	1	3	19	6		63
Arkansas river	OZARK - JETA TAYLOR							6			6
Arkansas river	ROBERT S. KERR	3									3
Arkansas River	W.D. MAYO										0
Arkansas river	WEBBERS FALLS										0
Bayou Teche	BERWICK										0
Bayou Teche	EAST & WEST CALUMET										0
Bayou Teche	KEYSTONE										0
Blackrock River	BLACK ROCK										0
BWT System	ARMISTEAD I. SELDON										0
BWT System	COFFEEVILLE										0

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BWT System	DEMOPOLIS										0
BWT System	HOLT										0
BWT System	JOHN HOLLIS BANKHEAD										0
BWT System	WILLIAM BACON OLIVER										0
C&SF-OWW	MOORE HAVEN					3					3
C&SF-OWW	ORTONA		8								8
C&SF-OWW	PORT MAYACA		8	3		32					43
C&SF-OWW	ST. LUCIE			0		2					2
C&SF-OWW	W. P. FRANKLIN										0
Canv. Project	CANAVERAL		4	0			1	1			6
Cape Fear	1 CAPE FEAR										0
Cape Fear	2 CAPE FEAR										0
Cape Fear	WILLIAM O. HUSKE										0
Chicago River	CHICAGO									4	4
Clinch River	MELTON HILL										0
Columbia	BONNEVILLE										0
Columbia	JOHN DAY					12		1			13
Columbia	MCNARY										0

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River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Columbia	THE DALLES			0		9	0				9
Cumberland River	BARKLEY			394		3		18	32		447
Cumberland River	CHEATHAM	2				10		9			21
Cumberland River	CORDELL HULL										0
Cumberland River	OLD HICKORY		28					34			62
DSC	DEEP CREEK										0
DSC	SOUTH MILLS					3					3
GIWW	ALGIERS	2			17	16		1			36
GIWW	BRAZOS EAST			7				1			8
GIWW	BRAZOS WEST			37				8			45
GIWW	CALCASIEU	1		1	2	1	1	97	30		133
GIWW	CATFISH POINT							12	1		13
GIWW	COLORADO RIVER EAST							5	4		9
GIWW	COLORADO RIVER WEST			2			1	14			17
GIWW	FRESHWATER BAYOU	1						3	0		4
GIWW	HARVEY	2				16	1		2		21
GIWW	INNER HARBOR NAVIGATION CANAL					39		4			43
GIWW	LELAND BOWMAN			0				5			5

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
GIWW	OLD RIVER					1					1
GIWW	PORT ALLEN	11		26	3	3	2	32	1		78
GIWW	SCHOONER BAYOU										0
Green River	1 GREEN							5	5		10
Green River	2 GREEN							2			2
Gulf Intracoastal Waterway	BAYOU BOEUF	1		3			0	0	1		5
Gulf Intracoastal Waterway	BAYOU SORREL	3		4				16	5		28
Gulf Intracoastal Waterway	CALCASIEU BARRIER										0
Hudson	TROY										0
Illinois Waterway	BRANDON ROAD					6		83			89
Illinois Waterway	DRESDEN ISLAND					4		5	8		17
Illinois Waterway	LAGRANGE						4	7		3	14
Illinois Waterway	LOCKPORT				0	1		26		6	33
Illinois Waterway	MARSEILLES			23	1	5		33			62
Illinois Waterway	PEORIA			0		11		2		2	15
Illinois Waterway	STARVED ROCK			1		2					3
Illinois Waterway	THOMAS J. OBRIEN							35		5	40
Kanawha River	LONDON			1							1

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Kanawha River	MARMET	2		172	10	8		34	3		229
Kanawha River	WINFIELD				1	1		8	3		13
Kaskaskia River	KASKASKIA										0
LWSC	HIRAM M. CHITTENDEN			1	27	87	66	87	2	0	270
Mississippi River	1 MISSISSIPPI										0
Mississippi River	10 MISSISSIPPI										0
Mississippi River	11 MISSISSIPPI			2		5		51	9		67
Mississippi River	12 MISSISSIPPI	0				1		49	1		51
Mississippi River	13 MISSISSIPPI					1				2	3
Mississippi River	14 MISSISSIPPI				0	1					1
Mississippi River	15 MISSISSIPPI							0	0		0
Mississippi River	16 MISSISSIPPI				1	1				9	11
Mississippi River	17 MISSISSIPPI							1		13	14
Mississippi River	18 MISSISSIPPI			51		4		20	3		78
Mississippi River	19 MISSISSIPPI			761		58		20	72	17	928
Mississippi River	2 MISSISSIPPI										0
Mississippi River	20 MISSISSIPPI					3	0	1			4
Mississippi River	21 MISSISSIPPI					1					1

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Mississippi River	22 MISSISSIPPI			3	2			6		27	38
Mississippi River	24 MISSISSIPPI			1		5		2			8
Mississippi River	25 MISSISSIPPI	1		1	9	10		48		7	76
Mississippi River	27 MISSISSIPPI			11		20		2476	6		2513
Mississippi River	3 MISSISSIPPI										0
Mississippi River	4 MISSISSIPPI										0
Mississippi River	5 MISSISSIPPI					1					1
Mississippi River	5a MISSISSIPPI										0
Mississippi River	6 MISSISSIPPI										0
Mississippi River	7 MISSISSIPPI					1					1
Mississippi River	8 MISSISSIPPI									1	1
Mississippi River	9 MISSISSIPPI					1		3			4
Mississippi River	LOWER SAINT ANTHONY FALLS										0
Mississippi River	MELVIN PRICE	1				11	2	10			24
Mississippi River	UPPER SAINT ANTHONY FALLS					1					1
Monongahela River	2 MONONGAHELA			25				0			25
Monongahela River	3 MONONGAHELA			648		12		371			1031
Monongahela River	4 MONONGAHELA			4320					1		4321

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Monongahela River	GRAYS LANDING										0
Monongahela River	HILDEBRAND										0
Monongahela River	MAXWELL	2					4		2		8
Monongahela River	MORGANTOWN										0
Monongahela River	OPEKISKA										0
Monongahela River	POINT MARION										0
Ohio River	52 OHIO	1	2	574	1	5		14	726		1323
Ohio River	53 OHIO				4		1				5
Ohio River	BELLEVILLE			667		1		356	6		1030
Ohio River	CANNELTON			430	1	11		217	20		679
Ohio River	CAPTAIN ANTHONY MELDAHL			574		1	0	340	5		920
Ohio River	DASHIELDS	2		189			1	16	6		214
Ohio River	EMSWORTH			7	15	54	1	100	2		179
Ohio River	GREENUP			13	78	6	104	40	1		242
Ohio River	HANNIBAL	0		10	1	333	0	362	6		712
Ohio River	JOHN T. MYERS			1	9	0		4	9		23
Ohio River	MARKLAND			5				7	9		21
Ohio River	MCALPINE			16	0	0		4	11		31

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Ohio River	MONTGOMERY			164		2		6	4		176
Ohio River	NEW CUMBERLAND	1		16				22	1		40
Ohio River	NEWBURGH			895				10	3		908
Ohio River	PIKE ISLAND	1		18		0		491	9		519
Ohio River	RACINE			8	5	57		294	35		399
Ohio River	ROBERT C. BYRD			8		1	0	9	10		28
Ohio River	SMITHLAND				10	19		70			99
Ohio River	WILLOW ISLAND			11				6			17
Ouachita/ Black Waterway	COLUMBIA										0
Ouachita/ Black Waterway	FELSENTHAL										0
Ouachita/ Black Waterway	H. K. THATCHER										0
Ouachita/ Black Waterway	JONESVILLE										0
Pearl River	1 WEST PEARL										0
Pearl River	2 WEST PEARL										0
Pearl River	3 WEST PEARL										0
Red River	3 RED										0
Red River	JOE D. WAGGONER										0
Red River	JOHN H.OVERTON					1					1

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Red River	LINDY CLAIBORNE BOGGS					2					2
Red River	RUSSELL B. LONG										0
Snake	ICE HARBOR										0
Snake	LITTLE GOOSE					1		0			1
Snake	LOWER GRANITE										0
Snake	LOWER MONUMENTAL					0	1				1
Tennessee River	CHICKAMAUGA				2	3		60	10		75
Tennessee River	FORT LOUDON		54			1		45			100
Tennessee River	GENERAL JOSEPH WHEELER			1		1	3	46	4		55
Tennessee River	GUNTERSVILLE							16			16
Tennessee River	KENTUCKY			2		7	1	39	9		58
Tennessee River	NICKAJACK			13		4	4	168	2		191
Tennessee River	PICKWICK LANDING			23		147	205	233	29		637
Tennessee River	WATTS BAR					2		122	6		130
Tennessee River	WILSON	1232	56	573	0	24		117	25	2	2029
Tenn-Tom system	ABERDEEN										0
Tenn-Tom system	AMORY					1		7			8
Tenn-Tom system	FULTON										0

Technical Exhibit 6A - FY2006 Unscheduled Unavailable Hours by Lock Condition Category

TE-6A Description: This TE references section C.5..3.3 of the Baseline Requirements Document. The focus of this exhibit is to illustrate the lock condition sub-category that was unavailable in FY06 by reason code.

River System	Lock Name	AA - Accident or collision in lock	BB - Closed (unmanned shift)	EE - Repairing lock or lock hardware	Q - Debris in lock recess or lock chamber	R - Lock hardware or equipment malfunction	S - Lock staff occupied with other duties	T - Maintaining lock or lock equipment	Y - Inspection or testing lock	U - Ice on lock or lock equipment	Total
Tenn-Tom system	G.V. SONNY" MONTGOMERY"										0
Tenn-Tom system	GLOVER WILKINS										0
Tenn-Tom system	HOWELL HEFLIN			2							2
Tenn-Tom system	JAMIE WHITTEN										0
Tenn-Tom system	JOHN C. STENNIS										0
Tenn-Tom system	JOHN E. RANKIN										0
Tenn-Tom system	TOM BEVILL										0
White River	MONTGOMERY POINT					0					0
Willamette	WILLAMETTE FALLS										0
Grand Total		1274	160	10788	209	1131	406	6982	1145	98	22193

Technical Exhibit 6B - Trends in Unscheduled Unavailable Hours by Reason Codes Associated with Lock O&M

TE Description: This TE references section C.5.3.3 of the Baseline Requirements Document. This data illustrates the unscheduled unavailable hours by lock condition codes.

Unavailability Codes	2002	2003	2004	2005	2006
AA - Accident or collision in lock	52.00	132.89	64.90	219.17	1274.28
BB - Closed (unmanned shift)	16976.16	15344.35	2486.49	1488.87	3582.76
EE - Requiring lock or lock hardware	3904.95	6008.23	5432.34	15059.35	10809.13
Q - Debris in lock recess or chamber	326.49	538.87	872.35	223.56	236.92
R - Lock hardware or equipment malfunction	635.21	1082.52	491.65	3077.22	1145.83
S - Lock staff occupied with other duties	1938.44	1061.94	816.08	419.85	967.42
T - Maintaining lock or lock equipment	4018.64	5340.54	4998.47	7949.70	7437.75
U - Ice on lock or lock equipment	6.46	66.68	293.00	83.00	98.00
Y - Inspection or testing lock	289.93	365.03	380.33	292.33	1292.60

TE-7 – Business Process Review Improvements Tied to Baseline Requirements Document (Section C.5.)

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
C.5.1	Operate Lock	IMTS will operate locks in accordance with appropriations, annual authorization, Army and Engineer regulations, and policy and technical guidance. Lockages will be performed on demand or on schedule in accordance with priorities defined in TE-2, 2006 Lock Hours of Operation & Percent Availability of Lock Chamber. Queued vessels will transit the locks in accordance with established procedures and standards.	3	Enhance the Hiring Process	(1) Expedited recruitment (2) Timely hiring (3) Effective placement of skilled staff to ensure continuity of operations, maintenance, and repair services. (4) Improved accomplishment of major maintenance & repair (5) Expedited emergency response
			4	Strengthen Leadership & Management	(1) Improved leadership skills for supervisors and managers (2) A strengthened workforce to achieve safe, efficient, reliable lockages and maintenance activities
			5	Improve Level of Service	Optimized hours of operation based upon usage patterns enhancing the ability to balance resources with system reliability
			6	Training & Certification for Lock Staff	Uniform, well-training staff to ensure consistent, safe lock operations and enhance career opportunities for the workforce
			8	Share IMTS Knowledge & Information	(1) Increased communication (2) Improved public relations (3) Enhanced internal exchange of information (4) Greater employee situational awareness
			14	Standardize Position Descriptions	Uniform & consistent position descriptions for IMTS positions to facilitate employee mobility & career advancement

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			18	Optimize Shift Schedules	Productive, cost-effective, and worker-friendly shift schedules to allow for more efficient & effective lock & dam O&M
			19	Standardize Staffing & Grade Structure	(1) Savings from transferring work to in-house performance where business case demonstrates it is more advantageous to the government (2) Enhanced human resources management by more efficiently matching workforce to workload (3) Enhanced ability of managers to effectively operate the facilities under their responsibility
			20	Standardize Locking Procedures	Improved customer satisfaction through consistent procedures
			23	Systems-Based Budgeting	(1) Enhanced investment decisions & a better "Return On Investment" from the funds (2) Faster response time to emergencies due to greater flexibility in moving funds (3) Optimized construction schedules & better economies of scale
C.5.2	Operate Dam	Effective dam operations are needed to meet IMTS reliability and flood control expectations in accordance with appropriations, authorization,	6	Training & Certification for Lock Staff	Uniform, well-training staff to ensure consistent, safe lock operations and enhance career opportunities for the workforce

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
		Army and Engineer regulations, and policy and technical guidance. Dam operations include all activities associated with the operation of a Navigation dam structure and associated facilities and equipment. These dams release water through the operation of spillway gates and other outlet works, flood control, and maintenance of a Navigation pool.	8	Share IMTS Knowledge & Information	(1) Increased communication (2) Improved public relations (3) Enhanced internal exchange of information (4) Greater employee situational awareness
		Respond to inquiries from users and the public regarding pool level and flow conditions, particularly during high- and low-water conditions or events.	14	Standardize Position Descriptions	Uniform & consistent position descriptions for IMTS positions to facilitate employee mobility & career advancement
			25	Standardize Water Control Procedures	Increased opportunity for customers to move commodities through selected IMTS river systems
C.5.3	Maintain & Repair Lock	The goal of the maintenance and repair program is to minimize unscheduled outages and unreliability to customers.	2	Share Corporate Knowledge of Preventative Maintenance & Repair Procedures	Improved networking & exchange of proven preventive maintenance (PM) and repair techniques to minimize lock unavailability (as well as learning about unsuccessful PM and repair techniques to avoid)
		Perform scheduled preventive maintenance (daily, weekly, monthly, periodic, and routine) according to the preventive maintenance schedule. Track scheduled maintenance using an approved Computerized Maintenance Management System (CMMS). (TE-5, Lock Site Locations) Perform emergency lock maintenance and repair to minimize the impact on	3	Enhance the Hiring Process <i>Specifically:</i> C.5.3.1 Perform Lock Maintenance C.5.3.3 Perform Emergency Lock Maintenance & Repair	(1) Expedited recruitment (2) Timely hiring (3) Effective placement of skilled staff to ensure continuity of operations, maintenance, and repair services. (4) Improved accomplishment of major maintenance & repair (5) Expedited emergency response

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
		system reliability, including unscheduled repairs that need immediate attention to maintain a functional lock (unscheduled unavailability/stoppage). (TE-6A FY2006 Unscheduled Unavailable Hours by Lock Condition Category and TE-6B, Trends in Unscheduled Unavailable Hours by Reason Code Associated with Lock O&M)	4	Strengthen Leadership & Management <i>Specifically: C.5.3.1 Perform Lock Maintenance C.5.3.3 Perform Emergency Lock Maintenance & Repair</i>	(1) Improved leadership skills for supervisors and managers (2) A strengthened workforce to achieve safe, efficient, reliable lockages and maintenance activities
			6	Training & Certification for Lock Staff	Uniform, well-training staff to ensure consistent, safe lock operations and enhance career opportunities for the workforce
			7	Augment Supervisory Skills at Lock & Field Offices <i>Specifically: C.5.3.1 Perform Lock Maintenance C.5.3.3 Perform Emergency Lock Maintenance & Repair</i>	Supervisors with the skills necessary to enhance management & employee relationships
			8	Share IMTS Knowledge * Information	(1) Increased communication (2) Improved public relations (3) Enhanced internal exchange of information (4) Greater employee situational awareness

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			10	Enhance On-Site Supervision	(1) More on-site supervision (2) Defined work leadership roles and authority (3) Improved span of control
			12	Acquisition of Land & Floating Plant Equipment	Reduced purchase costs for land & floating plant equipment through innovative acquisition strategies
			13	Restructure Plant Replacement & Improvement Program (PRIP)	Lower ownership costs of revolving fund assets
			14	Standardize Position Descriptions	Uniform & consistent position descriptions for IMTS positions to facilitate employee mobility & career advancement
			18	Optimize Shift Schedules	Productive, cost-effective, and worker-friendly shift schedules to allow for more efficient & effective lock & dam O&M
			19	Standardize Staffing & Grade Structure <i>Specifically: C.5.3.1 Perform Lock Maintenance C.5.3.3 Perform Emergency Lock Maintenance & Repair</i>	(1) Savings from transferring work to in-house performance where cost comparison demonstrates it is more economical (2) Enhanced human resources management by more efficiently matching workforce to workload (3) Enhanced ability of managers to effectively operate the facilities under their responsibility

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			21	Improved Alignment of Administrative Tasks <i>Specifically: C.5.3.1 Perform Lock Maintenance C.5.3.3 Perform Emergency Lock Maintenance & Repair</i>	Effective allocation of administrative, supervisory, and maintenance work to appropriate staff
			24	Implement 3-Phase Inspection System for Major Maintenance	(1) Returning sites to service in less time and within budget (2) Improved quality of repair (3) Less rework
5.4	Maintain & Repair Dam	Perform routine and non-routine maintenance and repair of dams and associated structures, such as spillways, embankments, outlet works, levees, pumping stations, and other structures. Perform project management and oversight of the maintenance and repair of a Navigation dam structure and its associated facilities and equipment to achieve NavLocks System reliability.	2	Share Corporate Knowledge of Preventative Maintenance & Repair Procedures	Improved networking & exchange of proven preventive maintenance (PM) and repair techniques to minimize lock unavailability (as well as learning about unsuccessful PM and repair techniques to avoid)
			3	Enhance the Hiring Process	(1) Expedited recruitment (2) Timely hiring (3) Effective placement of skilled staff to ensure continuity of operations, maintenance, and repair services (4) Improved accomplishment of major maintenance & repair (5) Expedited emergency response
			6	Training & Certification for Lock Staff	Uniform, well-training staff to ensure consistent, safe lock operations and enhance career opportunities for the workforce

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			7	Augment Supervisory Skills at Lock & Field Offices	Supervisors with the skills necessary to enhance management & employee relationships
			8	Share IMTS Knowledge & Management	(1) Increased communication (2) Improved public relations (3) Enhanced internal exchange of information (4) Greater employee situational awareness
			12	Acquisition of Land & Floating Plant Equipment	Reduced purchase costs for land & floating plant equipment through innovative acquisition strategies
			13	Restructure the Plant Replacement & Improvement Program (PRIP)	Lower ownership costs of revolving fund assets
			14	Standardize Position Descriptions	Uniform & consistent position descriptions for IMTS positions to facilitate employee mobility & career advancement
			18	Optimize Shift Schedules	Productive, cost-effective, and worker-friendly shift schedules to allow for more efficient & effective lock & dam O&M

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
5.5	Perform Major Maintenance of Locks & Dams	Perform major maintenance of locks and dams, including management and administrative activities related to major scheduled maintenance, repair, and emergency repair to ensure system reliability. This may involve personnel at the lock and dam site, central maintenance facility, or mobile maintenance fleet. It may involve personnel from other lock and dam sites inside or outside the parent District, Division, and HQUSACE or outside resources.	1	Share Corporate Knowledge of Major Maintenance <i>Specifically:</i> C.5.5.1 Conduct Scheduled Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs	Formalized use of regularly scheduled regional & national workshops to facilitate networking, the exchange of proven repair techniques (and unsuccessful repair techniques) that will maximize lock reliability, and build a knowledge base to share resources (equipment, materials, and personnel) to improve emergency repairs.
		Perform all activities required for major maintenance and repairs, including planning, scheduling, communicating with users, closing the lock chamber, conducting the maintenance or repairs, and reopening the chamber. Major maintenance and repairs will be performed in a manner that minimizes the impact on system reliability.	3	Enhance the Hiring Process <i>Specifically:</i> C.5.5.1 Conduct Scheduled Major Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs	(1) Expedited recruitment (2) Timely hiring (3) Effective placement of skilled staff to ensure continuity of operations, maintenance, and repair services (4) Improved accomplishment of major maintenance & repair (5) Expedited emergency response
		Perform emergency repairs as needed to meet the performance requirements	12	Acquisition of Land & Floating Plant Equipment	Reduced purchase costs for land & floating plant equipment through innovative acquisition strategies
			13	Restructure the Plant Replacement & Improvement Program (PRIP)	Lower ownership costs of revolving fund assets

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
		described in TE-1, Performance Requirement Summary.	15	Regional/System Equipment Pool (Leased Equipment) <i>Specifically: C.5.5.1 Conduct Scheduled Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs</i>	(1) Savings through economies of scale, by utilizing an alternative acquisition strategy (2) Faster access to leased equipment
			16	Scheduling & Budgeting Major Maintenance <i>Specifically: C.5.5.1 Conduct Scheduled Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs</i>	(1) Enhanced coordination of simultaneous closures (2) Increased benefits to customers by prioritizing major maintenance activities (3) Increased return on investment through standardized condition assessment & risk-based ranking process (Asset Management)
			17	Service Providers for Maintenance Projects <i>Specifically: C.5.5.1 Conduct Scheduled Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs</i>	Reduced acquisition time through effective use of alternative procurement vehicles on a regional basis

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			23	Systems-Based Budgeting <i>Specifically:</i> C.5.5.1 Conduct Scheduled Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs	(1) Enhanced investment decisions & a better "Return On Investment" from the funds (2) Faster response time to emergencies due to greater flexibility in moving funds (3) Optimized construction schedules & better economies of scale
			24	Implement 3-Phase Inspection System for Major Maintenance <i>Specifically:</i> C.5.5.1 Conduct Scheduled Maintenance & Repairs C.5.5.2 Conduct Emergency (Unscheduled) Repairs	(1) Returning sites to service in less time and within budget (2) Improved quality of repair (3) Less rework
5.6	Manage Lock & Dam Resources & Assets	Prepare, coordinate, and submit the annual O&M budget according to annual USACE budget guidance and incorporate consideration of asset management. Execute the approved budget and adjust or realign it to meet changing needs with command	4	Strengthen Leadership & Management <i>Specifically:</i> C.5.6.5 Perform Lock, Dam and Facility Security	(1) Improved leadership skills for supervisors and managers (2) A strengthened workforce to achieve safe, efficient, reliable lockages and maintenance activities

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
		<p>approval. Develop the overhead budgets to support rate determinations and training, in coordination with other activities.</p> <p>In accordance with USACE policy, provide the physical security and safety for the lock and dam sites according to the site security safety plan. Physical security may include the use of guards (when authorized), perimeter fences, gates (possibly with electronic entry controls), security plans, surveillance cameras, and security screening for those entering the lock and dam site.</p> <p>Manage the capital investment program to ensure capital investments are identified, prioritized, supported, and requested. The Plant Replacement and Improvement Program (PRIP) may be used by some capital investments.</p>	8	<p>Share IMTS Knowledge & Management</p> <p><i>Specifically:</i> C.5.6.1 Prepare Annual Lock/Dam O&M Budget C.5.6.5 Perform Lock, Dam, and Facility Security C.5.6.8 Capital Investment.</p>	<p>(1) Increased communication (2) Improved public relations (3) Enhanced internal exchange of information (4) Greater employee situational awareness</p>
			10	<p>Enhance On-Site Supervision</p> <p><i>Specifically:</i> C.5.6.5. Perform Lock, Dam, and Facility Security</p>	<p>(1) More on-site supervision (2) Defined work leadership roles and authority (3) Improved span of control</p>
			11	<p>Physical Security Procedures</p> <p><i>Specifically:</i> C.5.6.5. Perform Lock, Dam, and Facility Security</p>	<p>Security systems that perform as designed & provide intended level of protection.</p>

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			16	Scheduling & Budgeting Major Maintenance <i>Specifically: C.5.6.1 Prepare Annual Lock/Dam O&M Budget</i>	(1) Enhanced coordination of simultaneous closures (2) Increased benefits to customers by prioritizing major maintenance activities (3) Increased return on investment through standardized condition assessment & risk-based ranking process (Asset Management)
			19	Standardize Staffing & Grade Structure <i>Specifically: C.5.6.5 Perform Lock, Dam, and Facility Security</i>	(1) Savings from transferring work to in-house performance where business case demonstrates it is more advantageous to the government (2) Enhanced human resources management by more efficiently matching workforce to workload (3) Enhanced ability of managers to effectively operate the facilities under their responsibility
			21	Improved Alignment of Administrative Tasks <i>Specifically: C.5.6.1 Prepare Annual Lock and Dam O&M Budget C.5.6.5 Perform Lock, Dam, and Facility Security</i>	Effective allocation of administrative, supervisory, and maintenance work to appropriate staff

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			23	Systems-Based Budgeting <i>Specifically: C.5.6.1 Prepare Annual Lock and Dam O&M Budget</i>	(1) Enhanced investment decisions & a better “Return On Investment” from the funds (2) Faster response time to emergencies due to greater flexibility in moving funds (3) Optimized construction schedules & better economies of scale
C.5.7	Technical Support				
C.5.8	Channel Operations & Maintenance	Perform all functions, including project management and oversight, of channel O&M within the IMTS. Conduct actions necessary to keep channels open to Navigation to meet Navigation performance standards.	8	Share IMTS Knowledge & Management <i>Specifically: C.5.8.3 Water Quality C.5.8.5 Aids to Navigation (Fixed and Floating) C.5.8.7 Channel Reconnaissance and Hydrographic Surveys (Channel Patrol)</i>	(1) Increased communication (2) Improved public relations (3) Enhanced internal exchange of information (4) Greater employee situational awareness
		Comply with State and Federal water quality terms and standards. Select and fund the provider of choice to perform water quality analysis. Identify and mark hazards to Navigation, other than USCG mandated aids to Navigation (marker piles, stone mounds, etc., to help vessels avoid grounding). Perform channel reconnaissance and hydrographic surveys to uncover channel impediments that could cause vessel groundings and restrict the use of Navigation channels.			

Baseline Requirements Document			Improvement Benefits		
Para.	Activity	Requirement	Topic #	Topic	Benefits
			12	Acquisition of Land & Floating Plant Equipment	Reduced purchase costs for land & floating plant equipment through innovative acquisition strategies
			13	Restructure the Plant Replacement & Improvement Program (PRIP)	Lower ownership costs of revolving fund assets
C.5.9	Major Rehabilitation & New Project Construction	Identify, request, and fund the planning and reporting activities required to request major rehabilitations and new construction. This work includes the O&M-funded preparation activities that precede a major rehabilitation. Specific tasks include data acquisition, data analysis (“what if” scenarios), and project justification documentation. These reports must be completed in accordance with Project Management Division guidance and formats.	12	Acquisition of Land & Floating Plant Equipment	Reduced purchase costs for land & floating plant equipment through innovative acquisition strategies
			13	Restructure the Plant Replacement & Improvement Program (PRIP)	Lower ownership costs of revolving fund assets
C.5.10	Mooring/Protection Cells (Bridges/Approaches)	Construct and repair Federal mooring and protection cells within the IMTS for the continuity and safety of the Navigation mission, including periodic inspections to assess current condition.	12	Acquisition of Land & Floating Plant Equipment	Reduced purchase costs for land & floating plant equipment through innovative acquisition strategies
			13	Restructure the Plant Replacement & Improvement Program (PRIP)	Lower ownership costs of revolving fund assets
C.5.11	Non-Navigation Emergency Response				

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CEMVS-OD-NN7	Katrina	MVK-2005-043686	1604DR-MS-COE-MVD-10(Roofing)	08 October 2005	24 October 2005	Lock Operator
CEMVS-OD-NN7	Katrina	MVK-2005-047120	1604DR-MS-COE-MVD-09(Debris)	24 October 2005	14 November 2005	Lock Operator
CEMVS-OD-NN7	Katrina	MVK-2005-051795	1604DR-MS-COE MVD-09(Debris)	14 November 2005	09 December 2005	Lock Operator
CEMVS-OD-NN7	Katrina	MVN-2005-056031	COE-MVD-05(Post DEC TMP ROOF)	03 January 2006	31 January 2006	Lock Operator
CEMVS-OD-NN7	Katrina	MVK-2006-060388	1604DR-MS-COE-MVD-09(Debris)	11 February 2006	12 March 2006	Lock Operator
CEMVS-OD-NN7	Katrina	MVN-2006-066055	COE-MVD-07(Post DEC DEBRIS)	03 April 2006	28 June 2006	Lock Operator
CEMVS-OD-NN7	Katrina	MVN-2006-077557	COE-MVD-07(Post DEC DEBRIS)	25 September 2006	01 October 2006	Lock Operator
CEMVS-OD-NN7	Enduring Freedom	AED-2005-029948	Afghanistan AAO	12 June 2005	28 October 2005	Lock Master
CEMVS-OD-NN7	Katrina	Unknown	COE-MVD-07(Post DEC DEBRIS)	05 July 2006	03 August 2005	Lock Operator
CEMVS-OD-NN-P	Enduring Freedom	AED-2006-068166	Afghanistan AAO	02 August 2006	02 February 2007	Lock Master
CEMVS-OD-NN5	Katrina	MVK-2005-040798	1604DR-MS-COE-MVD-09 (DEBRIS)	27 November 2005	11 January 2006	Lock Mechanic
CEMVS-OD-NN5	Katrina	MVN-2006-078230	COE-MVD-07(Post DEC DEBRIS)	05 July 2006	02 October 2006	Lock Mechanic
CEMVS-OD-NN4	Katrina	MVK-2006-060390	1604DR-MS-COE-MVD-09(DEBRIS)	14 February 2006	15 March 2006	Lock Operator

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CEMVS-OD-NP-D	Katrina	MVN-2005-056033	COE-MVD-05(Post DEC TMP ROOF)	03 January 2006	01 February 2006	Cook -Dredge
CEMVS-OD-NP-D	Katrina	MVN-2006-060587	COE-MVD-07(Post DEC DEBRIS)	01 February 2006	06 July 2006	Cook-Dredge
CEMVS-OD-NP-D	Katrina	MVN-2005-056037	COE-MVD-05(Post DEC TMP ROOF)	03 January 2006	01 February 2006	Deckhand
CEMVS-OD-NP-D	Katrina	MVN-2006-060592	COE-MVD-07(Post DEC DEBRIS)	01 February 2006	28 June 2006	Deckhand
CEMVS-OD-NP-D	Katrina	MVN-2005-056036	COE-MVD-05(Post DEC TMP ROOF)	03 January 2006	01 February 2006	Deckhand Leader
CEMVS-OD-NPD	Katrina	MVN-2006-060577	COE-MVD-07(Post DEC DEBRIS)	01 February 2006	10 April 2006	Deckhand Leader
CEMVS-OD-NP-D	Katrina	MVN-2005-056035	COE-MVD-05(Post DEC TMP ROOF)	02 January 2006	05 February 2006	Deckhand
CEMVS-OD-NP-D	Katrina	MVN-2006-060944	COE-MVD-07(Post DEC DEBRIS)	05 February 2006	16 April 200g	Deckhand
CEMVS-OD-NP-D	Katrina	MNV-2006-067573	COE-MVD-07(Post DEC DEBRIS)	16 April 2006	03 July 2006	Deckhand
CEMVS-OD-NP-D	Katrina	MVK-2006-060392	1604DR-MS-COE-MVD-09(DEBRIS)	20 February 2006	01 April 2006	Cabin Attendant
CEMVS-OD-NP-D	Katrina	MVN-2006-069132	COE-MVD-07(Post DEC DEBRIS)	22 May 2006	16 June 2006	Master, Patrol Boat
CEMVS-OD-NP-D	Katrina	MVN-2006-069178	COE-MVD-07(Post DEC DEBRIS)	22 May 2006	26 June 2006	Dredging Equipment Oper.

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CEMVS-OD-NP-D	Katrina	MVN-2006-069175	COE-MVD-07(Post DEC DEBRIS)	28 May 2006	26 June 2006	2nd Mate, Pipeline Dredge
CEMVS-OD-NP-D	Katrina	Unknown	Dozer Duty TFG	04 January 2006	26 May 2006	Striker-Diesel Electric
CE-MVR-OD	Iraqi Freedom	GRD-2005-029908	CEGRC	6/5/2005	12/3/2005	Lock & Dam Repairer Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2006-069131	COE-MVD-07 (Post Dec Debris)	5/21/2006	6/6/2006	Lock & Dam Repairer Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2006-071415	COE-MVD-07 (Post Dec Debris)	6/6/2006	6/18/2006	Lock & Dam Repairer Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2006-072134	COE-MVD-07 (Post Dec Debris)	6/18/2006	7/20/2006	Lock & Dam Repairer Supervisor
CE-MVR-OD	Hurricane Katrina	MVK-2005-055564	1604DR-MS-COE-MVD-09(Debris)	1/18/2006	2/16/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040820	1604DR-MS-COE-MVD-09(Debris)	12/14/2005	3/15/2006	Crane Operator
CE-MVR-OD	Hurricane Rita	MVN-2005-047045	COE-MVD-09 (Debris)	10/19/2005	11/18/2005	Crane Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-055559	1604DR-MS-COE-MVD-09(Debris)	1/17/2006	2/15/2006	Lock and Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-062610	1604DR-MS-COE-MVD-09 (Debris)	3/13/2006	4/25/2006	Admin Clerk
CE-MVR-OD	Hurricane Katrina	MVN-2006-056178	USACE-CEMVN-210-Katrina	1/24/2006	3/9/2006	Equipment Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-068710	USACE-Class 330 (Lake Pontch)	3/9/2006	5/17/2006	Equipment Operator

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVK-2006-058918	1604DR-MS-COE-MVD-09 (Debris)	2/23/2006	5/19/2006	Crane Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-068708	USACE-Class 330 (Lake Pontch)	2/27/2006	5/17/2006	Marine Machinery Mechanic
CE-MVR-OD	Hurricane Katrina	MVN-2006-068709	USACE-Class 330 (Lake Pontch)	2/27/2006	5/17/2006	Master Tender
CE-MVR-OD	Hurricane Katrina	MVK-2005-040815	1604DR-MS-COE-MVD-09(Debris)	1/23/2006	2/23/2006	Lock & Dam Repairer Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2005-058286	COE-MVD-06 (Post Dec Housing)	1/23/2006	2/21/2006	Equipment Operator Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2006-068706	USACE-Class 330 (Lake Pontch)	2/27/2006	5/17/2006	Equipment Operator Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2005-044162	COE-MVD-07 (Post Dec Debris)	10/17/2005	12/23/2005	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVN-2006-058600	COE-MVD-07 (Post Dec Debris)	1/26/2006	2/22/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVN-2005-040970	COE-MVD-07 (Post Dec Debris)	9/19/2005	10/19/2005	Lock & Dam Repairer Leader
CE-MVR-OD	Hurricane Katrina	MVK-2005-040819	1604DR-MS-COE-MVD-09(Debris)	1/15/2006	2/18/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVN-2006-063774	USACE Class 330 (NOV)	3/22/2006	5/12/2006	Lock & Dam Repairer
CE-MVR-OD	Iraqi Freedom	GRD-2005-033082	CEGRC	10/30/2005	1/14/2006	Lock & Dam Repairer Leader
CE-MVR-OD	Iraqi Freedom	GRD-2005-028918	CEGRS	11/14/2004	11/10/2005	Lock & Dam Operator

Technical Exhibit 8 - FY2006 Emergency Response

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Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVK-2005-055572	1604DR-MS-COE-MVD-09(Debris)	1/31/2006	3/4/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-055566	1604DR-MS-COE-MVD-09(Debris)	1/21/2006	3/6/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2005-043204	COE-MVD-07 (Post Dec Debris)	9/17/2005	12/21/2005	Supervisory General Engineer
CE-MVR-OD	Hurricane Katrina	MVN-2005-065024	COE-MVD-07 (Post Dec Debris)	4/1/2006	6/10/2006	Supervisory General Engineer
CE-MVR-OD	Hurricane Katrina	MVK-2006-066846	1604DR-MS-COE-MVD-09 (Debris)	4/10/2006	5/19/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVN-2006-066788	USACE Class 330 (NOV)	4/11/2006	5/23/2006	Lock & Dam Repairer Helper
CE-MVR-OD	Hurricane Katrina	MVN-2006-069948	COE-MVD-07 (Post Dec Debris)	6/11/2006	8/11/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040824	1604DR-MS-COE-MVD-09 (Debris)	11/23/2005	12/21/2005	Electrician
CE-MVR-OD	Hurricane Katrina	MVK-2005-055244	1604DR-MS-COE-MVD-09 (Debris)	1/24/2006	2/8/2006	Electrician
CE-MVR-OD	Hurricane Katrina	MVK-2006-061456	1604DR-MS-COE-MVD-25 (Port. Bld)	2/8/2006	2/26/2006	Electrician
CE-MVR-OD	Hurricane Katrina	MVK-2006-063901	1604DR-MS-COE-MVD-23 HouseSup	2/26/2006	5/20/2006	Electrician
CE-MVR-OD	Hurricane Katrina	MVN-2006-068380	COE-MVD-06 (Post Dec Housing)	5/26/2006	7/23/2006	Electrician

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Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVN-2006-058601	COE-MVD-07 (Post Dec Debris)	1/27/2006	2/26/2006	Lock & Dam Repairer Supervisor
CE-MVR-OD	Hurricane Katrina	MVK-2005-051056	1604DR-MS-COE-MVD-26 (HL)	11/21/2005	12/5/2005	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVK-2005-053792	1604DR-MS-COE-MVD-25 (Port. Bld.)	12/5/2005	12/19/2005	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVK-2005-061269	1604DR-MS-COE-MVD-25 (Port. Bld.)	12/19/2005	5/17/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVK-2006-069563	1604DR-MS-COE-MVD-09 (Debris)	5/17/2006	6/17/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVN-2005-039848	COE-MVD-07 (Post Dec Debris)	9/15/2005	10/14/2005	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2005-053373	COE-MVD-07 (Post Dec Debris)	12/5/2005	1/18/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-058916	1604DR-MS-COE-MVD-09(Debris)	2/15/2006	3/15/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2005-056179	USACE-CEMVN-210-Katrina	1/24/2006	3/9/2006	Equipment Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-068711	USACE-Class 330 (Lake Pontch)	3/9/2006	5/17/2006	Equipment Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-071476	Civil Works	5/22/2006	8/12/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-055565	1604DR-MS-COE-MVD-09(Debris)	1/20/2006	2/19/2006	Lock & Dam Operator

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Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVN-2005-044164	COE-MVD-07 (Post Dec Debris)	10/17/2005	11/16/2005	Heavy Mobile Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVN-2005-056182	USACE-CEMVN-210-Katrina	1/11/2006	3/15/2006	Welder
CE-MVR-OD	Hurricane Katrina	MVN-2006-064722	USACE-Class 330 (Lake Pontch)	3/15/2006	3/28/2006	Welder
CE-MVR-OD	Hurricane Katrina	MVN-2006-066515	Civil Works	3/28/2006	4/3/2006	Welder
CE-MVR-OD	Hurricane Katrina	MVN-2006-067206	USACE-CEMVN-210-Katrina	4/3/2006	5/25/2006	Welder
CE-MVR-OD	Hurricane Rita	MVN-2005-048450	COE-MVD-09 (Debris)	10/18/2005	11/18/2005	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-063772	USACE Class 330 (NOV)	3/20/2006	5/24/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVK-2006-040779	1604DR-MS-COE-MVD-09 (Debris)	11/4/2005	12/3/2005	Lock & Dam Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2006-062159	1604DR-MS-COE-MVD-09 (Debris)	2/26/2006	3/26/2006	Lock & Dam Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2006-066950	1604DR-MS-COE-MVD-09 (Debris)	4/13/2006	5/11/2006	Lock & Dam Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2005-055569	1604DR-MS-COE-MVD-09 (Debris)	1/24/2006	3/17/2006	Heavy Mobile Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVN-2006-060202	USACE Class 330 (NOV)	2/7/2006	2/24/2006	Master Tender

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVN-2006-068707	USACE-Class 330 (Lake Pontch)	2/27/2006	5/17/2006	Master Tender
CE-MVR-OD	Hurricane Katrina	MVN-2005-045275	COE-MVD-05 (Post Dec Tmp Roof)	10/24/2005	12/2/2005	Secretary
CE-MVR-OD	Hurricane Katrina	MVK-2006-063046	1604DR-MS-COE-MVD-09 (Debris)	3/1/2006	3/31/2006	Secretary
CE-MVR-OD	Hurricane Katrina	MVN-2006-069397	COE-MVD-07 (Post Dec Debris)	5/22/2006	6/20/2006	Secretary
CE-MVR-OD	Hurricane Katrina	MVK-2005-040810	1604DR-MS-COE-MVD-09 (Debris)	11/29/2005	3/29/2006	Painter
CE-MVR-OD	Hurricane Katrina	MVK-2006-058914	1604DR-MS-COE-MVD-09(Debris)	2/14/2006	2/17/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040822	1604DR-MS-COE-MVD-09(Debris)	12/16/2005	1/13/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040794	1604DR-MS-COE-MVD-09(Debris)	12/16/2005	1/21/2006	Lock & Dam Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2005-040807	1604DR-MS-COE-MVD-09(Debris)	1/18/2006	2/17/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-055568	1604DR-MS-COE-MVD-09 (Debris)	1/19/2006	4/19/2006	Maintenance Worker
CE-MVR-OD	Hurricane Katrina	MVK-2005-040812	1604DR-MS-COE-MVD-09(Debris)	1/18/2006	3/15/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-067094	USACE Class 330 (NOV)	12/14/2005	3/5/2006	Marine Machinery Mechanic

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Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVN-2006-067195	USACE Class 330 (NOV)	3/6/2006	6/1/2006	Marine Machinery Mechanic
CE-MVR-OD	Hurricane Katrina	MVN-2006-058597	COE-MVD-07 (Post Dec Debris)	1/27/2006	3/12/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040821	1604DR-MS-COE-MVD-09 (Debris)	1/15/2006	4/14/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVN-2006-061324	COE-MVD-07 (Post Dec Debris)	2/22/2006	4/22/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-050069	1604DR-MS-COE-MVD-26 (HL)	11/17/2005	12/7/2005	Lock & Dam Equipment Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2005-051055	1604DR-MS-COE-MVD-26 (HL)	11/21/2005	12/5/2005	Marine Machinery Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2005-053793	1604DR-MS-COE-MVD-25(Port.Bld)	12/5/2005	12/23/2005	Marine Machinery Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2005-056299	1604DR-MS-COE-MVD-25(Port.Bld)	1/2/2006	1/30/2006	Marine Machinery Mechanic
CE-MVR-OD	Hurricane Katrina	MVK-2006-060624	1604DR-MS-COE-MVD-23HouseSup	1/30/2006	4/1/2006	Marine Machinery Mechanic
CE-MVR-OD	Hurricane Katrina	MVN-2005-056180	USACE-CEMVN-210-Katrina	1/24/2006	3/9/2006	Engineering Equipment Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-068712	USACE-Class 330 (Lake Pontch)	3/9/2006	5/17/2006	Engineering Equipment Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040799	1604DR-MS-COE-MVD-09 (Debris)	11/30/2005	3/23/2006	Lock & Dam Operator

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVK-2006-065568	1604DR-MS-COE-MVD-09 (Debris)	3/23/2006	4/28/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-055927	1604DR-MS-COE-MVD-09(Debris)	2/10/2006	3/8/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-055570	1604DR-MS-COE-MVD-09(Debris)	1/31/2006	3/11/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2005-040125	COE-MVD-07 (Post Dec Debris)	10/3/2005	12/2/2005	Carpenter
CE-MVR-OD	Hurricane Katrina	MVK-2005-055926	1604DR-MS-COE-MVD-09 (Debris)	2/7/2006	5/31/2006	Carpenter
CE-MVR-OD	Hurricane Katrina	MVK-2006-058915	1604DR-MS-COE-MVD-09 (Debris)	2/10/2006	3/16/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2005-045914	USACE-CEMVN-210-Katrina	10/27/2005	11/25/2005	Motor Vehicle Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-064272	1604DR-MS-COE-MVD-09 (Debris)	1/23/2006	5/13/2006	Motor Vehicle Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-063769	USACE Class 330 (NOV)	3/14/2006	5/25/2006	Lock & Dam Repairer
CE-MVR-OD	Hurricane Katrina	MVK-2005-040792	1604DR-MS-COE-MVD-09(Debris)	11/30/2005	1/28/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-040813	1604DR-MS-COE-MVD-09(Debris)	1/15/2006	2/13/2006	Lock & Dam Operator
CE-MVR-OD	Iraqi Freedom	GRD-2005-049341	CEGRN	2/5/2006	3/14/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-063324	1604DR-MS-COE-MVD-23 HouseSup	3/7/2006	6/1/2006	Lock & Dam Repairer Supervisor

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVN-2006-072072	COE-MVD-07 (Post Dec Debris)	7/5/2006	8/2/2006	Administrative Officer
CE-MVR-OD	Hurricane Katrina	MVN-2005-056183	USACE-CEMVN-210-Katrina	1/6/2006	3/7/2006	Machinist
CE-MVR-OD	Hurricane Katrina	MVK-2005-040817	1604DR-MS-COE-MVD-09(Debris)	1/18/2006	2/16/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVK-2005-055563	1604DR-MS-COE-MVD-09(Debris)	1/13/2006	2/26/2006	Maintenance worker
CE-MVR-OD	Hurricane Katrina	MVK-2005-040805	1604DR-MS-COE-MVD-09 (Debris)	12/14/2005	4/22/2006	Crane Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-068098	1604DR-MS-COE-MVD-09 (Debris)	5/4/2006	5/20/2006	Crane Operator
CE-MVR-OD	Hurricane Katrina	MVK-2006-063551	1604DR-MS-COE-MVD-09 (Debris)	3/13/2006	5/11/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2005-039329	COE-MVD-05 (Post Dec Tmp Roof)	9/13/2005	10/12/2005	Heavy Mobile Equipment Mechanic Sup.
CE-MVR-OD	Hurricane Katrina	MVN-2005-054087	COE-MVD-07 (Post Dec Debris)	1/6/2006	3/6/2006	Heavy Mobile Equipment Mechanic Sup.
CE-MVR-OD	Hurricane Katrina	MVK-2006-063325	1604DR-MS-COE-MVD-23HouseSup	3/8/2006	3/19/2006	Lock & Dam Supervisor
CE-MVR-OD	Hurricane Katrina	MVK-2006-065028	1604DR-MS-COE-MVD-23HouseSup	3/19/2006	5/8/2006	Lock & Dam Supervisor
CE-MVR-OD	Hurricane Katrina	MVN-2005-039857	COE-MVD-07 (Post Dec Debris)	9/15/2005	10/14/2005	Lock & Dam Operator

Technical Exhibit 8 - FY2006 Emergency Response

TE-8 Description: This TE references section C.5.11 of the Baseline Requirements Document. The data illustrates the types of skills associated with emergency response (navigation function employees). (A Sample of one District's emergency support to the Corps is shown below.)

Division/Branch	Event	Tasker	Mission	Begin Date	End Date	Position
CE-MVR-OD	Hurricane Katrina	MVN-2005-055629	COE-MVD-07 (Post Dec Debris)	1/3/2006	5/3/2006	Lock & Dam Operator
CE-MVR-OD	Hurricane Katrina	MVN-2006-074295	COE-MVD-07 (Post Dec Debris)	9/14/2006	10/1/2006	Secretary

PART B - BPR FINDINGS AND RECOMMENDATIONS

This part augments Section II paragraph 5.3 – Making Recommendations. It presents the findings and recommendations for each of the twenty-five BPR Topics. Information from the Findings and Recommendations such as “Implementation Activities/Steps” and “Relationship to Baseline Requirements Document” was respectively incorporated into Appendix II Part A (Baseline Requirements Document) TE 9 and Appendix III (IMTS Implementation Plan).

The pages are by topic number (e.g. 1-1., 2-1., etc.)

BPR #	Topic
1	Share Corporate Knowledge of Major Maintenance
2	Share Corporate Knowledge of Preventative Maintenance & Repair
3	Enhance the Hiring Process
4	Strengthen Leadership & Management
5	Improve Level of Service
6	Training & Certification for Lock Staff
7	Augment Supervisory Skills at Locks & Field Offices
8	Share IMTS Knowledge & Information
9	NavLock Channel Maintenance
10	Enhance On-Site Supervision
11	Physical Security at Locks & Dams
12	Acquisition of Land & Floating Plant & Equipment
13	Restructure the Plant Replacement & Improvement Program (PRIP)
14	Standardize Position Descriptions
15	Regional/System Equipment Pool (Leased Equipment)
16	Scheduling & Budgeting Major Maintenance
17	Service Providers for Maintenance Projects
18	Optimize Shift Schedules
19	Standardize Staffing & Grade Structure
20	Standardize Locking Procedure
21	Improved Alignment of Administrative Tasks
22	Improve Consistency in the Application of Drug Testing Policies
23	Systems-Based Budgeting
24	Implement 3-Phase Inspection System for Major Maintenance
25	Standardize Water Control Procedures

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 1 – SHARE CORPORATE KNOWLEDGE OF MAJOR MAINTENANCE

FINDINGS

Individual Districts are performing similar work without exchanging lessons-earned.

After major maintenance projects are completed at each site, employees' experience and knowledge are not exchanged to assist other sites with similar maintenance projects. To share this knowledge and maximize the use of best practices, a formal means of information exchange is needed.

The following are examples of benefits from the maintenance workshop conducted in the Great Lakes and Ohio River Division (LRD):

Lessons-learned from work by others that were completed successfully with recommendations for improvements were implemented by LRD and achieved a higher return.

Lessons-learned were documented for projects that did not work well, as well as knowledge of what to avoid. Knowledge of materials that do not perform as advertised is disseminated. (Discussions are not limited to only jobs that went well.)

Safety lessons-learned led to safer job sites.

They allowed for cross-District utilization of available equipment within the Division.

They allowed for cross-District utilization of unique skill sets from personnel in the other Districts.

They allowed for sharing of equipment, materials, personnel, skills, and unique certifications within the Division.

Items described above improved system availability. For example: LRD has a pre-existing workshop. At the workshop, Huntington District identified the need to work on two adjacent locks simultaneously. This need was expressed at the maintenance workshop and filled by Pittsburgh District.

A regional database containing job file reports of work accomplished within the region will provide an educational tool, in addition to the maintenance workshops.

RECOMMENDATIONS

1. Establish mandatory regional workshops on major maintenance.
 - a. Set up one maintenance workshop for each Division with NavLocks functions. Divisions should share in attendance at other Division workshops.
 - b. Attendees should include representatives from the Technical Support Branch and Physical Support Branch (Repair Center), and the Navigation supervisor. Other attendees such as lockmasters and lock personnel shall be invited occasionally and for special interest work that is of great interest to workshop attendees.
 - c. Design the workshops as an opportunity to coordinate the use of regional equipment, materials, personnel, and large plant (for example, the USACE floating crane Henry M. Shreve, dump barges, and other similar equipment).
2. Develop a regional skills database of technical competencies.
 - a. For example, set up a web-based spreadsheet with name, phone number, District, and areas of expertise (i.e. Welding, Machining, Placement of Miter / Quoin Backing Material, Removal of Miter Gates, etc). This spreadsheet should also list contractors with relevant technical capabilities.
 - b. Maintain the database on the Corps Navigation Gateway.
3. Establish visits by technical support personnel (engineering and/or operations who support hired labor for major maintenance) to major maintenance activities of other Districts to increase sharing of information.
4. Division Management Teams shall review the LRD Navigation Locks & Dams Maintenance Standard (CELRD-OR 1130-2-22) and implement their own Maintenance Standard policy.

COST ANALYSIS

Improvement 1 – Maintenance Workshops

Recommendation 1 will incur annual costs of assembling personnel in maintenance workshops:

Category	Cost	Total
Travel and per diem:	\$1,000/trip × 80 non-local employees	= \$80,000

Improvement 2 – Regional Skills Database within Navigation Corps Gateway

Recommendation 2 will incur costs for the regional database and technical competency: One employee for 1 month to set up the regional database, and then 40 hours per year to maintain the database (with each District making its own entries into the database). Use current employees to perform this work (no additional cost).

Improvement 3 – Visiting Lock and Dam sites

Recommendation 3 will incur costs for one employee per District visiting one site per year.

Category	Cost	Total
Travel and per diem:	\$500/trip × 1 person × 22 Districts	= \$11,000

Improvement 4 – Development of Regional Maintenance Standards

Recommendation 4 will involve 12 employees per Division meeting four times to develop the maintenance standard. Meetings will involve three days of travel and per diem.

Category	Cost	Total
Travel and per diem:	\$800/trip × 12 people × 4 trips × 4 Divisions	= \$153,000

BENEFITS

Formalized use of regularly scheduled regional and national workshops to facilitate networking, the exchange of proven repair techniques (and unsuccessful repair techniques) that will maximize lock reliability, and build a knowledge base to share resources (equipment, materials, and personnel) to improve emergency repairs.

CHALLENGES

1. Management and workforce buy-in

Management may be reluctant to endorse employees traveling to another meeting without an understanding the value in this type of discussion. Once realized that Districts are performing similar work independently, lessons can be learned from another approach to completing the work.

2. Cost of conducting workshops

Since no additional employees will be hired to attend the Major Maintenance Workshop, labor costs are the same as present. There will be additional per diem and travel cost for the employees.

3. Increasing use of website

A web site developed, by existing personnel, to identify District employee's areas of expertise and equipment will be valuable to identify regional (Division) assets.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

No changes required.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

Since this is a discussion between personnel within the Corps no transition is required with external stakeholders.

IMPLEMENTATION

Activities/Steps

1. Approval of recommendations.
2. Establish regional maintenance workshops:
 - a. The Division Office is responsible for delegating the planning and organization of the initial regional maintenance workshop. Districts shall prepare PowerPoint presentations of some jobs performed recently and request discussion topics.
 - b. Assign the Division representative responsible for making additions to the Corps Navigation Gateway.
 - c. The Division representative will forward items with national application to the regional IMTS Working Group.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Maintenance workshops*					X	X		X	X	X			
Stand up Navigation Gateway database		X	X	X									
Site visits		X		X		X		X		X		X	
Develop Regional Maintenance Standards**							X	X	X	X	X	X	X

*Maintenance workshops should occur during off-season, most often winter.

**Development of Regional Maintenance Standard will continue six months into the second year following the Charter.

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter													
Maintenance workshops					80	80		80	80	80			
Stand up Navigation Gateway database													
Site visits		11		11		11		11		11		11	
Develop Regional Maintenance Standards**							38			38			38
**Development of Regional Maintenance Standard will require \$38k in the second year following the Charter.													

Relationship to Baseline Requirements Document

The following required services and performance requirements are related to the proposed recommendations.

Required Service	Standard/performance requirement	Effect of Implementing BPR Recommendation(s)
C.5.5.1. Conduct Scheduled Major Maintenance & Repairs (takes more than on-site staff or equipment). This includes life cycle replacement.	Minimize impact on Lock availability by completing all scheduled major maintenance on time and within budget.	Formalized use of regularly scheduled regional and national workshops to facilitate networking, the exchange of proven repair techniques (and unsuccessful repair techniques) that will maximize lock reliability, and build a knowledge base to share resources (equipment, materials, and personnel) to improve emergency repairs.
C.5.5.2. Conduct Emergency (Unscheduled) Repairs	Return facility back to service as quickly as possible and complete the plan agreed to. Time between emergency and beginning of repair plan	

Implementation Measurement

Workshops are completed within 12 months subsequent to the Charter

Quality Assurance

None.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 2 – SHARE CORPORATE KNOWLEDGE OF PREVENTATIVE MAINTENANCE AND REPAIR

FINDINGS

Routine preventative maintenance and repair (hereafter M&R) activities are imperative for maintaining lock availability in the Navigation system. However, M&R inconsistencies occur throughout the system. Little exchange of information takes place between work groups in different geographical areas. Best practices developed at individual projects are not shared with other similar facilities.

While studying M&R, the BPR Team identified several areas for improving efficiencies in preventative maintenance and repair and other aspects of the current state.

A significant area for performance improvement is the training of lock operators to perform M&R. Currently some operators do not have the skill level or are not cross-trained to perform maintenance. In some areas, operators perform M&R, but in other areas they do very little maintenance or repair work.

The time operators spend doing M&R is usually dependent on traffic volume, skill of the operator, and/or the operator's level of motivation. Other limiting factors include local policies in various areas such as working alone, performing maintenance after dark, past practices at the individual facility, non-productive activities, etc.

At high-utilization locks, operators spend almost all of their work hours locking. Some of these operators have maintenance skills. However, their primary duty is locking, and very little time is available to perform M&R.

Additionally, the BPR Team noted that contract support for M&R varies from 100 percent at some sites to none at others. Also, policies are inconsistent regarding utilization of vehicles (GSA-owned, personal, delivery service) for supply and materials delivery or other uses. Lastly, the methods of recording maintenance range from manual card systems to sophisticated automated systems. No "best practice" system is in place for managing maintenance or repairs.

The NavLocks Team identified the following resulting from workshops conducted by MVD:

Upper Mississippi structures are dated the same

1. Asbestos problems (health concern)
 - a. Brake shoes on dam machinery

- b. Exchange what worked and what didn't
2. Water Encroachment on Gear Boxes: Rubber gasket on seals
 - a. Developed filtration system to eliminate water contamination on gear box inspection plates which prevents water encroaching on hydraulic oil in gear boxes
 - b. Lock mechanic researched and analyzed
 - c. Trial lock tried mechanism
 - d. Shared filtrations system with neighboring locks, because so successful, every lock has acquired filtration system
3. Drives for haulage units
 - a. Drive
4. Lead paint sampling SOPs
5. LED lighting system to replace lights on controls
6. Replace pistol grip controllers (joy sticks)
7. Speed rail
8. Bubbler on/off control valves
 - a. From butterfly valves to Teflon ball valves
9. Aircraft heat tape system for bubbler line
10. Lubricants/preventatives
 - a. Problems with hydraulic oil absorbing too much water in gear houses
11. Great opportunity to exchange information with industry; how to work better if there are delays, how to speed the locking process, how to handle unusual locking situations
 - a. Safety
 - b. Procedural
 - i. Resources and equipment available from other Districts or vendors to hand specific maintenance and repair situations.
 - c. Processes
 - i. Having adequate lines etc
 - ii. Experience of deck hands
 - iii. Having boat captains monitor a channel when they're in the channel in case an emergency arises

RECOMMENDATIONS

1. Provide a standard maintenance management system.

A standard maintenance management system, FEM, is scheduled for deployment Corps-wide. The IMTS Organization should follow through by ensuring that FEM (or another approved system) is implemented across the Corps. As part of this action, standardize the depth of implementation and a minimum baseline.

2. Information Exchange at Lock and Dam O&M Workshop.

Share repair methodologies, experience, and established best practices for preventative maintenance and for early detection of problems (such as oil analysis or vibration analysis).

The workshop would be an opportunity for formal and informal exchange, networking, and sharing of M&R experience directed toward development of best practices. Specific technical training in various areas should be made available as a part of each workshop. This training should be directed toward developing the technical skills of repair personnel. The workshop and other similar meetings shall be held nearby lock projects. This will allow attendees networking opportunities with local project staff and observe various facilities within the region.

In areas where repairs are accomplished by contract, government Quality Assurance personnel should attend the maintenance workshops. In terms of participation, contractors should be provided opportunity to participate in each workshop, senior repair people should attend the workshop at least once every three years, and M&R journeymen should attend at least once every five years. Project engineers and Physical Support Branch (Repair Center) personnel shall occasionally attend the lockmaster's preventative maintenance workshops for their benefit or to disseminate a new method of preventative maintenance.

The lockmaster's workshop should have a maintenance focus once every two years. The frequency, content, and results of the workshops will be evaluated by the IMTS Management Team and reported to the IMTS Board.

COST ANALYSIS

The following analysis reflects the annual travel and per diem costs for holding the workshops Corps wide. This cost includes the travel and per diem costs for lock personnel to attend workshops in their own Division as well as representative members from a given Division to attend workshops held in other Divisions:

Category	Cost	Total
Travel and per diem: 44 staff /Division×	\$800/trip x 4 Divisions	\$140,000 Annually

BENEFITS

Improved networking and exchange of proven preventative maintenance (PM) and repair techniques to minimize lock unavailability (as well as learning about unsuccessful PM and repair techniques to avoid)

CHALLENGES

1. Funding for maintenance workshops
2. Delayed deployment of FEM
3. National training of e-FEM and delay of implementation

STAUTORY OR REGULATORY CHANGE REQUIRED TO ACHIEVE THE END STATE

None.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None.

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.

2. Division Management Team assigns group to coordinate maintenance personnel attendance and agenda items for Lock and Dam O&M Workshop. Focus of workshop will alternate between maintenance issues and Operations issues on a two-year cycle (maintenance issues emphasized one year and Operations issues emphasized in alternate years).

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Lockmaster and Maintenance Workshop*				x		x		x		x			

Resource Plan (\$000) (Annual Expense)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter													
Lockmaster and Maintenance Workshop*				\$35		\$35		\$35		\$35			

* Assume \$35 per Division for workshop and the Divisions will stagger the timing of their workshops to allow for attendance of representative navigation personnel outside of their Division.

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR Recommendation(s)
C.5.3. Maintain and Repair Lock	Minimize impact on lock availability by completing lock maintenance and repairs as efficiently and effectively as possible.	Improved networking and exchange of proven preventative maintenance (PM) and repair techniques to minimize lock unavailability (as well as learning about unsuccessful PM and repair techniques to avoid)
C.5.4. Maintain and Repair Dam	Increase or maintain dam Pool control and navigation through effective dam maintenance and repair.	

Implementation Measurement

Workshops are initiated within 12 months of the Charter.

Quality Assurance

None.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 3 – ENHANCE THE HIRING PROCESS

FINDINGS

Keeping the navigation projects fully staffed has become increasingly challenging over the years as revealed in discussions held at the onset of the BPR. There are a number of factors contributing to this problem ranging from management delays in initiating recruitment to Human Resources (HR) backlogs in developing and issuing referral lists. Fill times of four to six months or more are common and widespread. Lengthy fill times cause undue hardship for remaining employees. In addition, needed maintenance work is often not accomplished due to the vacancies as maintenance personnel are used to perform the lock operator duties.

Due to the Corps' Global War on Terrorism (GWOT) mission and various emergency response missions, navigation personnel are frequently deployed for six-month periods or longer. Deployment can create a hardship since the remaining employees must perform the work until the temporary vacancy is filled. Competitive recruitment to backfill a temporary vacancy is no quicker than the process used to fill permanent vacancies. Quite often the employee is about to return before the vacancy is filled. Noncompetitive recruitment for these temporary vacancies may be quicker, but many times supervisors are not aware of the options available to them.

Another concern is the sometimes-poor quality of referral lists. This is due in part to Resumix, a complex, skills-recognition system used to rate applications and issue referral lists. The system-generated skills that the supervisors must use in the recruitment process do not appear to be sufficient, in many cases. Often supervisors are unable to make selections from referral lists due to the candidates' lack of job related skills. More interaction between HR specialists and the hiring official to be sure the position and required skills are properly identified may improve the quality of referrals. An alternative rating and referral process may help this also.

Some supervisors are not trained in the recruitment and selection process while others may need improved or more frequent training. For supervisors that do not frequently make selections, changes in procedures are often unknown. Procedures vary from District to District or Division to Division.

The purpose of this BPR is to identify approaches to reduce the fill time of vacancies and to provide HR training and information to lock managers/supervisors. A reduction in fill time is needed to improve staffing shortages, both temporary and permanent. This will also reduce overtime costs and improve maintenance and employee morale.

RECOMMENDATIONS

1. Reduce fill time by establishing a central recruitment unit for IMTS. This enables specialized training (HR specialists can go to locks, repair centers and dredges) and development of HR expertise in the IMTS mission and work. This central recruitment unit would work in coordination with existing on-site CPAC servicing offices. It is envisioned that the central recruitment unit would be experts on IMTS and would not replace the on-site advisory role that the CPAC performs, but rather would provide a reach back capability or center of expertise for the CPAC to enhance the overall process. The on-site CPAC would provide local coordination with the hiring official and would then engage the services of the central recruitment unit to provide recruitment and referral support.
2. Assess system identified by DoD to replace Resumix. If it is determined that this system will be more user friendly and produce better quality referrals lists, request that the IMTS central recruitment unit be included as one of the test sites. However, if the replacement system does not appear to meet the IMTS needs, identify modifications or alternative processes that would improve Resumix and request authority to implement those changes.
3. Conduct workforce planning to identify expected turnover. Initiate recruitment actions in time to make hiring decisions and fully train new personnel to provide overlap or continuity as appropriate. Utilize existing authorities, such as overhire, to fill anticipated vacancies. Developmental positions should be utilized as appropriate for hard to fill positions. For example, 5-6-7 maintenance worker with a developmental plan that sets specific skill levels.
4. Build and maintain extended workforce contact lists that contain sources for temporary assignments to meet short term staffing needs. These sources may include seasonal employees, rehired annuitants and previously trained staff that may be available for temporary assignments.

COST ANALYSIS

The additional long-term cost cannot be determined at this time.

BENEFITS

Expedited recruitment
Timely hiring
Effective placement of skilled staff to ensure continuity of operations, maintenance, and repair services,
Improved accomplishment of major maintenance and repair
Expedited emergency response

CHALLENGES

None.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

Approval must be received through HQUSACE to Civilian Human Resources Agency (CHRA) to establish a central recruitment unit for IMTS. Approval must also be received from DOD for modification, if needed and early implementation of the rating and referral process identified to replace Resumix.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

Coordination with CPAC, DoD, and CHRA will be required.

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. The Working Group will develop and staff through appropriate channels a proposal for approval to establish a central recruitment unit for IMTS. This should be accomplished by the end of the Implementation Phase.
3. Once approval is granted to establish the central recruitment unit, the Working Group shall implement the plan within 1 year.
4. The Working Group should assess the system identified to replace Resumix to determine if it offers the needed improvements and if so, if IMTS positions could be added to the test. If use of the Resumix replacement system does not provide a feasible

option for use in the immediate term, the Working Group will assess and finalize recommendations for alternative uses and modifications in the use of Resumix.

5. The Working Group will request that CPACs provide supervisors training on the process being used for recruitment of IMTS positions.

6. The Working Group will coordinate with the District Operations Division Chiefs to insure that workforce planning is being accomplished by IMTS supervisors to address staffing continuity. A proactive approach to staffing will reduce fill time and overtime costs.

7. The Working Group will request that CPACs work with IMTS managers and supervisors to make them aware of options available for meeting temporary staffing needs such as maintaining contact lists of noncompetitive eligibles. This will reduce fill time as well.

Schedule

Implement during the first 12 months following the Charter (highest priority)

Activity ▼ Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Develop Proposal for Approval		X	X	X	X	X	X						
Establish recruitment unit								X	X	X	X	X	X

Resource Plan (\$000)

Activity ▼ Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
Develop Proposal for Approval		(2)	(2)	(2)	(2)	(2)	(2)						
Establish recruitment unit													

Notes:

- (1) Working Group cost not considered in implementation cost
- (2) Working Group cost not included in implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard / Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Lock availability meets or exceeds the 2006 performance described in TE 2.	<p>Expedited recruitment</p> <p>Timely hiring</p> <p>Effective placement of skilled staff to ensure continuity of operations, maintenance, and repair services,</p> <p>Improved accomplishment of major maintenance and repair</p> <p>Expedited emergency response</p>
C.5.3.1. Perform Lock Maintenance	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	
C.5.4. Maintain and Repair Dam	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	
C.5.5.1. Conduct Scheduled Major Maintenance and Repairs (takes more than onsite staff or equipment). This includes life cycle replacement.	95 Percentage of scheduled/funded major maintenance actions completed on schedule by lock site.	
C.5.5.2. Conduct Emergency (Unscheduled) Repairs	Respond with an assessment within 2 hrs, develop a plan, obtains approval, and fulfill the objectives of the plan.	

Implementation Measurement

Adequate number of trained personnel with essential skills is essential to maintain System Availability/Lock Availability. Since people continuously leave federal service (retirements, pursue other careers, etc), an HR Process for recruiting new workers is essential to fill this critical need.

Review the status of recommendations at the commencement of the Implementation Phase.

Quality Assurance

Progress should be checked by the IMTS Working Group at the commencement of the Implementation Phase and quarterly thereafter.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 4 - STRENGTHEN LEADERSHIP AND MANAGEMENT

FINDINGS

The operation of a lock and dam is complex and can be extremely dangerous. The IMTS organization has many employees with the right skills and motivation to provide the customer service at the new standard while meeting critical safety requirements. This requires a workplace that is attractive to the workforce and promotes high morale and a healthy sense of belonging. Leadership and management are critical to making this happen.

Customers have expressed to us that reliability and availability of the transportation system is of the highest importance. It is a challenge to meet this performance expectation at many locks because of the aging infrastructure and by staffing levels constrained by tight budgets. At some locks, leaders have been very successful in meeting this challenge by developing the workforce into a responsive and responsible team with each employee being accountable for his or her actions, a strong work ethic, a “get the job done” attitude and a strong sense of pride in the lock and the organization.

The culture of an organization determines its success. Leadership and management are responsible for establishing the culture and fostering an environment for meeting corporate objectives. Leadership and management include team building, coaching, communications, succession planning, mentoring, training, and determining the number of employees and skills needed to accomplish the mission.

Due to issues related to shift work, shortage of manpower and isolated location of lock sites, some employees do not feel that they are a part of the Corps family. Participation in activities such as Engineers Day, reward ceremonies, retirement celebrations, holiday meals, etc. is limited, especially for shift workers.

Management’s expectations of lock supervisors in managing resources vary widely. Some lock supervisors are very involved with budgeting, CEFMS, P2, and project planning. Of these, some report that these duties take up so much time that they are not effectively leading or supervising. Other lock supervisors are not involved at all in some or any of these areas of responsibility. Consequently, they are not aware of the normal business processes required of the project. As a result, some supervisors are also managers, while others are not.

Operations Project Managers and their staffs are sometimes not afforded the opportunity to receive formal project management training. This has resulted in some field sites not being empowered to manage their project resources. To fully comply with the Standardized Organizational Structure directive (see Standardize Staffing and Grade Structure BPR), field office personnel should be trained and should have the pertinent management skills and authorities.

It is the goal of the IMTS to make more uniform across the Corps' quality management and leadership skills. The IMTS will provide managers the tools and training needed to improve their management skills and will attempt to foster an environment that will allow leadership skills to develop. Improved management and leadership across the IMTS will enable the Corps to better meet Industry expectations of lock reliability, standard procedures, and rapid response to emergencies.

RECOMMENDATIONS

1. As a learning organization, enhance leadership and management skills by looking outside the federal government for company examples of the ideas presented in the book "Good to Great" and any other sources and identify characteristics of successful agencies and/or companies where excellence is demonstrated.
2. Specific performance goals related to the IMTS success will be developed by the Working Group and approved by the Board of Directors. All Working Group members, Chiefs of Operations, and all IMTS supervisors will incorporate into their performance objectives. Leadership through the implementation phase will be critical to the improvement and overall excellence of the IMTS. Leaders at the lock sites, fleets, and project offices must be able to articulate and influence the overall direction of the IMTS, earn the trust of employees and inspire and motivate them. Successful implementation of the IMTS plan will require leaders to communicate clearly up and down the chain of command, as well as being clearly committed to the long-term IMTS objectives.
3. Encourage leadership and management training for all supervisors. Provide deliberate emphasis on leadership and management philosophy and expectations for all new supervisors. IDPs should include leadership and management courses such as those provided by OPM. Ensure all IMTS employees are aware of leadership and management training available for them.

COST ANALYSIS

No costs specific to this BPR are identified.

BENEFITS

Improved leadership skills for supervisors and managers
A strengthened workforce to achieve safe, efficient, reliable lockages and maintenance activities

CHALLENGES

None.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None.

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Begin a threaded discussion on the IMTS Navigation Gateway website to identify excellence (organizations, courses, books, articles, sites, projects, businesses, etc.). This should be accomplished by the Working Group within 6 months of the commencement of the Implementation Phase.
3. Develop specific performance objectives/standards for implementation accountability. This should be accomplished by the Working Group within 30 days of commencement of the Implementation Phase.
4. Working Group should develop and implement appropriate recognitions and rewards for IMTS leaders within 1 year of commencement of the Implementation Phase.
5. All IMTS supervisors are informed of and encouraged to participate in leadership and management training. All IMTS employees are made aware of available leadership and management training. This should be accomplished within 1 year of the commencement of the Implementation Phase by the Civilian Personnel Advisory Centers at each District.

6. Conduct an employee survey to evaluate leadership. Utilize an existing or develop a new survey.

Schedule

Activity▼ Month▶	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter Working Group begin threaded discussion	X						x						
Working Group develop performance objectives		x											
Working Group develop recognitions													x
CPACs encourage leadership and management training													x
Working Group establish grievances baseline							x						
Working Group conduct employee survey							x						

Resource Plan (\$000)

Activity▼ Month▶	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												

Notes: (1) Working Group cost not considered in implementation cost

Relationship to Baseline Requirements Document

Required Service	Standard / Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Lock availability meets or exceeds the 2006 performance described in TE 2.	Improved leadership skills for supervisors and managers A strengthened workforce to achieve safe, efficient, reliable lockages and maintenance activities
C.5.3.1. Perform Lock Maintenance	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	
C.5.6.5 Perform Lock, Dam, and Facility Security	100% of security plans are maintained by lock site.	

Implementation Measurement

The Working Group will assure requirements for leadership related performance standards are communicated to the Board of Directors at the commencement of the Implementation Phase.

The Working Group should have a process in place to develop IMTS recognitions 6 months after the commencement of the Implementation Phase.

Quality Assurance

The Working Group will review the status of implementation quarterly, beginning at the commencement of the Implementation Phase.

Determine the success of leadership training through an existing employee survey.

Measure the trend of grievances against HR record over the last two years.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 5 - IMPROVE LEVEL OF SERVICE

FINDINGS

This BPR address the hours of operations at specific lock sites. The NavLocks Team found inconsistencies in hours of operation and staffing at locks with comparable amounts of traffic, facility size, and design features. Some locks use one shift (daylight hours) because of limited traffic, while others with similar traffic are operated 24/7.

The NavLocks Team identified several opportunities to modify level of service at locks based on hours of operation and facility size, while maintaining a satisfactory level of service to the customer. Historically, hours of operation and staffing levels at certain facilities have been based on past practices instead of current traffic and workload levels.

The BPR team analyzed, considered, and abandoned the following options:

Consider transferring low-use locks to other entities, such as local municipalities or local state departments of transportation. Historically, entities and organizations outside the Corps of Engineers have been reluctant to assume responsibility for the operation and maintenance of federal civil works projects.

RECOMMENDATIONS

The Division IMTS Management Team will identify navigation locks with the potential for reduced hours of operation by considering amount of traffic, hours of operation, facility size and design, traffic trends, traffic times, recreational usage, relationship to river system, current staffing, locks with adjoining hydropower and lock operations. The interests of waterway users, lock personnel, and unions will be considered prior to adjustments in levels of service.

Utilize the following decision tree for identifying navigation locks that have opportunity for reduced hours of operation. Each step of decision tree should reduce number of locks available for further study:

1. Total tonnage (remove from consideration locks with 1 million tons or more annually).
2. Current hours of operation (locks that already have less than 24/7 operation should also be examined for further efficiency improvements, if none exist, remove from total).

3. Facility size and design parameters (length, width and number of chambers, etc). Remove from total those who's staffing and hours of operation support facility size and will not allow reduced staffing or hours of operation.

4. Tonnage trends (upward or downward movements in transited tonnage and regional investments or divestiture in marine commodities handling). Remove from total those that show continued upward traffic trends that would support current hours of operations.

5. Recreational usage (consider recreational lockages and trends in determining levels of service). Remove from list those who, in addition to little or no commercial traffic, have little or no recreational traffic to support current hours of operations.

* Once number of lock & dams is reduced using criteria above, examine for further reduction using following criteria:

6. Analyze time of day, days of week and seasonal usage (commercial and recreational utilization).

7. Relationship to river system (consider system-wide impacts prior to adjusting levels of service).

8. Current staffing (avoid adverse personnel impacts).

9. Division will adjust lock hours of operation to correspond with lock usage, customer needs, and Corps requirements. Consider locks with low utilization for feasibility of shortening their hours of operation (such as daylight hours or single shift). Alternatively, examine the feasibility of allowing customers to request service outside the hours of operations on a case-by-case basis.

10. Use personnel (such as hydropower personnel, operators from nearby sites, or seasonal employees) for lock operations during low-use periods. Explore the use of remotely operating spillway gates from the hydro plant. Evaluate maintenance activities for performance by off-duty hydropower personnel.

11. Implement, in the near term, reduced hours of lock operations while still providing satisfactory level of service to the customer.

12. Implement, during the long term, reduced hours of operation with fewer personnel through automation of spillway gates that allows operation of gates by others and normal attrition.

COST ANALYSIS

1. Savings from reduced staffing and hours of operations: One employee at \$75,000 per year.
2. Costs of remote operation of spillway gates: Assume typical tainter spillway gates @ \$30,000/gate = \$360,000 (spillway with 12 gates, control and power modernization).
3. Savings in overtime to move spillway gates after remote operation of spillway is complete: Minimum of 15 callouts × minimum of 4 hours per callout, or 60 hours/month × \$37.50/hour = ~ \$2,250/month × 8 months = ~ \$18,000/year.

BENEFITS

Optimized hours of operation based upon usage patterns enhancing the ability to balance resources with system reliability.

CHALLENGES

The team found the following hurdles to implementation:

1. Reduced morale of personnel when powerhouse personnel or others assume roles of lock operators.
2. Reduced maintenance could be performed, especially at locations where it cannot be performed by others (such as powerhouse employees or maintenance contractor).
3. Inadequate response if dam or gate failure occurred during non-operational hours.
4. Customer interest in locks remaining open 24/7.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

All activities will need to be coordinated with external customers before reducing the hours of operation and setting new times of operation hours.

IMPLEMENTATION PLAN

Activities/Steps

1. Recommendations approval.
2. Working Group analyzes need for remote operation of spillway gates, where applicable, to allow reduction in hours of operation or operation by others (powerhouse operators) outside of normal lock operating hours.
3. Working Group team analyzes future reduction of staff due to normal attrition (may use decision tree data) for possible reduction in hours of operation without backfill of personnel and still meet customer needs.
4. Working Group coordinates with customers on setting hours of operation at locks identified for reduction of hours.
5. Working Group implements, with approval from IMTS Board of Directors, reduced hours at locks identified.

Schedule

Activity	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Assess decision tree		X	X	X									
Analyze remote operation of spillways					X	X	X						
Analyze future staffing requirements					X	X	X						
Coordinate with customers									X				
Implement reduced hours *								X	X	X	X	X	X

* If traffic and staffing allows, implementation could be made immediately following coordination with customers. Other locations may require remote operation of spillway gates and reduction in staff via normal attrition.

Resource Plan (\$000)

Activity	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Develop decision assessment													
Implement action to reduce hours													

Note: Cost of BPR and Working Groups not considered in implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Lock availability meets or exceeds the 2006 performance described in Technical Exhibit 2.	Optimized hours of operation based upon usage patterns enhancing the ability to balance resources with system reliability.

Implementation Measurement

Identify, by considering associated factors, all locks for improvement (reduction of hours of operation and maintaining customer needs) within 6 months of the start of the implementation phase.

Quality Assurance

Conduct annual customer satisfaction reviews of all navigation locks where hours of operation were reduced within 5 years. These reviews should verify continued need of reduced hours or justify increase in hours or modification of operational hours.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 6 - TRAINING AND CERTIFICATION FOR LOCK STAFF

FINDINGS

Training and certification for new lock operators varies widely throughout the Corps of Engineers, from 1-year structured courses to fragmented on-the-job training. Likewise, technical training for experienced work leaders, lock operators, electricians, and mechanics varies from minimal to no formal training. Most training for experienced personnel is mentored on-the-job training, the quality of which varies widely throughout the Corps, depending on the skill and philosophy of the trainer. The ability to cover shifts of personnel in training and lack of a dedicated training budget both limit training opportunities.

The inconsistent and inadequate lock operator training at some locations has hampered the use of flexible or interchangeable staffing among regional locks, reducing the effectiveness of the O&M of lock and dam facilities and increasing the risk of lock unreliability and poor customer response.

The IMTS can improve O&M of the inland navigation system by better developing the skills of the workforce. This can be accomplished by launching a standard basic training and lock operator certification program for all new lock operations personnel, thus establishing a baseline of skills and knowledge across the Corps.

The required completion of the lock operator certification program will ensure that the lock operator community achieves recognition of the skills and knowledge required to operate a significant link in the IMTS and establish a community of practice to share and transfer experiences and best practices. It will also establish flexibility in staffing, improving situation response time and effective use of skills and resources in and across the navigation systems (regions).

A well-trained workforce will foster a safer work environment for lock and industry personnel and equipment. Additional training opportunities for experienced lock personnel, which would focus on specific skills and needs at the lock and maintenance facilities, will make maintenance more effective and allow rapid response to all navigation situations.

RECOMMENDATIONS

1. Develop standardized, nationwide training and certification for new lock operators (those assigned duties for operating locks or dams). Mandate that everyone who operates a lock (including mechanics, electricians, dredge personnel, and hydropower operators) obtain the national lock operator certification. Encourage but do not require current lock operators to become certified.
2. Provide refresher training, at reasonable intervals, to stay abreast of changes and technology.
3. Establish a mechanism (such as newsletters, conferences, or training officers) to inform and facilitate lock personnel participation in mission-related maintenance training to learn and improve skills. This will result in a broad-based trained staff and allow better use of on-site staff. Encourage all IMTS personnel to develop their individual development plans (IDPs) to take advantage of training opportunities.
4. Develop a PROSPECT course, specifically for new lock personnel, required as part of the lock operator certification process and also available to journeymen lock personnel as stated in the IDP and as funding allows. Include fundamentals of lock operation and pool management, an overview of the Corps navigation mission, lock operations support of that mission, lock staffing, safety, and career development guidance.
5. Standardize the training duration and grade structure for lock operators during the training and certification period, where the grade advances as phases of training are completed. (See chart below for an example).

Position Title	Time in grade	Other requirements
WY-5 New operator	Entry level	—
WY-7	3 months	Training completion, supervisor recommendation
WY-8/9 Journeyman	9 months	Training completion, supervisor recommendation

6. Establish adequate training budgets and staffing procedures to allow for training for new and current lock personnel (operators, mechanics, and electricians).

COST ANALYSIS

Lock Personnel Statistics

Category	Number	Age		
		< 55	> 55	Average
Mechanic	405	254	151	50.46
Operator and supervisor	1,108	674	434	50.30

The locks are staffed by about 1,500 operators, mechanics, and supervisors. In keeping with the workforce age, 10 percent, or 150 positions, will be vacated per year. As the positions are vacated (at all levels of the lock personnel structure), they will be filled with entry-level lock personnel, who will need to be trained and certified.

Training Costs

Task	In-house labor (\$)	Contractor (\$)	In-house travel (\$)	Miscellaneous	Total (\$)
Develop training manual (one time)	0	100,000	30,000 (1)		130,000
Update training manual (annual)	0	30,000	10,000 (2)		40,000
Entry-level training (annual)	0				0
Develop PROSPECT course (one time)	0		30,000 (1)	5,000	35,000
Update PROSPECT course (annual)	0			2,000	2,000
Student PROSPECT course (annual) (3)	0		128,000 (4)	400,000 (5)	528,000
Total initial	0	100,000	60,000	5,000	165,000
Total annual	0	30,000	138,000	402,000	570,000

- (1) 5 people × 6 trips × \$1,000 per trip.
- (2) 5 people × 2 trips × \$1,000 per trip.
- (3) Four sessions annually × 40 students.
- (4) 160 students × \$800.
- (5) Tuition and lodging (160 students × \$2,500).

CHALLENGES

Work schedules and shifts.

BENEFITS

Uniform, well-trained staff to ensure consistent, safe lock operations and enhance career opportunities for the workforce.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Working Group establishes a national team to review and evaluate existing training manuals and develop the curriculum for the training and lock operator certification program. A preliminary inventory of existing training manuals is available from the BPR Team.
3. From the established curriculum, produce the lock operator's training manual and mandate its use throughout the Corps. Each navigation District will develop local, site-specific addendums of the manual and implement training.
4. Develop and implement a PROSPECT course for lock operators as part of their overall training program. The training center at Huntsville has an established procedure for curriculum development and can assist with this action.
5. Working Group develops procedures for implementation for required training and coordinates training and grade structure with HR.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Develop curriculum and requirements for the lock operator training manual (5-month duration from start of implementation phase)		X	X	X	X	X							
Produce, edit, and distribute lock operator training manual (5-month duration)						X	X	X	X	X			
Develop and implement PROSPECT course (10-month duration)					X	X	X	X	X	X	X	X	X

Resource Plan (\$000)

Activity	Month (1)												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(2)												
Develop curriculum and requirements for the lock operator training manual (5-month duration from start of implementation phase)		5	(3)	5	15	15							
Produce, edit, distribute lock operator training manual (5-month duration)						20	15	20	15	20			
Develop and implement PROSPECT course (10-month duration)					5	1	5	1	5	1	5	2	5

- (1) Shift timeline to coincide with schedule for implementation.
(2) The Working Group cost is not considered in the implementation cost.
(3) No additional costs will be incurred.

Relationship to Baseline Requirements Document

A workforce trained in a standard program and given the opportunity to further advance that training with specific, focused courses will improve the function of all the work breakdown structure categories. The following required services and performance requirements will receive significant benefits from these BPR recommendations.

Required Service	Standard/performance requirement	Effect of Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Operate locks safely and effectively in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance.	Uniform, well-trained staff to ensure consistent, safe lock operations and enhance career opportunities for the workforce.
C.5.2. Operate Dam	Operate dams safely and effectively and maintain the required navigation pool in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance	
C.5.3. Maintain and Repair Lock	Effective lock maintenance and repair minimize unscheduled outages and unavailability to navigation customers.	
C.5.4. Maintain and Repair Dam	Effective dam maintenance and repair maintain the required navigation pool elevation and minimize unscheduled outages and unavailability to navigation customers.	

Implementation Measurement

When the IMTS Board is established and the implementation phase begins, the completion of the training manual will take 10 months. An interim report of progress will be given in the 5th month to verify the activity is properly moving forward.

During the development of the training manual, the PROSPECT team will form and take 10 months to develop the lock and dam operations PROSPECT course. At the 5th month, an interim report of progress will be given to verify the effort is proceeding according to plan.

At the start of the second year of the implementation phase, the standard training manual and lock operator certification program will commence. At the same time, the lock and dam operations PROSPECT course will commence and will be held each quarter (or as needed to accommodate demand).

The Working Group will ensure that prioritization of the training budget by the navigation Districts' guarantees new lock personnel certifications are accomplished.

Quality Assurance

Annually during the implementation phase, each region will report – through the Working Group to the IMTS Board – the number of:

Certified lock operators and the total number of lock operators in that region, and

Lock personnel participating in formal training and lock O&M related conferences (which should show good representation of the IMTS workforce).

In the second year of operator certification, a customer survey will be developed and distributed to get the industry impression of changes in lock operation service.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 7 - AUGMENT SUPERVISORY SKILLS AT LOCKS AND FIELD OFFICES

FINDINGS

Workers with outstanding performance records are typically selected for supervisory positions. An employee with an outstanding record in a team environment does not always become an effective supervisor.

Lock supervisor training varies widely among Divisions and Districts throughout USACE. Training for current and new lock supervisors is available but inconsistently provided. New lock supervisory personnel at times find themselves inadequately prepared to assume their new duties and responsibilities due to lack of training. They typically need training in four areas: management and administration, human resources (HR), interpersonal relations, and team building skills. Lack of training in these areas often causes problems for the new supervisor, as well as the employees now supervised.

Lock supervisory personnel are often given minimal training on the union agreements at their locks, making them unfamiliar with agreements in the current local contract. The IMTS can improve reliable operation and maintenance of the inland navigation system by compulsory training of lock and dam supervisors and giving them the opportunity to continue training through supervisor and human capital courses. Proper supervisor training will enable more reliable execution of supervisory duties and promote a more harmonious environment at the lock and dam or maintenance facility.

RECOMMENDATIONS

1. Enforce mandatory completion of the following required courses for new supervisors: HR for new supervisors, online supervisory development course, and Army Continuing Education System courses. Encourage employees with the potential for supervisory positions to take some of these courses as shown and approved in their individual development plan. A well trained supervisor can better handle the multitude of personnel issues faced daily. This training should provide for a more motivated and consistent workforce.
2. Train new supervisors on the provisions of the current union contracts in the first year following their selection.

3. Provide refresher training for current lock supervisors. Many commercially available courses – such as the American Management Supervision Certification course, which consists of six 1-day courses in various disciplines – could be employed. Encourage supervisors to share news of courses that prove beneficial.
4. Use scheduled navigation conferences to devote time to discussing supervisory issues, and make training in various supervisory skills part of the agenda.
5. When a new union contract is negotiated, require training of all operations and maintenance supervisory personnel on the provisions of the agreement. Hold refresher training on the content of the current union agreement every 3 years.

COST ANALYSIS

Additional costs are negligible.

BENEFITS

Supervisors with the skills necessary to enhance management and employee relationships.

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.

2. Working Group will insure that all CPACs certify that all supervisors have received the required training. Results will be communicated to the second line supervisors.
3. Regional management teams insure that IMTS supervisors receive refresher training and will report the status annually of all IMTS supervisor training to the IMTS Board. A corrective action plan will be developed for those not in compliance with required training.
4. Working Group should assure that opportunities for refresher training to enhance supervisory skills of IMTS supervisors are developed as a part of the periodic national and regional O&M workshops.
5. CPACs in District plan for mandatory training on union agreements. Working Group will request CPACs develop and conduct training on union agreements to provide awareness of agreement requirements.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
District CPACs ensure supervisory training is accomplished				X									
District CPACs ensure new supervisors receive union agreement training							X						
Regional management team assures refresher training for supervisors													X
Regional management team assures supervisory development opportunities are provided at periodic conferences													X

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												

(1) Working Group costs are not considered in the implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR Recommendation(s)
C.5.3.1 Perform Lock Maintenance	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	Supervisors with the skills necessary to enhance management and employee relationships.
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	
C.5.4. Maintain and Repair Dam	Effective dam maintenance and repair maintain the required navigation pool elevation and minimize unscheduled outages and unavailability to navigation customers.	

Implementation Measurement

Four months after the start of implementation, the Working Group will review the status of training for new and current supervisors.

Quality Assurance

Districts will report the training provided to the regional management team.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 8 - SHARE IMTS KNOWLEDGE AND INFORMATION

FINDINGS

The means of information sharing throughout the Corps and the navigation community are not clear or consistent. Some groups (communities of practice) have established forms of communication, such as regular telephone conferences with open participation. Others have used the Internet to establish web pages to share information. Although sharing knowledge among employees improves situational awareness and is an important training tool, classroom training on this key, often critical, subject is frequently not available. To emphasize the knowledge gained by sharing information between projects, the commander, USACE, said: "I look at every rehab project and new construction project as a school house, not just for the people there, but throughout the Corps."

The BPR Team visited most of the lock and dam projects in the IMTS, many of which are in remote locations and frequently have operators who work alone on a shift. Many of these employees said they do not feel valued or part of the system due to a variety of factors, such as little interaction with a supervisor located at an alternate site; receiving navigation information from the towing industry rather than from a supervisor or the District; and the lack of opportunities to attend classroom training or industry meetings.

In the past, USACE held national lock operations and maintenance (O&M) meetings. Now, lock and dam meetings vary across the Corps; some Divisions and Districts have lockmaster meetings, and others do not. Employees have only occasional opportunities for sharing information, such as when detailed to another project office or to a multidiscipline team. Annual lock O&M meetings would improve communication and information sharing, making employees feel they belong to the team. Meetings for repair centers and dredge crews would have similar benefits.

The lock and dam O&M community has no newsletter or website to share project success stories or furnish information on new technologies and training opportunities (including individual development assignments). A website would be a key communication center – now and in the future – offering threaded discussions (a valuable learning resource), news on training opportunities, and shared expertise.

RECOMMENDATIONS

1. Develop an MOA for a PAO contact dedicated to the IMTS to improve communication internally, with customers, and with the public. This contact is responsible to the Working Group.
2. Public Affairs Officer (PAO) contact shall include development of a newsletter, published at least quarterly, to cover lock and dam O&M, dredging, employee interest stories, and other IMTS-related issues. Research and communicate navigation topics of interest from all available government, industry and academic sources.
3. Using the functionality of the Navigation Gateway, establish a website to share IMTS-related knowledge and information through threaded discussions, wikis, newsletter archives, etc. Notify all employees of updates through timely e-mails. Share all IMTS-related information – especially photos – concerning safety, accidents, new vessels, new locks, rehabs, closures, emergency situations, flooding, drought, low-water issues, unusual traffic, unusual lockages, training opportunities, etc., as well as appropriate information related to IMTS employees.
4. Working Group should establish a PAT to develop the MOA.

COST ANALYSIS

The contract cost for the PAO is \$180,000, which is included in General Expense (GE) appropriation.

BENEFITS

Increased communication
Improved public relations
Enhanced internal exchange of information
Greater employee situational awareness

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. At the start of the implementation phase, the Working Group initiates action to develop the contract.
3. The Working Group develops the initial newsletter to be published at the start of the implementation phase. The Working Group publishes the quarterly newsletters until the IMTS communications contract is awarded.
4. Within 3 months of the start of the implementation phase, the Working Group leverages the existing navigation gateway website and customizes it (layout, links, wikis, threaded discussion forums, etc.).
5. The Working Group will measure the effectiveness of communications.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Incorporate knowledge management and sharing in IMTS integrated communications plan		X	X	X									
Develop newsletter					X								
Establish IMTS website					X								
Schedule annual meetings													X

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
PAO contract							17	17	17	17	17	17	17

(1) Working Group costs are not considered in the implementation cost.

Relationship to Baseline Requirements Document

Trained Personnel with essential skills are needed to maintain system and lock availability. Because some IMTS skills and knowledge are not available in training courses, knowledge management and sharing are needed to fill this gap.

Required Service	Standard/Performance Requirement	Effect on Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Operate locks safely and effectively in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance.	Increased communication Improved public relations Enhanced internal exchange of information Greater employee situational awareness
C.5.2. Operate Dam	Operate dams safely and effectively and maintain the required navigation pool in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance.	
C.5.3. Maintain and Repair Lock	Effective lock maintenance and repair minimizes unscheduled outages and unavailability to navigation customers.	
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	
C.5.4. Maintain and Repair Dam	Effective dam maintenance and repair maintain the required navigation pool elevation and minimize unscheduled outages and unavailability to navigation customers.	
C.5.6.1. Prepare Annual Lock and Dam O&M Budget	100 percent of budgets are completed on time.	
C.5.6.5. Perform Lock, Dam, and Facility Security	100 percent of security plans are maintained by lock site.	
C.5.6.8. Capital Investment (currently involves PRIP program management)	100 percent of capital investment plans are completed annually.	

Implementation Measurement

Establishment of the PAO contract is critical to successful IMTS communications and should be initiated by the Working Group at commencement of the Implementation Phase. Working Group establishment of the PDT at the commencement of the Implementation Phase is critical to the establishment and maintenance of effective two-way communications with the IMTS workforce.

Quality Assurance

Since effective communications produce substantial benefit to the IMTS, the IMTS Board should review the status of communications at every Board meeting.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 9 - NAVLOCK CHANNEL MAINTENANCE

This BPR topic includes channel patrol, hydrographic surveys, large-volume dredging, low-volume dredging, and dredge material maintenance.

FINDINGS

Channel Patrol and Hydrographic Survey

Currently, channel patrol hydrographic surveys (or reconnaissance) are conducted based on historic data, flows, or in response to industry feedback on actual conditions such as groundings or bumping. Districts deploy hydrographic survey vessels and equipment either by hired labor or contract to evaluate the situation by Engineering or Operations. While on channel patrol, survey crews coordinate with the U.S. Coast Guard (hereafter USCG), and in some cases the buoys are repositioned to mark the channel.

If moving buoys cannot solve the problem, then the Navigation and Dredge Team will provide detailed surveys for the area. The team leader communicates the results from these initial surveys to industry and the USCG to communicate the current condition of the channel.

Once the detailed survey is completed, the dredging team leader schedules required work based on priority and availability of dredging assets. This information is communicated to industry and the USCG. The Navigation & Dredge Team evaluates historic data to develop long-term solutions for areas requiring repetitive dredging.

Dredging is occasionally required in non-problematic areas. In order to meet the environmental requirements of the U.S. Fish and Wildlife a mussel survey must be conducted. Often, areas of the river cannot be dredged because a mussel survey cannot be procured in the required timeframe. If a mussel survey can not be contracted, the buoys must be realigned to mark the navigation channel until the following year when a mussel survey contract can be issued.

Dredge Material Management

Individual Districts currently develop their own dredge material management plans to maximum utilization of the dredge plant. This management plan also addresses environmental and real estate issues for upland or open water material placement.

Water quality certifications are obtained from the state after sediment tests are submitted.

Large-Volume Dredging

Once the need for dredging is determined, the Navigation & Dredge Team determines the most effective and efficient assets (contract and / or hired labor) to deploy. If a government dredge is used, the dredging team leader issues and coordinates dredging orders. After dredging the hydrographic survey crews conduct surveys to verify performance and determine volumes dredged. If a contract dredge is used, the Contracting Officer's Representative issues orders to the contract dredge in accordance with the terms of the contract. The Navigation Dredge Team monitors the contract dredge for adherence to specifications. This inspection is accomplished differently across Districts. Some Districts pay based on plant rental, while others pay according to volume removed as verified by hydrographic surveys.

Low-Volume Dredging

Low-volume dredging encompasses strike (submerged obstruction) removal or dredging in quantities and locations that financially preclude the use of large dredges. When an area is identified for low-volume dredging the dredging team will decide whether the area shall be dredged by hired labor or contract. Material may be disposed upland or in deepwater areas, depending on permit requirements. No improvement areas have been identified for low-volume dredging.

The BPR Team analyzed and considered the following options but does not include them in the recommendations:

1. Perform all survey work by contract labor.
2. Prepare regional dredge material management plans.

RECOMMENDATIONS

1. Share Corps hydrographic surveys with the USCG in a standard file format (such as AutoCAD DXF). Coordinate with the USCG Headquarters to ensure all USCG offices have procured the necessary software to enable it to directly read Corps surveys. Conduct joint training with the USCG and Corps on the use of hydrographic survey software. The USCG would be capable of setting buoys using the latest Corps surveys which will provide a more accurate map of the navigation channel than their own limited depth soundings.

2. Conduct working meetings between local Corps offices and USCG detachments to discuss fleeting routes (sailing instructions, i.e. verbal and/or written instructions given to mariners providing short term revisions or restrictions to normal channel widths) and ways to improve marking the river channel with buoys.
3. Initiate a regional ID/IQ-type contract for environmental services, including mussel surveys, water quality laboratory work, and sediment analysis. The need for mussel surveys is often not known well in advance, and there is usually insufficient time to procure these services through normal practices. An ID/IQ-type environmental services contract would provide this quick response.
4. Use existing regional and national meeting forums (such as the Inland Waterways Conference) to evaluate best practices for contracting, QA/QC, coordination with the USCG, industry, and interest groups.
5. Establish a GIS based platform for use by Districts with significant dredging requirements. This platform shall denote survey contract boundaries for coordination, survey schedules, dredge schedules, and location of all floating plant assets (both contract and hired labor).
6. Regional areas shall maintain a database of historic dredging areas. Budget packages shall be developed to investigate long-term solutions (eliminate the need for dredging where economically feasible). Use of technology such as micro-modeling for these areas to determine cost-effective solutions such as weir fields, etc, should become widespread.

COST ANALYSIS

Improvement 1: Share Survey Information with USCG

This recommendation will result in no added cost to the Corps. The USCG may incur minor costs to acquire software to allow it to read the survey information. The benefits for better channel marking will reduce channel groundings or closures.

Improvement 2: Conduct Coordination Meetings with USCG

Most Districts meet with the USCG on a regular basis, either in person or by phone, to discuss river conditions and areas where revised marking may be necessary. Since most Districts conduct these meeting on a regular basis there is no additional cost to the IMTS.

Improvement 3: Develop ID/IQ Environmental Contracts

Costs to develop ID/IQ environmental contracts are comparable to current individual contracts. The ID/IQ contracts will provide for a quicker response in completing environmental surveys.

Improvement 4: Evaluate Best Practices at Regional and National Meetings

Implementing this recommendation will incur no additional costs, since USACE already conducts national dredging meetings.

BENEFITS

Decreased acquisition timelines for environmental contracts
Reduced volume of historic dredging locations through evolving technology
Improved sharing of survey information with the USCG

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

Districts will assist USCG offices with training on using hydrographic surveying software.

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. IMTS Board collaborates with the USCG Headquarters to ensure both organizations procure and utilize the same software to read the Corps' electronic hydrographic surveys.
3. Division IMTS Management Team insures Districts have established an ID/IQ contract for environmental services.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Coast Guard HQ Collaboration													
Division IMTS Management Team confirms establishment of ID/IQ contracts													

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
Coast Guard HQ Collaboration													
Division IMTS Management Team confirms establishment of ID/IQ contracts													

(1) Working Group costs not included.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.8.3. Water Quality	Comply with State and Federal water quality terms and standards. Select and fund the provider of choice to perform water quality analysis.	Decreased acquisition timelines for environmental contracts Reduced volume of historic dredging locations through evolving technology Improved sharing of survey information with the USCG
C.5.8.5. Aids to Navigation (Fixed and Floating)	Identify and mark hazards to navigation, other than Coast Guard mandated aids to navigation (marker piles, stone mounds, etc., to help vessels avoid grounding).	
C.5.8.7. Channel Reconnaissance and Hydrographic Surveys (Channel Patrol)	Perform channel reconnaissance and hydrographic surveys to uncover channel impediments that could cause vessel groundings and restrict the use of navigation channels.	

Implementation Measurement

IMTS Board coordinates with USCG Headquarters on implementation of software to read Corps hydrographic surveys within three months of the Charter.

IMTS Board insures USCG is utilizing software to read Corps hydrographic surveys within 12 months of the Charter.

Division IMTS Management Team to survey Districts on use of ID/IQ environmental contracts within three months of the Charter.

Division IMTS Management Team insures Districts have acquired ID/IQ environmental contracts within twelve months of the Charter.

Quality Assurance

IMTS Board monitors progress of USCG acquiring hydrographic survey software to read Corps surveys.

Division IMTS Management Team monitors progress on District ID/IQ environmental contracts.

Division Management Team monitors annual groundings to assure improvement of channel identification.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 10 - ENHANCE ON-SITE SUPERVISION

FINDINGS

As the BPR Team visited the many Corps locks, service bases, and project offices across the country, it received feedback that evidenced outstanding supervision, motivated and proud employees, and excellent facilities. This BPR addresses the isolated instances where on-site supervision was weak or nonexistent.

At locations where on-site supervision was lacking, the team found inconsistent expectations from both supervisors and lock staff members. Some lock supervisors are unaware of and not sufficiently engaged in the vital responsibilities of hiring, recruiting, training, skill development, performance appraisal, directing and assigning work, discipline, verifying time and attendance, and establishing priorities.

In the past, arbitrary goals for the supervisor-to-employee ratio have led to numerous instances where one individual is responsible for supervising employees at multiple lock sites. These individuals have found it difficult to give all the employees under their supervision needed personal interaction.

Many supervisors have not had the training required by the Corps for all new supervisors. This leaves them at a disadvantage because they do not have the tools to render quality supervision with confidence.

Due to the lack of administrative assistance, the supervisor has the additional burden of performing administrative duties to keep the facility running. The performance of these additional duties further reduces that amount of time available for quality interactive supervision (see “Improved Alignment of Administrative Tasks”).

The absence of employee observation and supervision at some locations means that work is not properly assigned, directed, and appraised. This situation also makes it difficult to understand, evaluate, and establish priorities. The lack of proper supervision and communication can lead to confusion about expectations regarding work ethic and discipline that might not be covered in employee orientation and evaluation.

Supervisors are sometimes deployed for natural disasters and other emergencies for extended periods without providing for the continuation of their local responsibilities.

Vacancies and other extended absences exacerbate the situation. Some organizations are so lean that staffing is inadequate, and the distractions from being persistently short-handed prevent supervisors from being effective.

The IMTS can improve reliable O&M of the inland navigation system by ensuring the lock and dam staff has properly trained supervisors who are on site or in proximity to the facility.

RECOMMENDATIONS

1. Assign on-site responsibility to one person at each lock and dam site. Depending on staffing levels and other parameters, this person could be a supervisor or a work leader, but must have charge of the site and the authority to assign work to lower- or similar-graded personnel supervised/led.
2. If a site does not have a supervisor whose normal duty station is at that site, ensure the site supervisor's assigned duty station is within 45 minutes of the site. Assigning a working supervisor to each site is preferred, but when this is not practical – for example, for locks that are open less than 24/7 and that have a very small staff – supervisors should have no more than two lock chambers assigned. The span of control does not depend upon supervisor-employee ratio, but on the needs of the position.
3. Ensure every site always has a responsible person officially assigned. When a site supervisor is deployed, backfill the position or officially assign specific responsibility for supervision until the incumbent returns. Officially designate someone as supervisor when the supervisory position is vacant for any other reason.

COST ANALYSIS

This BPR incurs no severable costs or savings.

BENEFITS

More On-site supervision
Defined work leadership roles and authority
Improved span of control

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Establish IMTS communication protocol.
3. Working Group – Conduct inventory of all IMTS sites and the assigned supervisor. HR can be requested to assist with this action.
4. Using the guidance of one on-site supervisor per IMTS site, determine where locations of supervisory voids exist.
5. Using the guidance of close proximity of IMTS sites and medium to light workload (traffic & maintenance) identify sites where one supervisor can be assigned to 2 adjacent sites. (Recommend no more than 45 minute drive between sites).
6. Alert the local chain of command of this need and request action be taken to re-establish the supervisory presence at all IMTS sites. A report on the successful implementation of this action will be presented to the IMTS Board no later than 12 months after this action was initiated.
7. Working Group coordinates training and staffing recommendations.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Assign on-site responsibility		X	X	X	X	X	X	X	X	X	X	X	
Have Working Group review status of on-site responsibility													X
Assign local supervision		X	X	X	X	X	X	X	X	X	X	X	X
Have Working Group review status of on-site responsibility													X

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
Assign on-site responsibility		0	0	0	0	0	0	0	0	0	0	0	0
Working Group reviews status of on-site responsibility		0	0	0	0	0	0	0	0	0	0	0	0
Assign local supervision		0	0	0	0	0	0	0	0	0	0	0	0
Working Group reviews status of on-site responsibility assignment		0	0	0	0	0	0	0	0	0	0	0	0

(1) Working Group costs are not considered in the implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect on implementing BPR recommendation
C.5.3.1. Perform Lock Maintenance	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	More On-site supervision Defined work leadership roles and authority Improved span of control
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	
C.5.6.5. Perform Lock, Dam, and Facility Security	100 percent of security plans are maintained by lock site.	

Implementation Measurement

Within 12 months of the start of the implementation phase, the Working Group reviews the status of on-site supervision assignments and reports the completion of the supervisor actions discussed in this BPR.

Quality Assurance

The Working Group follows up as appropriate with any projects not in compliance at the 12-month point.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 11 - PHYSICAL SECURITY AT LOCKS AND DAMS

FINDINGS

Security systems and equipment were designed and installed by multiple vendors (within the same District/Division) for the lock sites as mandated by Homeland Security. Homeland Security funded for the initial installation, but no funds were provided to maintain the systems. Systems were installed using different standards and requirements. Specialized, non-standard, components, both hardware and software, were used for many portions of some systems. Some of these components were hand fabricated and only available from one vendor. Some system components were obsolete when installed. In order to replace these specialized components when they wear out or fail, sole source justification is required by contracting, and this justification is often not granted. Some components are not suited for the harsh environment present at many of the lock and dam facilities. Most sites have attempted to maintain the system through creative use of warranties provided, but this “short-term” solution is no longer viable.

Many security systems are not working as designed, they are difficult and expensive to operate and maintain. Since they were not designed for marine environments many are functioning marginally and deteriorating at a faster than anticipated rate. Some malfunction so often that alarms are ignored or the system is turned off until repaired.

The current systems were installed as a “quick” fix to a perceived threat against navigation infrastructure after the terrorist attacks of September 11, 2001.

The concerns of the lock personnel who were tasked with operating the system after installation were not sufficiently sought and implemented. No determination was ever made or guidance given on responsibility for upkeep, maintenance and funding of the systems. Contractors installed systems and turned them over to Corps of Engineers. RAMD (Risk Assessment and Methodology for Dams) study determined level and type of security system required at each lock site. As a result of the RAMD study navigation projects now have levels of security that vary from zero, no fencing with visitors allowed access to lock wall, to sites where access roads are gated off, fences and gates are secured at all times and building within the fenced/gated areas require keys or electronic access cards, in effect creating a triple locked area.

The installation of some components of the system violate safety regulations, (doors that won't open unless a button is pressed and the location of the button is away from the door, doors that open in and should be opening out.

In cases of a conflict security concerns were deemed to supersede safety requirements.

The ability of the Corps to maintain, repair and operate the multitude of security systems existing at our lock and dam sites will continue to decrease as the systems age and replacement parts cannot be procured. When a system does not operate and its lack of operation hinders lock and dam daily operations, modifications will be made to eliminate (or minimize) those parts of the non-working security system which cause problems.

OPTIONS CONSIDERED

The BPR Team considered but did not recommend the following:

Discontinue and deactivate all non-working electronic security systems and stop efforts to try to repair these systems. Site specific physical security plans recommend against turning off or removing installed security systems.

RECOMMENDATIONS

1. IMTS PAT will be responsible to form Project Delivery Team (PDT) comprised of Security, lock, and contract personnel to perform Life Cycle Cost Analysis on existing security systems to determine most effective strategy for operation, maintenance and future replacement strategy.
2. Establish an interim security policy at sites where systems do not operate as designed, cannot be repaired or do not exist. The interim policy may require use of non-electronic components such as chains and padlocks or security guards.

COST ANALYSIS

Develop Security Recommendation for Locks and Dams:

Labor

10 people working 5 days per month times 12 months

$$10 \times 8 \text{ hr/day} \times 5 \text{ days/month} \times 12 \text{ months} \times \$100/\text{hr (indirect rate)} = \$480,000$$

Contractor

Support for Data Gathering and Report

\$180,000

Travel

10 people x 12 trips x \$1000/trip =

\$120,000

\$780,000

BENEFITS

Security systems that perform as designed and provide intended level of protection.

CHALLENGES

1. No funding for recommended study or security upgrades. Funding must come from budget or Department of Homeland Security (original funding source).
2. Multitude of problems encountered with trying to “standardize” a security system that was designed and installed by multiple vendors at multiple sites. There is minimal consistency in the present security system on which to develop standards.
3. Extremely high cost to standardize systems or modify all of the existing different systems to make them reliable (repairable, useable, etc.). Cost for upgrade could exceed \$110,000,000.00 assuming \$500,000.00 per site X 220 sites.
4. National emphasis on security at lock and dam sites has waned since 2001.
5. Existing O&M funding inadequate to provide for repair or replacement of existing security systems.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

Rewrite Physical security plan for each facility.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

Publish and coordinate changes that will affect navigation customers.

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. PAT, including contractor, forms and conduct site survey for security inspections.
3. PAT, through Working Group recommends to IMTS Board the way forward to address the security systems at our locks that marginally operate and are unable to be repaired.

4. Contact Department of Homeland Security through appropriate channel, Jim Walker, Larry Lang to request funding to repair and maintain the systems that were originally funded through them.
5. Contract with independent security company for evaluation of existing systems and proposed “to be” solutions.
6. Evaluation/recommendation by Working Group and OPSEC Consultants, LLC. Upon review and acceptance by IMTS Board, recommendations will be funded and implemented as appropriate.
7. Coordinate changes to our posture and methodology of protecting facilities with District/Division security offices and DHS.
8. As necessary, revise Security Plans for projects that undergo security revisions.

Schedule

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		X												
Inspect sites and develop recommendations			X	X	X	X	X	X						
Implement recommendations										X	X	X	X	X

Resource Plan (\$000)

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		(1)												
Establish team to inspect and recommend (salary)			80	80	80	80	80	80						
Team Travel			20	20	20	20	20	20						
Contract support			30	30	30	30	30	30						
			130	130	130	130	130	130	78	0				

Notes:

Cost represent include only contract and in- house team labor and travel.

NO COST FOR UPGRADE INCLUDED

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR Recommendation(s)
C.5.6.5 Perform Lock, Dam, and Facility Security	Provide the physical security and safety for the lock and dam sites according to the Site Security Safety Plan. Physical security may include the use of: guards when authorized, perimeter fences, gates (possibly with electronic entry controls), security plans, surveillance cameras, and/or security screening for those entering the lock and dam site	Security systems that perform as designed and provide intended level of protection.

Implementation Measurement

Within 6 months of Charter, all sites will be inspected and recommendation report will be completed.

Annually evaluate number of locks that have maintained their security site plans

Quality Assurance

Each lock will appoint an employee to serve as security monitor. They will report status of security system to IMTS Working Group on semi-annual basis.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 12 - ACQUISITION OF LAND AND FLOATING PLANT EQUIPMENT

FINDINGS

ER 1130-2-500, Project Operations - Partners and Support (Work Management Policies), establishes the criteria for acquisition of land and floating plant assets. Section I of that regulation specifically addresses design, acquisition, and construction. 7-4.a.(1) states, "It is the policy of the Corps of Engineers that: a. Design efforts for civil works plant and equipment shall be limited to the minimum necessary to define the mission and performance requirements, encourage competition, and acquire appropriate plant suitable for use in the intended service. Designs for the construction or alteration of all major items of floating plant which are not readily available on the commercial market, or for which manufacturers' standard designs are not suitable for use, shall be prepared by the USACE Marine Design Center (MDC).

Further, 7-4.a.(2) a. says, "Unique designs shall not be created for vessels which are currently either in the Corps' existing inventory or are common commercial vessels, unless dictated by mission requirements. General Design Memoranda must contain justification for unique designs."

Because of a number of factors, including staffing levels, contracting issues, lengthy and established past practice, etc., Districts have become increasingly dependent on the MDC for design, project management, contract administration and QA/QC for acquisition of towboats and tenders, derrick boats and barges.

1. Contracts: Best value, design/build contracts provide a vehicle for simplified acquisition of quality plant items. These contracts are relatively straightforward, simple to administer, and are a cost-effective alternative to traditional low bid contracts. Extensive market research indicates shipbuilders prefer and support this type contract since design and construction has been done before and proven effective. In addition, builders appreciate a closer relationship with the asset owner. Since builders are bidding on their own stock-designs, the total project cost is less than construction of uniquely designed vessels. Most importantly, the majority of Corps plant is readily available on the open market and manufacturers' standard designs are suitable for Corps use. Accordingly, per 7-4.a.(1) above, designs do not have to be prepared by MDC.

2. Plant Standardization: Standardized design of plant items is more cost effective - both to purchase and to operate - than individual design efforts for commercially available assets. Standardized plant is easier to manage from a regional perspective

since these assets and their components are interchangeable. Also, ER 1130-2-500, Section 7-4, mandates plant standardization: "To the maximum extent possible, floating plant shall be standardized within the Corps." A cursory review of the Corps' plant inventory indicates the Corps' plant inventory is not standardized.

3. Regulatory Guidance: ER1130-2-500, 7-4 g. (1) states, "All floating plant shall be constructed, equipped and manned to meet the same requirements as imposed on private industry owners and operators of similar marine equipment by the laws of the United States and of the State(s) where constructed or employed. Vessels shall be certified and classed for their intended use and purpose. District commanders shall maintain these certificates and classifications for the life of the vessel. Procedures for arranging certifications and classifications from the U.S. Coast Guard and the American Bureau of Shipping are provided in Chapter 7 of EP 1130-2-500. A waiver for classing and certifying vessels can be obtained from HQUSACE, such as GSA schedule vessels."

Initial ABS underwriting and certification for an 85-95 foot newly constructed towboat can cost >\$250K. Recertification for a similarly sized vessel is approximately \$10 -\$15 thousand annually. Design/build specifications should include verbiage such as, "...shall be constructed in a quality manner, consistent with American Bureau of Shipping and current industry standards..." ABS certification is expensive and unnecessary. Design/build specifications should require builders' QA/QC plans, and that should be made a part of the grading criteria. Frequent site visits and inspections by owning Districts augment builders' QA/QC plans. The Corps has acquired floating plant through this method, and it has proven to be cost effective and successful.

This should be addressed in the regulation. In lieu of requesting a waiver from HQ for design/build, best value contracts, for vessel certification, guidance should be modified to facilitate expedited acquisition.

OPTIONS CONSIDERED

1. Status quo.
2. Create detailed standard designs and specs for various size towboats and tenders, barges and derrick boats, and provide these to prospective bidders in conjunction with traditional bids solicitations.

RECOMMENDATIONS

1. Working Group will appoint a PAT to propose standardized sizes and shapes of Corps plant assets. Recommendations will be forwarded through the Working Group to the IMTS Board.
2. Working Group will appoint a PAT to draft recommended changes to ER 1130-2-500. Recommendations will be forwarded through the Working Group to the IMTS Board. This initiative will empower Districts to acquire plant items through best value, design/build contracts.
3. Districts will provide contract administration and QA/QC oversight of design/build contracts.
4. Create basic size and shape drawings and simple specifications for standardized vessels and provide these to prospective offerors for design/build and best value supply contracts.

COST ANALYSIS

Plant Standardization Team:

- 5 employees @ \$125K (eff. rate) 3 months = \$160K
- 5 employees 5 ea. 5-day meetings = \$ 65K
- Coordination with Districts = \$ 50K

ER Modification Team:

- 4 employees @ \$125K (eff. rate) 1 month \$ 50K
- 1 ea. 5-day meeting = \$ 10K

District Design and Spec Writing:

- 2 employees @ \$125K (eff. rate) 4 months = \$100K
- Coordination with Districts = \$ 50K

TOTAL = +/- \$485K

Savings:

- ABS Initial Certification = 5 MINS Annually @ \$250K ea. = \$1.25 M/YR
- ABS Recertification = +/- \$15K per vessel x 40 vessels = \$600K annually
- Contract Administration = 2 MINS (assuming 1/3 MINS will be design/build initiatives) @ \$1M savings each = \$2 million annually.
- Savings through parts/material acquisition through economies of scale = +/- \$500 thousand annually (Corps wide).

BENEFITS

Reduced purchase costs for land and floating plant equipment through innovative acquisition strategies.

CHALLENGES

None identified.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Working Group appoints PATs.
3. Establish standards.
4. Change ER 1130-2-500.
5. QA/QC Points of Contacts (POCs) appointed.
6. Create Basic drawings and specifications (specs).

Schedule

Activity ▼	Month▶	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter														
Establish standardization PAT			X											
Draft changes to ER1130-2-500				X	X									
Districts provide QA/QC POCs						X								
Create basic drawings & specs							X	X	X	X				

Resource Plan (\$000)

Activity ▼	Month▶	0	1	2	3	4	5	6	7	8	9	10	11
Charter		0											
Establish PDT		0											
Draft Changes to ER 37-1-29				30	30								
Create basic drawings & specs							40	40	40	40			
Propose Changes to HQUSACE										0			
Establish Implementation Date										0			
Implement New Regulation											50		

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.3. Maintain and Repair Lock	Increase or maintain Lock availability through effective Lock maintenance and repair.	Reduced purchase costs for land and floating plant equipment through innovative acquisition strategies.
C.5.4. Maintain and Repair Dam	Increase or maintain Dam Pool control and navigation through effective Dam maintenance and repair.	
C.5.5 Perform Major Maintenance of Locks and Dams	Lock is accessible to traffic and lock availability is not impacted by debris or obstructions.	
C.5.8. Channel O&M	Maintaining Channel availability.	
C.5.9. Major Rehabilitation and New Project Construction	Accurate and timely analysis with clear recommendations and justifications.	

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.10. Mooring/Protection Cells (Bridges, Approaches) Repair and Replacement	Improve locking efficiency. Provide safety such as near bridge approaches to wait out rough weather, high winds, and traffic. Protect bridges and approaches.	

Implementation Measurement

None identified.

Quality Assurance

None identified.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 13 - RESTRUCTURE THE PLANT REPLACEMENT & IMPROVEMENT PROGRAM (PRIP)

FINDINGS

The Army Corps of Engineers uses the Plant Replacement and Improvement Program (PRIP) to acquire and operate major plant assets in accordance with Engineering Regulation (ER) 37-1-29. PRIP is a revolving fund type account which means that users must repay funds as defined by the program. Payback is accomplished by charging a rental (utilization) rate for customers who use the plant. The formula for calculating this rate is defined in ER31-1-29, Appendix B-2, and the Corps of Engineers Financial System (CEFMS) at <http://rmf31.usace.army.mil/cefmsdoc>.

1. Salvage Value: PRIP requires Districts to assign a salvage value of zero upon acquisition of major plant items. Establishing a zero salvage value is unrealistic and artificially raises the rental rate. It is a general fact that all plant items have some salvage value. The standard definition of a zero salvage value should be changed to a 10% of original cost value. The savings from acceptance of this proposal would be in the range of 6% - 15% of the total PRIP rental cost to the renter (COE). Also, PRIP items are surplus, funds recouped from divestiture of the asset are returned to the general treasury and not back into the PRIP fund or to the asset owner.
2. Incremental Charge: PRIP assesses an incremental charge to the cost of plant items. PRIP defines incremental charges as a surcharge to cover the increased cost of replacement of the item of plant over the item's original cost. The purpose of incremental charges is to maintain the purchasing power of the Revolving Fund corpus. The only way to discontinue incremental charges is to pay off the cost of the asset when there is no requirement for a replacement item. This practice confirms that we continue beyond the useful life of the plant to include the plant increment factor in the rental rate.
3. Plant Increment: Since plant increment is designed to assure the PRIP Revolving Fund will have sufficient funds to purchase a new replacement plant when needed (by definition the repurchase price is fully funded at the end of the useful life of the plant), the plant increment should be decreased to an inflation-only increment at the point where the useful life of the plant is reached. We should no longer continue to collect funds for replacement beyond the useful life of the plant since at this point the replacement is fully funded by the plant increment cost collected over the years of the plant's useful life.

4. Major/Minor Item Thresholds: PRIP establishes the major item threshold at \$700K and above. Minor items are plant assets costing less than \$700K. The minor item threshold amount should be increased to expedite acquisition of plant items.

The NavLocks Team considered but did not include the following in their recommendations:

Use project funds (O&M) or other alternative funding measures in lieu of PRIP. Budgetary constraints prohibit plant acquisition through O & M funding.

RECOMMENDATIONS

1. Incremental Charge: The BPR suggests implementation of a Plant Increment Inflation Cost (PIIC) in lieu of the plant increment cost. The PIIC will be calculated as follows:

- a. Original value of Plant x Plant Increment Factor = Plant Increment Total Cost
- b. Plant Increment Total Cost / Useful Life = Plant Increment Annual Cost
- c. Plant Increment Annual Cost x OMB inflation Factor = Plant Increment Annual Inflation Cost

This should be included in the utilization rate calculations for plant which is post useful life (ref: ER 37-1-29 Appendix B) in direct substitution for the Plant Increment Cost (utilized only for plant still within its useful life). This would reduce the utilization rate substantially while still assuring the PRIP revolving fund of sufficient resources to continue.

2. Salvage Value:

- a. Assign a salvage value of 10% of original cost to all plant items.
- b. IMTS Working Group will appoint a PAT to investigate returning plant salvage value to the owner. The GSA AXCESS Program allows salvage value to be returned to the asset owner. This program is GSA's version of EBay, and it is all web-based. The first 14-21 days after an item is surplus and the administrative work is complete, the item is advertised to other federal agencies for re-issue. If no one wants the item, it then goes to the auction. At that point, the item is open for public bidding (any registered user) for a certain number of days. GSA will notify the seller when the item has been purchased and the buyer will arrange to pick-up the item. When the transaction has been processed, GSA faxes the paperwork to release the item to the District. The check

comes later and GSA takes their portion off the top. This will allow asset owners to directly recoup plant salvage value.

c. Revise ER 37-1-29 to allow plant owners to recoup trade-in value for plant items and recoup salvage value of divested plant items when the GSA AXCESS Program is utilized. Further, change the regulation to allow asset owners to roll recuperated funds over to the operating accounts for replacement vessels. This will lower daily rental rates and have no negative impact on the PRIP corpus.

3. Useful Life: Plant owners should determine the *appropriate* useful life for plant items within established PRIP guidelines.

4. Separate Rental Rates: Districts or regions should establish separate rental rates for plant actually in operation and plant not in operation but in transit for use by another Corps District, or in a standby status. Standby rates should be approximately 50% of the plant item's daily usage rate. For consistency in accounting for assets, all Districts will use established regulatory criteria in determining daily rental rates for PRIP assets.

5. Depreciation Factor: Depreciation factor should not be included in the rental rate beyond the useful life of the plant.

6. Major/Minor Item Thresholds: The minor item threshold should be raised from \$350K and the major item threshold should be increased to \$3 million. This will facilitate a more expeditious acquisition process and have little or no effect on the PRIP corpus account.

7. The Working Group will appoint an ad hoc team comprised of Fleet and Service base managers who will be responsible for modifying ER 37-1-29 to facilitate the above six recommendations. This team will forward these recommendations to the HQUSACE plant manager or entity responsible for administration of PRIP. The HQUSACE program proponent will implement these changes within six months following the Charter.

8. Internal Plant Renewal Planning:

a. Districts/regions should consider reducing the useful life term of plant items. A reduction of useful life would allow the Corps to recoup considerable dollars through increased salvage value of the plant items. In PRIP, an increase in salvage value decreases rental rate, assuming other factors are constant. This particular process facilitates ownership of a technologically enhanced, safe, and state-of-the-art fleet. This initiative should also substantially reduce yearly maintenance costs (assuming a relatively short ownership to equipment life ratio; new equipment has a lower

maintenance cost). This would reduce the overall rental rate and lower the owner's yearly contribution.

b. Districts should consider replacing plant items with the most efficient, versatile equipment available. For example, higher priced, higher maintenance diesel electric whirley derrickboats could be replaced with crawler cranes as the whirleys become obsolete. This will augment the Corps' land-based plant assets during periods when the floating plant is not in use. It will also facilitate maintenance of the equipment since it can be removed from the barge it is on easily and moved into a covered shop area. In addition, when the crawler reaches its useful life, it can be replaced without replacing the barge. Crawler cranes and flat deck barges are readily available on the open market and would require no additional design effort. There is a much larger market for surplus or salvaged crawler cranes than for barge-mounted whirleys, and that should result in higher salvage value. A possible additional value is that crawler cranes can be transported via road or rail to another land or waterborne worksite. Having this option for fast transportation (via rail or road) of fleet equipment may allow us to manage our mission with a smaller fleet (This is based on the assumption that with a smaller fleet our response time to non-scheduled work would be greatly extended due to fleet travel distances being larger).

The above-suggested improvements do not significantly affect the financial health of the PRIP revolving fund. The increase in amount of salvage value reduces the rental rate by 6-15%, but as a salvage value is an actual economic fact, the fund recovers at disposal of the asset and acquisition of a replacement. The change to the Inflation Plant Increment Factor (post economic life) affects only the magnitude of the Plant Increment Factor collection. Calculations show that for Land Plant (20-year useful life) at year 20 the full purchase price has been returned and the assessment of the Plant Increment Factor for the 20 years has refunded an additional 71% of the original purchase price.

The Internal Plant Renewal Planning recommendation may prove beneficial depending on local use and requirements of assets; therefore District Plant Managers should implement these recommendations subsequent to the Charter and as outlined in PRIP regulatory guidance (e.g. five-year PRIP plan) if in the best interest of their organizations.

COST ANALYSIS

There will be minimal administrative and accounting costs involved with changing program protocol. There will also be costs associated with leadership meetings and discussions. Total costs for this initiative are not expected to exceed \$300K.

The payback for this investment will be < one year and savings on daily rental rate alone is estimated to be 6% - 15%. Total daily rental amount for the Corps is estimated

to be \$11,250,000 (25 Corps Districts with PRIP assets supporting the navigation function @ a conservatively estimated daily rental cost of \$3,000 per District and an estimated average asset usage of 150 days/year) therefore realized savings should be \$675 thousand to \$1.7 million or more annually simply from adjusting the salvage value of PRIP assets from 0 to 10%. While extremely difficult to accurately calculate without specific input from all 25 Districts, adjusting incremental changes will result in additional \$millions in savings for asset owners annually.

BENEFITS

Lower ownership costs of revolving fund assets.

CHALLENGES

1. Corporate buy-in.
2. Communicating with and educating plant managers of changes to program.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

Modify ER 37-1-29 including appendices.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approved.
2. Establish Working Group PAT to draft changes to PRIP regulation.
3. Draft changes to ER 37-1-29.
4. Propose changes to PRIP regulation to HQUSACE proponent.
5. Establish date (HQ proponent) to begin implementation and notify asset owners.
6. Implement changes (HQ proponent) to the PRIP regulation.

Schedule

Activity ▼	Month▶	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		X												
Establish Working Group		X												
Draft Changes to ER 37-1-29			X	X	X									
Propose Changes to HQUSACE					X									
Establish Implementation Date							X							
Implement New Regulation										X				

Resource Plan (\$000)

Activity ▼	Month▶	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		(1)												
Establish PAT			(2)											
Draft Changes to ER 37-1-29				53	53	53	53							
Propose Changes to HQUSACE								0.0						
Establish Implementation Date								0.0						
Implement New Regulation										50				

Notes:

- (1) Working Group cost not considered in implementation cost
- (2) Working Group cost not included in implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.3. Maintain and Repair Lock	Increase or maintain Lock availability through effective Lock maintenance and repair.	Lower ownership costs of revolving fund assets.
C.5.4. Maintain and Repair Dam	Increase or maintain Dam Pool control and navigation through effective Dam maintenance and repair.	
C.5.5. Perform Major Maintenance of Locks and Dams	Lock is accessible to traffic and lock availability is not impacted by debris or obstructions.	
C.5.8. Channel O&M	Maintaining Channel availability.	
C.5.9 Major Rehabilitation and New Project Construction	Accurate and timely analysis with clear recommendations and justifications.	

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.10. Mooring/Protection Cells (Bridges, Approaches) Repair and Replacement	Improve locking efficiency. Provide safety such as near bridge approaches to wait out rough weather, high winds, and traffic. Protect bridges and approaches.	

Implementation Measurement

Working Group leader will ensure PAT completes draft requirement and forwards recommendations to HQ according to schedule. PAT will maintain contact with HQUSACE PRIP proponent to ensure progress is maintained throughout the process.

Quality Assurance

Each District will maintain PRIP records in accordance with ER 37-1-29. Each PRIP asset-owning District will maintain records of pre and post implementation of these recommendations. Records will indicate amount of savings and approximate time savings in asset acquisition. These records are subject to review under the provisions of the QC procedures.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 14 - STANDARDIZE POSITION DESCRIPTIONS

FINDINGS

The inland navigation system has no standardized position descriptions (PDs) for navigation lock operators or maintenance personnel. PDs and job titles vary among Divisions and locks in the same District. Nonstandard PDs create confusion and extra work for lockmasters and navigation managers, but efforts to standardize them have met with little success.

Many of the PDs are outdated and do not accurately describe the tasks to be accomplished. The Corps often uses PDs to address anomalies, unique characteristics, or specialized duties for and at each location. This usage can make attracting the right candidates difficult when recruiting for vacant positions and when moving current employees internally to cover temporary shortages. The basic parameters of Inland Marine Transportation System (IMTS) position requirements, including physical qualifications and skill levels, should be uniform.

All active PDs are maintained in FASCLASS, an Army-wide electronic database accessible through the Army's Civilian Personnel On-Line (CPOL) website at <http://www.cpol.army.mil>. The PDs for the navigation projects in the FASCLASS database reflect the lack of standardization and show that improvement is needed.

Lock supervisors with similar responsibilities have various titles: lockmaster, lock supervisor, lock operator foreman, lock equipment foreman, and lock and dam equipment mechanic supervisor are a few. In addition, the title "lockmaster" has different meanings and levels of responsibility in various parts of the organization, including overall project supervisor, senior operator on duty each shift, and government QA person overseeing contract operation.

The IMTS can improve lock availability for the inland navigation system by ensuring the PDs accurately reflect the responsibilities of the lock personnel (operator and maintenance). Precise descriptions will allow the IMTS to better employ on-site staff members to perform locking and preventive maintenance activities. This change, which requires little investment, will directly affect lock availability.

PDs for similar work should be standardized across the IMTS. Unique characteristics and project-specific tasks that do not impact the title/series/grade or qualifications for the position should be handled in the performance arena.

RECOMMENDATIONS

1. Develop standardized PDs and associated job titles for IMTS lock personnel and enter them in the FASCLASS database. In cases with unique requirements, have the Working Group review and approve an exception to the standardized PD.
2. Include cross-functional lock O&M activities in appropriate PDs (rather than separate O&M PDs).
3. When the IMTS is implemented in October 2009, reassign incumbents to the new standardized PDs when it does not affect their grade. If their grade is affected, hold action in abeyance until the position becomes vacant.
4. If any of the standardized PDs include duties that require incumbent training, notify the union so that training requirements can be negotiated before processing reassignment.
5. When the IMTS is implemented in October 2009, have supervisors meet with each IMTS employee to discuss the new standard PDs and performance expectations.

COST ANALYSIS

No severable costs are anticipated. Reducing the number of PDs and the efficiency of a more level standard of expected performance will save some costs.

BENEFITS

Uniform and consistent PDs for IMTS positions to facilitate employee mobility and career advancement

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approved.
2. Working Group writes standardized PD's.
3. Working Group distributes the IMTS PDs to all navigation Districts for review and comment.
4. HR finalizes PDs.
5. IMTS uses standardized PDs in all recruiting and promotion actions.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Distribute new PDs				X									
Revise PDs on basis of feedback					X	X	X						
Working Group follows up quarterly								X			X		

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
Distribute new PDs				(1)									
Working Group follows up					(1)								

(1) The Working Group cost is not considered in the implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR recommendation(s)
C.5.1. Operate Lock	Operate locks safely and effectively in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance.	Uniform and consistent PDs for IMTS positions to facilitate employee mobility and career advancement.
C.5.2. Operate Dam	Operate dams safely and effectively and maintain the required navigation pool in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance	
C.5.3. Maintain and Repair Lock	Effective lock maintenance and repair minimizes unscheduled outages and unavailability to navigation customers.	
C.5.4. Maintain and Repair Dam	Effective dam maintenance and repair maintains the required navigation pool elevation and minimizes unscheduled outages and unavailability to navigation customers.	

Implementation Measurement

Within 30 days of receipt of feedback on PDs, the Working Group will revise and distribute all new PDs to each navigation District. The IMTS Working Group will follow up to ensure each District is using IMTS PDs in recruitments and promotions. Because some Districts may take longer to act, a quarterly management team follow-up is required until all Districts comply. When the IMTS is implemented in October 2009, supervisors will meet with each IMTS employee to discuss the new standard PDs and performance expectations.

Quality Assurance

Each District maintains records of IMTS personnel actions and submits them to the Working Group as requested.

Working Group reviews the status of actions in each District quarterly.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 15 - REGIONAL/SYSTEM EQUIPMENT POOL (LEASED EQUIPMENT)

FINDINGS

In the current Corps of Engineers District-centered organization, most Districts with a navigation mission have an organization responsible for performing larger repairs that are beyond the capability of the lock staff. A variety of equipment assets are associated with this entity: floating plant, large and small cranes, portable generators, compressors, welding equipment, scaffolding, and other such equipment. The staffs of these organizations comprise many different disciplines such as crane operators, mechanics, electricians, boat operators, deck hands, and so on. There is no consistent naming convention for these repair facilities. They are referred to as repair centers, service bases, or other designations. A Division usually has multiple repair centers. For geographic and workload reasons, some Districts have more than one such facility. Most repair center (or service base) facilities work independently, fulfilling the missions within their District and rent equipment through individual contractual actions. Currently, they complete an individual contracting action for each need to rent or lease major maintenance equipment, thus adding unnecessary time and money.

OPTIONS CONSIDERED

The BPR Team considered but did not include the following in their recommendations:

1. Continue to rent or lease equipment for individual actions as needed via individual contracting actions. This option is inefficient from a regional procurement standpoint. Time required to advertise and award these contracts does not allow the Corps to efficiently perform its NavLocks mission.
2. Purchase more equipment for all separate facilities so equipment is always available and the need to rent equipment is minimized. This alternative is deemed not cost effective because Districts' cost to purchase equipment (either through PRIP or outright purchase) that is used only infrequently is likely to be higher than rental cost.

RECOMMENDATIONS

Division Management Teams to recommend development of ID/IQ contracts for regional use. These ID/IQ contracts will enable the expeditious rental of equipment when needed. Equipment includes man lifts, forklifts, scaffolding, hydraulic cranes, track hoes, etc. The regional ID/IQ contracts should have a minimum of a base and two

option years in duration. A pre-placed regional contract will generate efficiencies by expediting delivery time and eliminating redundant contracting efforts.

COST ANALYSIS

This recommendation will incur minimal costs for USACE Districts to establish regional ID/IQ contracts that include the types of equipment to be rented. Regional, broad scope rental contracts can be awarded by USACE contracting offices.

BENEFITS

Savings through economies of scale by utilizing an alternative acquisition strategy
Faster access to leased equipment

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approved.
2. Working Group asks Division Management Teams to identify need for regional equipment rental contract.
3. Regional equipment ID/IQ contracts advertised and awarded.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Division IMTS Management Team Reviews Districts Existing Equipment Rental Contract(s) and Begin Solicitation Documents		X	X	X									
Complete Solicitation & Award Regional Equipment Contracts (1)					X	X	X	X	X	X	X	X	X

Note:

(1) As existing contracts expire or as need is determined.

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter													
Management Team Reviews Districts Existing Equipment Rental Contract(s) and Begin Solicitation Documents													
Complete Solicitation & Award Regional Equipment Contracts (1)													

Notes:

(1) Costs expected to be minimal for ID/IQ in comparison with renting equipment via multiple contracts.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.5.1. Conduct Scheduled Major Maintenance & Repairs (takes more than on-site staff or equipment). This includes life cycle replacement.	Minimize impact on lock availability by completing all scheduled major maintenance on time and within budget.	Savings through economies of scale by utilizing an alternative acquisition strategy
C.5.5.2. Conduct Emergency (unscheduled) Repairs	Return facility back to service as quickly as possible and complete the plan agreed to; reduce time between emergency and beginning of repair plan.	Faster access to leased equipment

Implementation Measurement

Three months after the Charter, Regional IMTS Management Team assesses need for regional equipment rental contracts.

Regional IMTS Management Team ensures regional equipment contracts are advertised and awarded within twelve months of the Charter.

Quality Assurance

Regional IMTS Management Team monitors progress on advertisement and award of regional equipment contracts.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 16 - SCHEDULING AND BUDGETING MAJOR MAINTENANCE

FINDINGS

Currently USACE has only limited communication and coordination between Districts, Divisions and industry customers regarding major channel and lock maintenance work in the IMTS. This creates interruptions in system availability and reduces system reliability. Industry customers of USACE Navigation – through direct discussion with team members at stakeholder group meetings – have requested improvements in this area, specifically for efficiency improvements that should involve organized and communicated closures.

The BPR Team analyzed the current state of communication and coordination among river systems to determine a strategy for performance improvement on scheduled navigation interruptions. Some Divisions such as MVD and LRD currently employ major maintenance ranking models. There is no standard method for ranking major maintenance items.

RECOMMENDATIONS

1. Establish teams based on the Division to schedule maintenance for enhancing IMTS availability and reliability.
2. Establish mandatory higher-level coordination teams to facilitate communication between Divisions and industry points of contact. At a minimum the following coordination teams are necessary:
 - a. Upper Mississippi/Missouri River/Ohio River
 - b. Gulf Intracoastal Waterway (GIWW)
 - c. Tennessee/Cumberland/Tombigbee
 - d. Atlantic Intracoastal Waterway (AIWW).
3. The primary responsibility of the teams is to coordinate maintenance schedules to minimize system unavailability. A secondary responsibility is to efficiently utilize the fleets and resources, which includes responding to navigation emergencies. The teams will hold meetings and prioritize items before the budget development period. To accomplish this coordination, the teams will:

- a. Hold annual meetings
 - b. Report major maintenance items and schedules to the IMTS Board of Directors
 - c. Reconcile schedules and priorities after appropriations or emergencies
 - d. Constitute regional teams with representatives for each District in the system
 - e. Publish maintenance schedules on the Corps Navigation Gateway.
4. The IMTS Working Group will develop a single risk-based ranking process for maintenance and budgeting utilizing the best facets of the existing Division models. This process should include asset management assessments for prioritizing projects. In order to standardize the ranking process, the board will use the best ideas and processes in existing Division models, develop one annual condition assessment process for all Districts to implement.
5. Divisions will implement the standardized annual condition assessment process and the chosen risk-based ranking process for maintenance items.
6. Divisions will reconcile fleet and resource utilization based upon the final prioritization list. They will ensure that budgeting includes risk-based ranking.
7. Human capital team will address the standardization of position descriptions to incorporate working conditions such as night work, weekend work, and/or extended travel because of the potential for more work outside the current District or Division.

COST ANALYSIS

Improvement 1: Annual Regional Meetings for Scheduling Maintenance:

Currently Divisions are accomplishing this task at various levels. Due to these efforts, the cost was estimated and then halved as a Subject Matter Expert estimate of costs.

Category	Cost	Total
Travel and per diem:	1 District FTE × \$1,000/trip × 22 Districts	= \$22,000
Travel and per diem:	5 Division FTEs × \$1,000/trip	= \$5,000
Total regional ranking meeting cost		= \$27,000

Improvement 2: Annual Higher-Level Meetings for Scheduling Maintenance:

Category	Cost	Total
Travel and per diem:	2 Division FTE × \$1,000/trip × 10 regions	= \$20,000
Travel and per diem:	1 HQ FTE × \$1,000/trip × 4 meetings	= \$4,000
Total regional ranking meeting cost		= \$24,000

Improvements 3 and 4:

Category	Cost	Total
Labor:	Develop SOPs for risk-based ranking and annual condition assessments	= \$

Currently Divisions are already performing condition assessments and ranking maintenance items through various processes. The BPR is recommending standardizing the process, not implementing new requests. Therefore, the cost is already within the current budgets.

Improvements 5 and 6:

Costs for the implementation and reconciliation are already captured. Any additional costs will be nominal.

Total Cost

As shown in the following table, these recommendations would require a total annual investment of \$51,000.

Recommendation	Cost
1 – Annual regional meetings for scheduling maintenance	\$27,000
2 – Annual higher-level meetings for scheduling maintenance	\$24,000
3/4 – Develop SOPs for risk-based ranking and condition assessments	\$0,000
5/6 – Implementation and reconciliation	\$0
Total	\$51,000

BENEFITS

Enhanced coordination of simultaneous closures
 Increased benefits to customers by prioritizing major maintenance activities
 Increased ROI through standardized condition assessment and risk-based ranking process (Asset Management)

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

Communicate maintenance schedule (simultaneous closures) to stakeholders through existing District processes.

IMPLEMENTATION

Activities/Steps

1. Recommendations approved.
2. IMTS BOD Working Group appoints a PAT comprised of Division representatives to provide standard operating procedures on coordination of major maintenance by regional and high-level teams. SOPs will include team composition, terms of appointment, chain of command within team, decision-making processes, budget integration, team deliverables (ranked major maintenance list and schedule), and communication plan for work activity and schedules.
3. Division Management Team creates SOPs for the risk-based ranking and annual condition assessment processes. Each District is responsible for ranking items in their annual condition assessments.
4. Division and mandatory higher level coordination teams coordinate maintenance schedules, assess and rank maintenance items, prioritize resources within budgets, and reconcile according to IMTS standardized processes and direction. Once completed, the teams post the maintenance schedules to the Corps Navigation Gateway.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Draft SOP for team functionality (1. A)		X	X	X									
Review SOP (1. A)					X	X							
Approve SOP (1. A)							X						
Draft SOPs for ranking and assessment processes (1. B)		X	X	X	X	X	X	X	X	X			
Review SOPs (1. B)									X	X	X	X	
Approve SOPs (1. B)												X	X
**Stand up regional and higher level teams (1. C)								X	X	X			
Division and mandatory higher-level teams implement													X

**Stand-up needs to be completed before January of the next budget cycle.

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Draft SOP for team functionality (1. A)													
Review SOP (1. A)													
Approve SOP (1. A)													
Draft SOPs for ranking and assessment processes (1. B)		\$50											
Review SOPs (1. B)													
Approve SOPs (1. B)													
**Stand up regional and higher-level teams (1. C)													
Division and mandatory higher-level teams implement													\$177

Notes:

- (1) Working Group cost is not considered in the implementation cost.
- (2) Working Group cost is not included in the implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.5.1. Conduct Scheduled Major Maintenance & Repairs	Minimize impact on lock availability by completing all scheduled major maintenance on time and within budget.	Enhanced coordination of simultaneous closures
C.5.6.1. Prepare and Manage Annual Lock & Dam Operations & Maintenance Budget	Complete 100% of budgets on time.	Increased benefits to customers by prioritizing major maintenance activities Increased ROI through standardized condition assessment and risk-based ranking process (Asset Management)

Implementation Measurement

Activities delineated in the Implementation Plan are completed within 18 months of the Charter.

Quality Assurance

Each region will maintain records of consolidated maintenance schedules with regard to its systems. These records are subject to review in accordance with QA procedures.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 17 - SERVICE PROVIDERS FOR MAINTENANCE PROJECTS

FINDINGS

Historically, some Corps Districts have experienced marginal interest from service providers for commercially furnished placement of stone, low-quantity dredging, construction, maintenance of federal mooring facilities, obstruction removal and channel-related work. The level of contractor interest primarily depends on the local or regional availability of interested and capable contractors, and the amount of work traditionally made available for public outsourcing. Without adequate commercial interest, USACE is underperforming its major maintenance tasks.

The Corps could benefit by expanding its contracts for such services beyond the borders of individual Districts. Through the use of regional ID/IQ contracts, the Corps could decrease the costs to individual Districts to establish such contracts, as the costs (writing provisions of contracts, issuing requests for proposals and awarding the contracts) would be spread among multiple Districts. Better contract prices could be expected if the contract quantities are higher (quantities reflecting the work of several Districts) and if the bidder's area of operation spans multiple Districts.

The BPR Team considered the following options but did not include them in their recommendations:

1. Keep ID/IQ contracts within the current District borders.
2. Expand ID/IQ contracts to span more than one Division.

RECOMMENDATIONS

Establish regional ID/IQ contracts for river related work, especially recurring work items, to eliminate the burden of finding contractors for small functions. The contract duration should be at least 2 years. The contracts should cover multiple Districts within a Division, or preferably all the Districts within a Division.

COST ANALYSIS

This recommendation will incur negligible costs. Existing ID/IQ contracts are currently in place and could be expanded to include other Districts within the region. Other broad scope contracts could be advertised and awarded regionally from existing Corps

contracting offices. Start-up costs for these services should be marginal and could be absorbed by existing operations and contracting staff.

BENEFITS

Reduced acquisition time through effective use of alternative procurement vehicles on a regular basis

CHALLENGES

1. Method of funding and accounting practices may be complicated for establishing the initial ID/IQ contract for multiple Districts, and even more so if the contract spans more than one Division.
2. Some District contracting offices will have to be educated on ID/IQ contracts if they are not familiar with them.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Division Management Teams shall survey individual Districts to determine existing ID/IQ and individual contracts for maintenance tasks. These management teams recommend whether regional replacement contracts should be initiated and the scopes expanded to account for regional needs.
3. Collect and review the costs for this new process after two years to determine whether regional savings have been achieved.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Management Team Reviews Existing District ID/IQ Contract(s)		X	X	X									
Existing Contracts Expanded or New Regional Contracts Awarded (1)					X	X	X	X	X	X	X	X	X

Note:

(1) As existing contracts expire or as need is determined.

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter													
Management Team Reviews Existing District ID/IQ Contract(s) (1)													
Existing Contracts Expanded or New Regional Contracts Awarded (1)													

Note:

(1) Minimal additional costs expected over performing work by multiple actions.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect on implementing BPR recommendation
C.5.5.1. Conduct Scheduled Major Maintenance & Repairs (takes more than on-site staff or equipment). This includes life cycle replacement.	Minimize impact on lock availability by completing all scheduled major maintenance on time and within budget.	Reduced acquisition time through effective use of alternative procurement vehicles on a regular basis
C.5.5.2. Conduct Emergency (unscheduled) Repairs	Return facility back to service as quickly as possible and complete the plan agreed to; minimize time between emergency and beginning of repair plan.	

Implementation Measurement

Three months subsequent to the Charter, Regional IMTS Management Team assesses need for regional ID/IQ contracts.

Regional IMTS Management Team ensures regional ID/IQ contracts are advertised and awarded within twelve months after the Charter.

Quality Assurance

Regional IMTS Management Team monitors progress on advertisement and award of regional ID/IQ contracts.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 18 - OPTIMIZE SHIFT SCHEDULES

FINDINGS

The inland navigation system has no standard or baseline for on-site staffing or schedules. Each project or District sets staffing levels and shift schedules. Many have opted for alternative work schedules (AWS) or compressed work schedules (CWS) intended to enhance employees' personal lives. Federal law (5 U.S. Code 6131) directs agencies to forego or discontinue flexible or compressed schedules if they reduce agency productivity, diminish service to the public, or increase costs. In some cases, the CWS shifts have increased costs due to shift scheduling and increased sick leave; in others, they have improved the quality of life without increasing costs.

Shifts vary among different lock staffs, often within the same river system. Many of the shift schedules are locally approved for employee satisfaction. Current regulations that prescribe premium pay are written for 8-hour work schedules. CWS premium pay is not uniformly applied across the system due to varying interpretations of these regulations.

At a few locations, the management of 12-hour shifts conflicts with the current interpretation of EM 385-1-1.¹ For example, if a shift worker scheduled to relieve an on-shift operator is unable to report to work and does not make timely notification, the on-shift operator may have to work more than 12 hours operating the lock.

Many of the current shift schedules do not comply with the best practices recognized by circadian cycle professionals. For example, 8-hour "backward" rotation shift schedules – in which a worker's assigned shift rotates in turn from day to night to evening – place unnecessary stress on the shift worker. Working more than four night shifts in a row leads to fatigue and also places unnecessary stress on the shift worker. Fatigue and stress may increase unsafe acts, reduce productivity, and diminish the level of service to the public.

This BPR effort focuses on improving performance and reducing inefficiencies by finding the most productive, cost-effective, and worker-friendly schedule that allows for the most efficient and effective lock and dam operations and maintenance. Therefore, not all shift schedules should be the same. However, employees should be involved in determining their shift schedules.

¹ U.S. Army Corps of Engineers, *Safety and Health Requirements*, EM 385-1-1, paragraph 01.C.04, November 3, 2003.

New shift workers are generally not trained to properly manage the work/sleep cycles required of them. Mismanaging personal work/sleep cycles can increase fatigue and impair health, endurance, stamina, and alertness. New shift workers should be trained to optimize their transition to the demands of shift work.

RECOMMENDATIONS

1. Maximize the use of family-friendly, practical shifts for the Inland Marine Transportation System (IMTS) that comply with the 1994 Executive Branch Directive “Expanding Family Friendly Work Arrangements in the Executive Branch” and 5 *U.S. Code* 6131. Because situations vary greatly across the IMTS, determine the shift schedule at the project level and approve it at the District level. In adjusting schedules and start times, consider accommodating employees in large metropolitan areas with heavy traffic congestion, in remote areas with long commutes, and in keeping with other local circumstances. As an alternative to 8-hour shifts, allow 10- and 12-hour shifts where desired, so long as they do not have an adverse agency impact.
2. Review shift schedules and practices for compliance with total hours of work in EM 385-1-1.²
3. EM 385-1-1 does not specifically cover physical qualifications of employees as lock and dam operators. Their maximum shift duration should be clearly stated.
4. Review schedules for compliance with circadian cycle best practices.
5. Train new shift workers on circadian cycles (refer to lock operator-training program).

COST ANALYSIS

Some CWS shifts increase costs. Correction of these situations should result in savings, but the amount cannot be determined until they are reviewed and new schedules are negotiated with the unions.

Employee satisfaction with flexibility in scheduling should indirectly save costs, as long as statutory criteria are met for cost, productivity, and service. Safety, productivity, and employee retention should also indirectly save costs.

BENEFITS

Productive, cost-effective, and worker-friendly shift schedules to allow for more efficient and effective lock and dam O&M.

² See Note 1.

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Working Group establishes a virtual team to study shift schedules across the IMTS to determine compliance with the 1994 Family Friendly Directive and 5 *U.S. Code* 6131. Within 1 year of the start of the study, report findings to the Board of Directors for action.
3. Working Group makes recommendations to update the Safety Manual EM385-1-1 to establish hours-of-work limits for lock and dam operators.
4. Working Group establishes a PAT to review schedules for compliance with circadian cycle best practices. Within 6 months of the start of the implementation phase, results are reported to the Working Group.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Evaluate shift schedules for compliance with 1994 directive and 5 USC 6131		X	X	X	X	X	X	X	X	X	X	X	X
Implement improved shift schedules													X
Determine whether schedule complies with Safety Manual standards		X	X	X	X	X	X	X	X	X	X	X	X
Determine whether schedule complies with circadian best practices													X
Report to management team													X

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
Determine schedules		(2)											
Determine compliance		(2)											

(1) THE WORKING GROUP COST IS NOT CONSIDERED IN THE IMPLEMENTATION COST.
(2) NO ADDITIONAL COSTS ARE INCURRED.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Operate locks safely and effectively in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance.	Productive, cost-effective, and worker-friendly shift schedules to allow for more efficient and effective lock and dam O&M.
C.5.3. Maintain and Repair Lock	Effective lock maintenance and repair minimize unscheduled outages and unavailability to navigation customers.	
C.5.4. Maintain and Repair Dam	Effective dam maintenance and repair maintain the required navigation pool elevation and minimize unscheduled outages and unavailability to navigation customers.	

Implementation Measurement

Recommendations from the report that identifies shift schedules and best practices.

Quality Assurance

Working Group reviews the status of each recommendation 12 months after the start of the implementation phase.

IMTS Board adopted changes to shift schedules are measured through CEFMS (before and after costs).

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 19 - STANDARDIZE STAFFING AND GRADE STRUCTURE

FINDINGS

Overall, the inland navigation system is understaffed, with staffing levels often determined by budget instead of need. Budget reductions at most projects have had the unintended but expected effects of reducing the maintenance accomplished, mostly due to the loss of manpower.

Staffing levels, grade structure and time in grade vary considerably across the system. Each Corps of Engineers District is somewhat autonomous in many facets of staffing policy, so pay grades and staffing levels vary at similar facilities.

Some areas are more attractive than others nearby because of geographic pay differentials mandated by the Labor Department. This often causes persistent turnover at the lower-paid locks as personnel transfer to the higher-paid ones.

Vacancies are often not filled promptly. Because operational requirements are always met, but maintenance efforts are not, vacancies negatively impact maintenance results. When the mechanic position is vacant, most locks do not have a good alternative for accomplishing this work. If an operator position becomes vacant, the mechanic has to fill in, leaving much of the maintenance work undone and increasing the maintenance backlog.

Lock operators are assigned to almost every lock site in the system regardless of level of use, but some locks have no one on site whose primary responsibility is accomplishing maintenance.

Some lock staffs provide services to other Corps elements that add little to the effective, efficient operation of the lock and dam facility. In light of the current staffing levels and maintenance backlog, the time spent providing these services could be better spent on lock maintenance. One example is collection of water quality samples, which includes launching a boat and traveling upstream and downstream of the dam to collect the samples. For safety purposes, this effort requires two people, at least one of whom has to be a licensed boat operator. While this type of service takes manpower away from lock maintenance, local management determines the most efficient manner to accomplish this type of work.

Work that has been contracted out is rarely, if ever, considered for accomplishment by the government. Opinions abound concerning the comparative results of government or contractor efforts, but serious study of the most efficient and effective manner of accomplishing the work is not being pursued.

Each District or project has its own rationale for how and why it is organized and staffed as it is. For many projects, the current organization on the locks is impacted by mandates of the early 1990s to reduce the number of supervisors at the facilities. Before that, most locks and fleets had supervisors assigned. As a result of the effort to reduce the number of supervisors, lockmasters were assigned multiple lock facilities. The longer-term results of this change have been a general decline in several areas, including maintenance, cost efficiency of shifts, operational consistency, personnel issues, and communications with unions, housekeeping, and esprit de corps. Realizing these negative effects, some projects have begun returning to having supervisors at more lock sites. The subject matter experts agree that empowered supervision at each lock is the best course for the future.

Staffing guides have been developed for O&M staffing. Although these guides do not consider every possible situation that requires manpower, they do provide standard staffing baselines for IMTS facilities.

Often, the preponderance of work required while lock and dam operators are on duty is lock and dam maintenance rather than operations. At some locations, operators are reluctant to perform maintenance work, especially if a maintenance person is assigned to the facility or if any of the maintenance is contracted out. At other locations, lock and dam operators perform maintenance whenever they are not actually performing operations. All current lock and dam operator position descriptions include maintenance work, and many operators are highly skilled and have the ability to accomplish various maintenance tasks. New hires should have specific skills related to maintenance of lock and dam facilities, and at many locations, they do. Benchmarking with the St. Lawrence Seaway Management Corporation revealed that all new hires must meet this standard.

Mechanisms to determine the most efficient and effective manner of accomplishing the work (government or contract) need to be established. Laws and policies sometimes restrict competitions, hiring, and manpower levels. Nonetheless, opportunities for increased efficiencies of sustainable IMTS O&M should be diligently sought.

The navigation staffing is overdue for a “bottom-up review” to determine the right staff for current levels and types of work required. The review should consider taking advantage of recent legislation that allows DoD Agencies to consider “in-sourcing¹ of contracted workload” when an economic analysis supports that decision.

RECOMMENDATIONS

1. Use the IMTS staffing guide² as a best practice for operational (which includes minor maintenance) staffing at lock sites. The regions can then develop staffing plans for each site following the best practice guidance. Deviations from best practice are reviewed by the Working Group and approved by the Board of Directors based on workload, hours of operation, and physical features of the site, cost, and safety factors.
2. Develop an IMTS staffing guide³ as a best practice for maintenance staffing for lock sites, including on-site maintenance manpower or pooled manpower as locally determined. The regions can then develop staffing plans for each site following the best practice guidance. Deviations from best practice are reviewed by the Working Group and approved by the Board of Directors based on workload, hours of operation, and physical features of the site, cost, and safety factors.
3. Develop a regional strategy for staffing and use of major maintenance facilities such as fleets, maintenance crews, and other activities.
4. Ensure all Districts comply with ER-5-1-11 and related Directorate of Civil Works white paper dated August 1, 2005 which requires a standardized organization structure (SOS) to provide a consistent, strong matrix organization throughout the IMTS.
5. Establish a process for reviewing all contracted IMTS O&M work. The process should include an initial review and a mechanism for periodic reviews in the future. The reviews must include time lines and schedules for reviewing each contract. Decision will be made whether to continue contract, re-compete or convert to Government based on cost and performance.

¹ Deputy Secretary of Defense Policy memorandum, "Implementation of Section 324 of the National Defense Authorization Act for Fiscal Year 2008 (FY 2008 NDAA)—Guidelines and Procedures of In-sourcing New and Contracted out Functions," April, 4, 2008.

² Operational Staffing Guide

³ To be finalized.

6. Once factual workload based models are developed, a link should be established to the Systems-Based Budgeting BPR to provide baseline budgets.

COST ANALYSIS

Because the Working Group will develop a process to review contract work, no additional costs are generated. Changes made must be beneficial, but predicting the savings is not possible at this time.

The IMTS is currently understaffed to perform the backlog maintenance that affects the long-term reliability of the lock and dam facilities.

BENEFITS

Savings from transferring work to in-house performance where business case demonstrates it is more advantageous to the government
Enhanced human resources management by more efficiently matching workforce to workload
Enhanced ability of managers to effectively operate the facilities under their responsibility

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Within 6 months of the start of the implementation phase, the regions will develop a staffing plan for operational staffing and provide to the IMTS Working Group. The

Working Group recommends staffing by site to the board of directors for approval 12 months after the start of the implementation phase.

3. Within 2 years of Facilities and Equipment Maintenance (FEM) system implementation throughout the IMTS, operations Division chiefs provide best and consistent practice results for maintenance staffing to the IMTS Working Group. This allows them adequate time to evaluate the currently unknown impacts of FEM and asset management efforts and to factor them into the staffing guide. Using these results, the Working Group recommends revised staffing by site to the board of directors for approval 2.5 years after FEM implementation.

4. Within 18 months of the start of the implementation phase, operations Division chiefs will provide proof of compliance with ER-5-1-11 and related Directorate of Civil Works white paper dated August 1, 2005 to the IMTS Working Group. Using this information, the Working Group recommends staffing by projects to the board of directors for approval 24 months after the start of the implementation phase.

5. Within 15 months of the start of the implementation phase, the regional management team develops a staffing and utilization model for maintenance fleets that accomplish major maintenance. These models will be submitted to the Working Group for review and approval by the Board of Directors.

6. Within 12 months of the Charter, the Working Group establishes a process for reviewing all IMTS O&M contracts and notifies affected Districts.

7. Within 3 years of start of the implementation phase, the Working Group evaluates maintenance accomplishments and needs using FEM maintenance reports and asset management condition reports.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Regions develop staffing plans for operations							x						
Working Group recommends staffing plans to Board of Directors													x
Operations Chiefs provide maintenance staffing recommendation (2 years after FEM implementation)													
Working Group recommends staffing to Board of Directors (2.5 years after FEM implementation)													
Operations Chiefs provide proof of compliance to SOS directive to Working Group (18 months)													
Working Group recommends project staffing to Board of Directors (24 months)													
Regional management teams recommend major maintenance staffing and fleet utilization (15 months) to Working Group/Board of Directors													
Working Group establishes process for reviewing IMTS O&M contracts													x
Working Group evaluates maintenance accomplishments and needs (3 years)													

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												

(1) Working Group costs are not considered in the implementation cost.

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.1. Operate Lock	Operate locks safely and effectively in accordance with appropriations, annual authorization, Army and engineering regulations, policy, and technical guidance.	Savings from transferring work to in-house performance where business case demonstrates it is more advantageous to the government
C.5.3.1. Perform Lock Maintenance	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	Enhanced human resources management by more efficiently matching workforce to workload
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, and assets are maintained to meet availability requirements in 1.0 operate lock.	Enhanced ability of managers to effectively operate the facilities under their responsibility
C.5.6.5. Perform Lock, Dam, and Facility Security	100 percent of security plans are maintained by lock site.	

Implementation Measurement

The Working Group will review progress on development and implementation of standardized staffing quarterly.

Quality Assurance

The Working Group will be responsible for ensuring reviews are accomplished and staffing plans are submitted as stated.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 20 - STANDARDIZE LOCKING PROCEDURES

FINDINGS

The current operational procedures at navigation locks and dams vary widely from lock to lock, District to District, and Division to Division. Each project and/or District generally operates without consideration of the practices of other locks, which leads to inconsistent and inefficient locking. Additionally, industry and recreational users have complained about inconsistent locking procedures, because they cause confusion and inefficiencies for these stakeholders.

Standardization of operational procedures will be pursued to the greatest degree possible to improve performance, increase cost efficiencies and provide safe and consistent operations at all facilities for the navigation customers. The focus area of this effort will be on-site operation of navigation locks and dams and not remote (off-site) operation of lock and dams

Some practices are based on unique individual needs dictated by local prevailing conditions such as out drafts. However, some procedures are only past practices and will be examined to insure compatibility with current workload and staffing requirements.

Previously a joint project of American Waterways Operators (AWO) and USACE aimed at strengthening the communications and working relationships between the Corps and industry was completed in 2001. The final report, titled "Lock Operations - Best Practices, Quality Action Team", dated June 2001 was reviewed by the BPR team. While many good recommendations were made, many were not implemented. Future changes must be tied to performance metrics. An IMTS Working Group must insure approved recommendations are implemented.

Key recommendations from the AWO and USACE Study included:

1. The development of lockage sequencing plans: This Best Practice addresses the backlog of traffic at busy locks.
2. Improved Corps/industry working channel communications during lockages: This Best Practice provides recommendations on contact and working marine channels.
3. Expanded use of lock scheduling for recreational craft: This Best Practice addresses the fact that recreational lockages may be scheduled.

4. Standardization of radio contact channels: This Best Practice recommends all locks use channel 16 for contact
5. Standardization of signals and aids to navigation: This Best Practice recommends standardizing safety signs and signals at locks.
6. Extended use of strobe light signals for locking recreation craft: This Best Practice recommends providing strobe lights to signal recreational vessels.

The BPR Team considered but did not include the following in their recommendations:

1. One set of required national operational standards. This is not feasible because of unique individual site operational and maintenance characteristics.
2. Remote operation of navigation locks by offsite personnel. This is not recommended because of safety, security, liability, maintenance cost, and operational reliability issues.

RECOMMENDATIONS

Standardizing locking procedures will improve the effectiveness and efficiencies of the IMTS locking system throughout the country. Our customers will have one standardized, consistent, and readily available procedure for utilizing our navigation systems. Standardization will provide a more uniform process for our customers in locking a vessel thru a site, more reliability in equipment, and improved system availability.

The BPR team reviewed policies for inconsistencies (system to system and nationally) and determined the best practices from each system. Based on this review the BPR team recommends the following.

Phase I. (Short Term 0-12 months):

1. IMTS Working Group appoints PAT to review and standardize Navigation Notice #1 (blue book, red book, purple book) on an annual basis.
 - a. Any deviation from Working Group recommendations will be approved at the Board of Directors (BOD) level by a Working Group representing each region. (For example: Out draft or excessive drift problems; Opening miter gate half way for boat to enter).

- b. Working Group will be composed of Lockmasters, Work Leaders, Navigation Managers, Operations Project Managers, Senior Lock Operators, or other subject matter experts.
 - c. Due to the differing operational procedures required by inland navigation rules and regulations, a member of the U.S. Coast Guard will also be on the team.
2. Navigation Notice to industry on unique or abnormal towing configurations or situations (example: Lock closures, locking tows in excess of 600 ft, width restrictions, shoaling) will be improved by posting all navigation notices on one website accessible to all navigation customers.
 3. Publish an approved lockage SOP for each lock site. Regional IMTS Working Group will be responsible for review and approval.
 4. Standardize audible and visual signals for inland navigation
 - a. Standardize the use of marine radio channels in accordance with FCC regulations
 - b. Require that all tows & recreational vessels (so equipped) will monitor working channel during the lockage process in case locking conditions change
 5. Require that recreational vessels be required to handle courtesy lines where available because of turbulence in the lock chamber
 6. Require that recreational boaters handling and/or tending a line wear a life jacket at all times.
 7. Require that recreational vessels turn engines off when inside lock chamber.
 8. Require use of small boat chains with talk-back speaker on lock walls for recreational craft that do not have marine radios.
 9. Require the use of strobe lights to signal entry at lock sites with frequent recreational craft lockages.
 10. Implement the standard O &M National Uniform Program for Lock and Dam and maintenance employees throughout the IMTS. The primary goals of providing uniforms under the program are:
 - a. Image Protection: To maintain professional appearance and a visual point of contact

- b. Suitability: To provide employees with functional clothing suitable to their assigned duties.
- c. Availability: To provide a supply system that will ensure the timely delivery of quality uniforms.
- d. Accountability: To establish a uniform system that is cost effective and provides financial accountability
- e. Security: To readily identify IMTS employees in case of emergency or security incident.
- f. Brand Name Recognition: Ease of identification of IMTS employees to customers in all situations

Corps Operations personnel are involved with the varying task associated with the operations and maintenance of the navigation and water resource development projects. These individuals are responsible for performing operations and maintenance activities at lock and dam and flood control structures. These personnel are also involved with the fabrication of specialty parts; maintaining and furnishing warehouse stock parts and supplies; and support major maintenance and repair activities.

Uniform policy will cover following groups of employees:

- a. Lock & Dam Operators
- b. Lock and Dam Maintenance personnel
- c. Floating plant employees (both land and water based)

11. Develop Crew change policy at lock sites.

Currently a fax is sent to the lock site by the tow company's office on who is getting on & off the tow (includes names & occupations). Proper picture identification (TWIC: Transportation Workers Identification Card) card if available) must be furnished to be allowed access to the lock site. The crews getting on tow will sign in at lockhouse & crew leaving tow must sign out before departure. This crew exchange should not disrupt or delay the locking process. Since all sites do not have fax capability phone or radio contact is permitted.

12. Update Navigation Charts to improve consistency by including:
 - a. Locking procedures in all USACE Navigation Charts (both hard and electronic copy) also listed will be any unique local procedures.
 - b. Location of restricted areas, small boat signal chains, signal lights & audible horns instruction, size of chambers, hours of operation, phone numbers, mailing address and locking on all charts
 - c. Navigation, Locking and Pilot instructions for first time users.
13. Revise the Production process for Navigation Charts to include:
 - a. Nationalize the production of all Navigation Charts (both hard and electronic copy) by the navigation system to facilitate consistency: (for example: Upper Mississippi Navigation System)
 - b. Project Team's that are already formed include:
 - (1) National Paper Charts Standardization Team (POC Tony Niles ERDC/TEC)
 - (2) Inland Electronic Navigation Chart Project Team (POC Tony Niles ERDC/TEC)
14. Publish Public contact information that will include phone number and hailing channel and will be posted on upper and lower guide walls, arrival point signs, web sites and at local boat ramps and/or marinas as local situations may require.

Phase II. (Long Term 12-60 months):

15. Update signage at lock sites to comply with National Sign Standards Manual.
16. Require that all lock sites where applicable will have a visual, audible or electronic means to notify mariners that severe out draft conditions exist. (Example: Strobe lights, outdraft signage, RTVF (Real Time Velocity Flow Meter) initiative of the Deputy Commanding General).

COST ANALYSIS

1. Cost for IMTS Working Group salary, travel and per diem.
Eight members traveling one week per month for 6 months =\$200,000.00
2. Public information signs at five boat ramps per pool = 1100

Guide and guard walls 440

Marinas 400

1940 public information signs X \$300.00 per sign = \$582,000.00

3. Bring all facilities up to national sign standard

80 sites X \$250,000.00 per site = \$20,000,000.00

Purchase and install Real Time Velocity Flow Meter (RTVFM) at 50 sites X \$50,000.00 per site = \$2,500,000.00.

BENEFITS

Improved customer satisfaction through consistent procedures

CHALLENGES

Conditions at some facilities may dictate that, for safe operation, the Corps may provide services that are not normally provided at other locks. While better than the current situation, this lack of standard operations across the IMTS must be allowed for the benefit of the Corps and customers.

Implementation Plan Design of some facilities precludes standardization. An example is locks that have floating mooring bits do not have to have an additional line handler.

Cost of installing and maintaining expensive equipment for operation of locks (e.g. upgraded control systems)

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

IMTS Working Group will standardize Marine Radio channels in accordance with FCC regulations.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

IMTS Working Group meets and receives input from navigation stakeholders (Shippers, tow companies, USCG, Marina operators, public users).

IMPLEMENTATION

Activities/Steps

1. Recommendations approved.
2. Working Group forms, initial site visits are conducted, navigation notice #1 reviewed and standardized.
3. Data Call from IMTS Working Group. All Locks develop and submit lockage procedure SOP.
4. Navigation notice website developed and placed online for public access.
5. Crew Change procedures reviewed and standardized by IMTS Working Group
6. IMTS Working Group will, determine number and placement of public information signs and contract for manufacture and instillation of signs.
7. IMTS Working Group will review and initiate implementation of recommendations for Navigation Chart changes

Schedule

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		X												
Working Group forms		X												
Implement immediate and intermediate recommendations			X	X	X	X	X	X	X	X	X	X	X	X

Resource Plan (\$000)

Activity ▼ Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(0)												
(Working Group) wages, travel, per diem. 8 members X 25K = 200K		(33K)	(33K)	(33K)	(33K)	(33K)	(33K)						
Purchase and install public information signs.		48.5K											
Bring navigation signs up to standard		167	167	167	167	167	167	167	167	167	167	167	167
Monthly total		248.5	248.5	248.5	248.5	248.5	248.5	215.5	215.5	215.5	215.5	215.5	215.5

Notes:

- (1) The Working Group cost not considered in implementation cost
- (2) Working Group cost not included in implementation cost.
- (3) Allocated to navigation Districts, using an average of 10 trainees per District

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.1 Operate Lock	Lock availability meets or exceeds the 2006 performance described in TE-2.	Improved customer satisfaction through consistent procedures

Implementation Measurement

All immediate recommendations will be completed within 6 months and reported to IMTS Board complete.

All intermediate recommendations will be accomplished within 12 months and reported to IMTS Board as complete.

All long term recommendations will be completed with 60 months and reported to IMTS Board as complete.

Quality Assurance

IMTS Working Group will report to IMTS Board on monthly basis on status of implementation of recommendations.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 21 - IMPROVED ALIGNMENT OF ADMINISTRATIVE TASKS

FINDINGS

Administrative support at lock and maintenance sites has been reduced over the past several years as the result of funding cuts and changes in funding priorities. The increasing administrative duties have fallen on lock supervisors and staff to perform at the expense of routine and preventative maintenance activities.

This BPR focuses on improving maintenance performance and reducing inefficiencies by returning the administrative responsibilities to a skilled clerical/administrative person.

Utilizing administrative personnel to accomplish clerical and administrative responsibilities associated with the operation and maintenance effort will allow supervisors and technical personnel to concentrate their efforts on the supervision and technical duties assigned such as maintenance. Supervisory/technical personnel are normally not proficient at performing clerical and administrative duties. Thus, a properly trained administrative person could perform these duties more efficiently and allow O&M personnel to spend more time on supervisory and technical issues related to O&M issues at the lock.

The BPR revealed that a typical IMTS Supervisor/Lockmaster and Assistant Lockmasters/Leaders spend approximately 50% of their time on administrative duties. With the implementation of FEM, additional administrative duties will be incurred.

The BPR Team identified numerous other areas for performance improvement for administrative responsibilities. Many Districts continue to require non-value added reports that could be eliminated. Examples are equipment utilization reports, fuel consumption reports, etc. Additionally, employee work hour related documentation (leave requests, overtime request, Time and Attendance (T&A) verifications, etc.) and certification requirements are not standardized throughout the Districts. Finally, the ratio of technical/admin personnel is inconsistent across the nation at similar sized lock and dams and therefore is not optimal ratio. For example, one District does not have any admin personnel on its locks; however, neighboring Districts utilize admin personnel at each lock.

RECOMMENDATIONS

1. Implement optimal ratios of supervisor/technical to administrative personnel to maximize man-hours spent on assigned duties. Facility size, staffing, and traffic affect administrative assistance required. The ratios of supervisor/technical positions to administrative personnel are different throughout the Corps and should be optimized. Based on knowledge and experience with administrative requirements, the BPR team recommends approximately 15 supervisor/technical to 1 admin ratio (15:1). This is the ratio currently utilized successfully in some Districts. Utilizing the 15:1 ratio, an additional 70,000 man-hours Corps-wide will be available to accomplish supervisory and, more importantly, maintenance duties. Location of the administrative position is preferred at a lock site, but ultimately is a local decision.
2. Provide administrative personnel with all appropriate permissions and authorities to perform administrative duties including: timekeeping, schedules, CEFMS, P2, purchases, training, travel, reports, notices, etc. This allows supervision and technical staff to spend more man-hours on maintenance activities related to lock availability.

COST ANALYSIS

The BPR Team conducted a business case analysis to determine the cost of implementing the improvements associated with this BPR:

1. Costs:
 - a. Optimal ratio of admin support to supervisor/technical personnel should be 15:1.
 - b. Target Admin pay level - GS-07 = yearly cost of 75,000
 - c. Total NavLocks employees (admin & supervisor/technical) = 1,500
 - d. Current ratio was reviewed and determined to be approximately 25:1

Therefore, cost to add admin personnel to reach optimal ratio of 15:1 is calculated as follows:

Total on site lock employees = 1500

At current 25:1 ratio, $1500/25 = 60$ admin personnel

At optimal 15:1 ratio, $1500/15 = 100$ admin personnel

$100-60 = 40$ additional admin personnel required

$(40 \times 1776 \text{ hours/person/year} = 71,040 \text{ hours})$

At GS-07 pay level = \$75,000/yr

Cost to add 40 additional admin personnel (GS7/5) = $75K \times 40 = \$3.0 \text{ million}$

2. Benefits - Savings Calculation:

a. Supervisor/technical average pay level = yearly cost of \$148,000

b. Supervisor/technical personnel are currently performing a significant amount of admin duties that could be performed more efficiently at the lower pay level of admin personnel

c. $40 \times 148K = \$5.9 \text{ million}$

d. $\$5.9 \text{ million} - 3.0 \text{ million} = \$2.9 \text{ million savings}$

Notes:

1. Investment would be salary of admin person; GS 5, 6, 7 (target) depending on duties
2. Reduce investment at some locations as result of admin personnel sharing (centralized admin staffing)
3. Benefits will also include "soft" savings (effectiveness) such as increased job satisfaction (improve morale, allow supervisors and technical employees to focus on mission critical work). However, added benefit on 70,000 more man hours (preventive and routine maintenance) spend on lock maintenance should increase lock availability and decrease major maintenance.
4. Benefits shown do not reflect the fact that administrative professionals are much more efficient than supervisor/technical employees at performing administrative duties. Therefore, additional savings will be realized due to efficiency of accomplishing this work.
5. Some locations with proper admin support could reduce supervisor's time spend on admin duties by as much as 40-50%, thus producing a more effective leader. Leaders/Mechanics/etc could spend more time at their appropriate work level.
6. Inefficient time for supervisors/technical employees, spent on admin duties, converted to value added tasks.

BENEFITS

Effective allocation of administrative, supervisory, and maintenance work to appropriate staff

CHALLENGES

Funding to add admin staff per recommendations (optimal)

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. IMTS Working Group will coordinate with District Operations Chiefs to provide organization charts reflecting compliance with this BPR to the IMTS Board within 12 months of the commencement of the Implementation Phase.
3. District Operations Chiefs begin recruitment actions for required administrative support within 3 months of the Board of Directors approval.

Schedule

Activity ▼ Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter Operations Chiefs provide organization charts to BOD Operations Chiefs commence recruitment actions	X												

Resource Plan (\$000)

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter Additional administrative personnel (put in box - \$3.0 M in month 24) Notes: (1) Working Group cost not considered in implementation cost Other costs to be determined.		(1)												

Relationship to Baseline Requirements Document

Required Service	Standard/Performance Requirement	Effect of Implementing BPR Recommendation(s)
C.5.3.1. Perform Lock Maintenance	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	Effective allocation of administrative, supervisory, and maintenance work to appropriate staff
C.5.3.3. Perform Emergency Lock Maintenance and Repair	Lock locations, facilities, assets maintained to meet availability requirements in Operate Lock 1.0	
C.5.6.1. Prepare Annual Lock & Dam Operations and Maintenance Budget	100% of budgets completed on-time	
C.5.6.5. Perform Lock, Dam, & Facility Security	100% of security plans are maintained by lock site.	

Implementation Measurement

District Operations Chiefs should begin development of the organization chart at the commencement of the Implementation Phase.

Quality Assurance

Division will provide QC.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 22 – IMPROVE CONSISTENCY IN THE APPLICATION OF DRUG TESTING POLICIES

FINDINGS

EP 600-1-3 USACE Drug Testing Procedures for the Army's Drug-Free Federal Workplace (DFW) Civilian Drug Testing Program, dated 28 February 2001, provides guidance for the administration of civilian drug testing in the Corps of Engineers, and is to be used in conjunction with AR 600-85 Alcohol and Drug Abuse Prevention and Control Program, and the Department of Health and Human Services (DHHS) Mandatory Guidelines of Federal Workplace Drug Testing Program. Appendix F contains the criteria for disciplinary action which range from written reprimand, suspension for 14 days or less, suspension for 15 days or more, or suspension until they complete rehab or removal. A second positive test dictates start the removal process.

Within the Corps there are variations in disciplinary action for a positive drug test, all within the guidance stated above. In one District the first positive test results in a "recommendation for suspension" of 14 days which is usually approved, in a second District the first positive test results in a "recommendation for suspension" of 30 days and in yet another District the first positive test results in a "recommendation for removal (no tolerance)".

Only certain positions in the Corps are designed for random drug testing. There are no standards for when to request a non-random drug test if reasonable suspicion of drug use is found. A grossly unsafe action, or incident resulting in damages greater than \$10,000, are accepted by the Corps as a reason to conduct a non-random drug test. This policy is not applied uniformly in Districts. Positions which fall under the random drug testing program are listed as TDP (testing designated positions). TDP positions in the Corps involve the following activities: operate surface vessel (including dredging equipment), operate navigational locks, operate flood control gates (power plant operator, lock and dam operator, maintenance worker), operate cranes and operate water treatment plants.

The contract for drug testing is with the Department of Interior through Pembroke (for testing). The Corps has piggybacked on this contract for testing. Clinics around the country must meet certification criteria to be available for testing. The results are sent to Ft. Meade where they are reviewed by a physician. There are two tests on every sample. The test uses two different methods. Amino assay (quick test) and the second gas chromatograph (more detailed). The testing lab can save the sample for up to two

years (freeze for one year) if a positive test. Five drugs are tested for marijuana, opiates, PCBs, Meth, and cocaine.

If the employee tests positive the medical officer calls the employee. If it is positive and not a prescription then the medical officer calls the District drug coordinator and that person calls the supervisor. The employee can request a second test if he questions a positive test. The test is made on the original sample not a second urine test. The Corps has its own program and policies. The drug coordinator position is in different organizations in different Districts (Safety, HR, Operations, etc.).

The goal of this BPR is to develop and implement uniform guidance and drug testing standards across the IMTS. This policy will enforce a 'no tolerance' policy on drug abuse and alert IMTS personnel of the uniform and expected consequences of violating the policy. A drug free work environment will promote a safer workplace and reduce the risk of drug related mishaps and accidents.

The BPR Team considered but did not include the following in its recommendations:

Maintain status quo.

Crane operators are automatically tested, but other trades are not tested (welders, divers, carpenters). The list of those who are automatically tested (besides crane operators) should be expanded. The tie to safety could be made for expanding the mandatory pool for automatic drug testing

RECOMMENDATIONS

1. Assign a Project Action Team (PAT) to consider standardizing guidance for proposed disciplinary actions following a positive test. Some flexibility (discretion) on application of various disciplinary actions may be desirable, but the current extreme range of available options leads to confusion and inconsistency among and within Districts. The current application of this wide range of available options (for positive drug testing) has lead to inconsistent penalties and confusion on the part of first line supervisors and middle management on how to best maintain a safe environment for our personnel, customers and the facilities we manage.
2. The PAT should consider reviewing and revising the list of positions designated for random drug testing (TDP list) to ensure standardization across the Corps of positions tested, and to ensure list includes positions with duties requiring testing. If part of the requirement for a position to be on the TDP list is "protection of life and property or public health and safety", then other positions should be examined to see if they meet these criteria. Positions recommended for review are all maintenance crew personnel,

lock and dam personnel, powerhouse operators (currently only on TDP list if they operate flood control gates), and supervisors in operations.

3. The PAT should develop standard guidance requesting and performing reasonable suspicion testing (non-random) of employees where reasonable suspicion of drug use exists and ensure policy is consistent across all Districts (some Districts are only allowed to perform non-random testing if accident or grossly unsafe practice observed (damages >\$10,000, death, hospitalization). Consideration should be given to how non-random tests could be given at remote locations that are operated 24/7 (i.e. testing location, who administers test).
4. The PAT should investigate standardized training for supervisors to help identify users, become familiar with testing procedures, the assistance available to employees and what necessary actions need to be taken if notified of employee's positive drug test, or if reasonable suspicion of drug use exists.
5. The PAT should consider developing a standard approach (or policy) when suspicion of intoxication is exhibited to insure the safety of the facilities, customers and personnel.

COST ANALYSIS

Costs of additional testing if personnel are added to current TDP list with rise in proportion to the number of positions tested. Costs will include adding new testing site (clinic), mileage reimbursement of travel if GA not available and overtime created to cover shift while employee is being tested

Costs of additional testing will rise if standardization reveals more positions will be tested.

Costs of additional testing will rise if supervisors are allowed to request non-random testing due to reasonable suspicion. Costs may include testing outside testing clinic's normal business hours and/or overtime to cover shift of employee

Costs for training supervisors on drug testing program (ID users, testing procedures, counsel techniques, providing assistance) will be minimal.

BENEFITS

A safer workplace and a reduction in the risk of drug-related accidents

CHALLENGES

Union negotiations as result of adding TDPs and/or requesting non-random drug testing.

Resistance by some supervisory and management personnel may want the flexibility to use the wide range of options now available on application of various disciplinary actions.

Funding for additional testing and adding testing locations, including adding after hours testing capability.

IMPLEMENTATION

Activities/Steps

IMTS Working Group to review drug testing program requirements and standardization procedures and disciplinary actions.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 23 - SYSTEMS - BASED BUDGETING

FINDINGS

The Corps's navigation business line does not have a true baseline budget, or a standard process for ranking and assigning priorities to major maintenance items. This situation leads to financial uncertainty for some projects from one budget cycle to the next.

Additionally, the Corps' ability to respond efficiently to navigation emergencies that occur during a budget year is limited because of guidelines that inhibit or prevent the transfer of funds across project boundaries. The result is a limited ability to develop a strategic approach to major maintenance projects, which has a direct impact on lock and system availability. The current budget process further requires a significant amount of data, and budget decisions are made on data that, in some cases, may be inconsistently gathered or inaccurate. The age of the navigation infrastructure and the current budget climate are causing the Corps' major maintenance backlog lists to grow exponentially.

Improvement areas include defining a level of service for each project, determining and funding baseline budgets, establishing a consistent business process for prioritizing major maintenance items, determining an approach for moving funds within regions for emergencies that develop during the budget year, and revising the needed budget data to reflect what is really needed and can be collected or developed accurately.

OPTIONS CONSIDERED

The BPR Team considered but did not include the following in their recommendations:

Retain the status quo.

Utilize the MVD or LRD major maintenance ranking models.

Develop and fund contingency fund (similar to a revolving fund) to pay for unexpected emergencies.

RECOMMENDATIONS

1. Define level of service for each project based on several factors, including the following: total tonnage, current hours of operation, facility size and design parameters, tonnage trends, recreational usage, analysis of time of day usage, relationship to river system, and current staffing. Refer to “Improve Level of Service” BPR for additional details.
2. Determine and fund, based on defined level of service, the baseline O&M activities for each project. Base operations costs on the operations model and maintenance costs on actual maintenance model to be validated by Facility and Equipment Maintenance (FEM) system data when it becomes available. Refer to “Standardized Staffing & Grade Structure” BPR for details. The HQ Navigation Business Line Manager will revise the navigation budget EC for the 2011 budget cycle.
3. IMTS Working Group form a PAT consisting of navigation business line managers, to evaluate the MVD/LRD major maintenance models and develop a hybrid model that could be applied to all regions. The PAT will develop an acquisition strategy to ensure that the major maintenance program is executable, efficient, and a logical mixture of contract and in-house assets. (e.g., repair centers work should be planned well in advance to minimize movement of employees for work across the system, except in emergency situations; Plans and Specifications for contract work should be ready in advance of funding the work, etc). This strategy should ensure interdependency among the Districts within the designated regions.
4. IMTS BOD form a HQ-level PAT, consisting of the HQ Navigation Business Line Manager, Strategic Sourcing Project Manager, and Chief of the Future Directions Branch, to develop a business case model that demonstrates the efficiencies that could be gained by modifying O&M budgets to allow movement of funds based on the highest return on investment and to fund execution-year emergency situations that arise. The business case model should be compared with a single CWIS number, such as the Ohio River System, and with a system, such as the Upper Mississippi River, that has multiple CWIS numbers. Combining CWIS numbers for multiple projects into a system format is imperative to success of this BPR.
5. HQ Navigation Business Line Manager to develop revised data for budget development purposes; revised data for budget development that minimizes data collection to include only data that is critical to operation and maintenance of facility. This will also improved accuracy of data. Additionally HQ Navigation BLM will create a revised Navigation Budget Engineering Circular (EC) for the 2011 budget submission cycle. Since some of these budget concepts could require significant coordination

outside the Corps, they should be integrated into the budget EC over time as each concept is fully developed.

COST ANALYSIS

The cost for developing and implementing the above recommendations is negligible. The work is to be accomplished by Corps personnel who are funded by the navigation business line.

The IMTS Working Group will estimate the cost savings from the recommendations. Although many process benefits are expected to result from implementing the recommendations, they cannot be accurately estimated at this time.

The expected benefits include a more consistent level of funding for projects and major maintenance items, and the assignment of priorities based on risk, reliability, and economic return on investment, which should result in improved construction schedules over a longer period and economies of scale not available under the current system. Additionally, a well-documented process should allow more confident future investment decisions, and budget developers to identify and defend the return on investment for each additional dollar invested into the navigation budget.

BENEFITS

Enhanced investment decisions and a better ROI from the funds
Faster response time to emergencies due to greater flexibility in moving funds
Optimized construction schedules and better economies of scale

CHALLENGES

The effectiveness of the recommended actions will require close coordination among the Corps, Congress, OMB, and industry.

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

This BPR will result in changes to the budgeting process for civil works projects; it will require close coordination and concurrence by OMB and Congress.

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

All elements of this BPR will need to be coordinated closely with external stakeholders.

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Working Group utilizes the Level of Service BPR to define the service to be provided at each site.
3. Working Group uses the Staffing and Grade Structure BPR to determine the operations baseline.
4. Working Group utilizes FEM data to determine the maintenance baseline.
5. Working Group forms Navigation Business Line Managers PAT to develop a major maintenance prioritization model and an acquisition strategy methodology.
6. Field staff members are trained to use the major maintenance prioritization model.
7. IMTS Board appoints HQ PAT to develop business case model for systems funding and communicates same to stakeholders and OMB.
8. Navigation Business Line Managers revise Budget EC.

Schedule

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		X												
Determine level of service(per Level of Service BPR this activity will be completed within 6 months of start)		X	x	x	x	x	x	X						
Establish operations baseline		X	X	X				x	x	X				
Establish maintenance baseline														X
Develop major maintenance priorities(this will take 12 months to complete per Major Maint BPR)		X	X	X	x	x	x	x	x	x	x	x	x	x
Train field personnel to use model (this will take 2 months after item above is completed)														
Develop business case for systems funding		X	X	X	X	X	X	X	X	X	X	X	X	X
Revise budget Engineering Circular				X	X	X	X	X	X	X	X	X	X	X

Resource Plan (\$000)

None

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR recommendation(s)
C.5.1. Operate Lock	Lock availability meets or exceeds the 2006 performance in TE 2.	
C.5.5.1. Conduct Scheduled Major Maintenance and Repairs (including life-cycle replacement)	95 percent of scheduled and funded major maintenance actions completed on schedule by lock site.	Enhanced investment decisions and a better ROI from the funds
C.5.5.2. Conduct Emergency (Unscheduled) Repairs	Respond with an assessment within 2 hours, develop a plan, obtain approvals, and fulfill objectives of the plan.	Faster response time to emergencies due to greater flexibility in moving funds
C.5.6.1. Prepare Annual Lock and Dam O&M Budget	Complete 100 percent of budgets on-time.	Optimized construction schedules and better economies of scale

Implementation Measurement

“Major maintenance model” will be developed and distributed to field elements within 12 months; “Improve Level of Service” BPR will be completed within 12 months;

“Standardize Staffing & Grade Structure” BPR will be completed within 12 months; and FEM implemented and sufficient data collected within 2 years.

Quality Assurance

QC will be provided by Division.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 24 - IMPLEMENT 3-PHASE INSPECTION SYSTEM FOR MAJOR MAINTENANCE

FINDINGS

Major maintenance performed by in-house personnel is inspected with different quality level goals throughout the Corps, using processes that range from very formal to very informal.

Applying the formalized QC inspection system to major maintenance activities performed by hired labor will achieve a higher standard of quality. The three-phase inspection system will be implemented for major repairs performed with resources from outside the lock & dam location. Using the three-phase inspection system will enhance planning and reduce re-work, thereby improving efficiency and effectiveness. The result will be a facility returned to service sooner with improved quality.

The inspection system consists of three phases:

- 1. Preparatory inspection:* The preparatory inspection occurs shortly before the work activity begins. Participants include personnel directly involved in the activity, as well as any technical specialists (engineering, safety, environmental, contractor's representatives, manufacturer's representatives, or others) who can fully discuss all aspects of the activity. This is the time to review all steps to ensure all preparations have been made, correct people and equipment are on hand, and there is a good understanding of the technical, operational, quality control, testing, safety, and environmental aspects of the activity. A record of the discussions, conclusions, and agreements made during this meeting constitutes the written plan for the project.
- 2. Initial inspection:* The initial inspection takes place after a representative portion of the work has been completed. It ensures that the work is proceeding according to the plan established in the preparatory inspection. If changes to the plan or activity are required, they can be made by the inspection party or, if the needed changes are significant, by conducting an additional preparatory inspection. Keeping records of discussions, conclusions, and agreements made during this meeting is critical. More than one initial inspection may be conducted, depending on project size.
- 3. Final inspection:* The final inspection occurs after the work has been completed. It ensures that the work, including testing, cleanup, and documentation (reports, photos, etc.) are completed as agreed to in the preparatory inspection.

RECOMMENDATIONS

1. Provide local, formal training on the three-phase inspection to supervisors, engineers, and others involved in major maintenance activities. The training module is a PowerPoint presentation with a printable reference workbook accessible from a central website (such as the Navigation Gateway). This module can be taken as self-study or led by a facilitator.
2. Assign a person (collateral duty) to be the QC manager for each major maintenance activity. This individual is responsible for scheduling and conducting the inspections and documenting the discussions; gathering technical information for products used; and ensuring that the appropriate testing (for example, weld ultrasonic inspection) is conducted and documented.

COST ANALYSIS

Improvement 1 – Develop three-phase inspection exportable training for major maintenance activities

This training will consist of modifying the three-phase inspection module in the USACE course “Construction Quality Control for Contractors” to make an exportable training unit. Part of this deliverable will be a recommended list of participants for three-phase inspections for common types of major maintenance activities. This recommendation will incur costs for a team of 1 construction person (GS-13 resident engineer at a rate of \$150/hour), 1 maintenance engineer (GS-12 mechanical, civil, or electrical at \$120/hour), and 1 maintenance foreman/facility manager (GS-11 at \$100/hour). It will require an estimated 40 hours for the team to research and modify the existing training module, distribute the new module for review, and make final corrections. Cost of this is 40 hours × \$370/hour = \$14,800. It will require \$5,000 for travel and per diem for the team and \$1,000 for miscellaneous reproduction, photography, etc. for a total, estimated development cost of \$20,800.

Category	Cost	Total
Labor:	(40 hours × \$150/hour) + (40 hours × \$120/hour) + (40 hours × \$100/hour)	= \$14,800
Travel and per diem:	3FTE × 4 nights × 5 days	= \$5,000
Miscellaneous	Reproduction, photography, etc.	= \$1,000
Total for developing training		= \$20,800

Improvement 1 – Provide 3-phase inspection training

This recommendation will incur costs for 2 hours of training at \$120/hr per person for 10 persons for each of 22 navigation Districts = $2 \times \$120 \times 10 \times 22 = \$52,800$.

Category	Cost	Total
Labor:	2 hours × \$120/hr × 10 persons × 22 Districts	= \$52,800
Total for providing training		= \$52,800

Improvement 2 – Assign QC manager as a collateral duty

The people assigned as QC managers will not perform their normal duties on a full-time basis. As explained below, this cost is offset by the benefits from managing the three-phase inspection system.

BENEFITS

Returning sites to service in less time and within budget
Improved quality of repair
Less rework

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approval.
2. Working Group establishes PAT to modify exportable course.

3. PAT modifies exportable course for three-phase inspection system for in-house major maintenance activities.
4. Maintenance and Repair personnel within each District receive training in the three-phase inspection system.

Schedule

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	X												
Establish team to develop course		X											
Develop exportable course			X	X									
Train personnel					X	X	X	X	X	X			

Resource Plan (\$000)

Activity	Month												
	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter	(1)												
Establish PAT to develop course		(2)											
Develop exportable course													
Resident Engineer (District TBD)			3.0	3.0									
Maintenance Engineer (District TBD)			2.4	2.4									
Maintenance Foreman/Facility Manager (District TBD)			2.0	2.0									
Team Travel			3.0	2.0									
Team Miscellaneous Expenses			0.2	0.8									
Train Personnel (3)					5.0	10.0	10.0	10.0	10.0	7.8			

Notes:

- (1) Working Group cost is not considered in the implementation cost.
- (2) Working Group cost is not included in the implementation cost.
- (3) Training is allocated to navigation Districts, using an average of 10 trainees per District.

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR Recommendation(s)
C.5.3.3 Perform Emergency Lock Maintenance and Repair	Minimize impact on lock availability by completing lock emergency maintenance and repairs as efficiently and effectively as possible	Returning sites to service in less time and within budget Improved quality of repair Less rework
C.5.5.1 Conduct Scheduled Major Maintenance and Repairs (takes more than on-site staff or equipment). This includes life cycle replacement.	Minimize impact on lock availability by completing all scheduled major maintenance on time and within budget	
5.5.2. Conduct Emergency (Unscheduled) Repairs	Return facility back to service as quickly as possible and complete the plan agreed to; reduce time between emergency and beginning of repair plan	

Implementation Measurement

Within 2 months of receiving training, each District will have used the three-phase inspection on at least one major maintenance activity and provided inspection checklists to the Working Group for review.

Quality Assurance

Each District will maintain records of three-phase inspections. Records will include 3-phase inspection checklists, material information, testing reports, and other documentation. These records are to be reviewed in accordance with QA procedures.

FINDINGS AND RECOMMENDATIONS

BPR TOPIC 25 - STANDARDIZE WATER CONTROL PROCEDURES

FINDINGS

The goal of the IMTS is to move commodities through the system in the most efficient and safe manner possible. By providing users with accurate forecasts of system conditions and open communication, additional commodities can be moved through the system at no additional cost to the O&M accounts by loading to greater drafts.

Currently, water control procedures vary from District to District and Division to Division. In some Districts the engineering Division provides operational forecasts/instructions to the locks and dams, and in other Districts this function is done within the operations Division. The operational forecasts/instructions provided to the individual navigation dams vary from instructions on the total square footage of gate openings to maintaining instructed pool elevations (the lock and dam operators determines the gate openings to achieve the required pool elevation). In some Districts operational forecasts/instructions are evaluated daily and instructions provided when changes to the pool regulation is required, and in other Districts operational forecasts/instructions are more frequent and determined when deemed necessary (significant rainfall, drought conditions, ice, etc.).

Some locks and dams have reported that they rarely receive instructions and maintain the gates at their pools by gathering information provided by the National Weather Service and other sources and adjusting as they best determine at the lock and dam site.

Coordination between some Districts is fragmented. Districts do communicate with each other to a limited extent on their gate settings/flow forecasts and efforts to maintain pools within defined limits. The water control procedures (District to District) are not always conducive to maintaining the system. Most Districts operate the navigation dams within their District (adjusting pools up and down) to benefit the dams within the District as a system. The District system approach sometimes breaks down between Districts as the Districts do not operate as one entity to maximize the gate settings for the entire river system.

Sometimes Districts wait for customers/stakeholders to notify them of changed conditions because it has impacted their business, rather than having water control personnel proactively inform concerned parties of pending gate changes, river stages, etc. so that customers/stakeholders can make adjustments to minimize potential negative impacts or maximize positive impacts to changing conditions.

Districts manage their pool levels to be within specified parameters. Pool levels are generally managed using one of two methods – hinge point control and dam point control. Dam point control, which is the most common method, seeks to keep the pool at the dam site within specified parameters. Hinge point control, which is more complicated but can provide environmental benefits, seeks to maintain the pool at the “hinge point”, which is a point in the river midway between navigation dams, within specified parameters. In traversing a river system, some Districts operate by hinge point control while adjacent Districts operate by dam point control.

Some District web sites publish water control data that has not been checked. Some District web sites add other Districts information without concurrence of those Districts. Due to the dynamic nature of this work, incorrect data can be added to the website. At times the incorrect information remains posted even after the information is found to be invalid.

RECOMMENDATIONS

Communicate accurate forecast information on flows, timeframe and system conditions to customers in a timely manner. Once determination is made regarding who is responsible to publish forecast each District will only issue forecast from assigned office. Water control procedures within select river systems are to be standardized and water control procedures (gate settings) will be made to maximize the benefits to an entire river system (not an individual pool or set of pools within a given District). In order to achieve the recommendations contained in this report it is suggested that water control procedures and coordination should be spearheaded by 1 or 2 lead Districts within recommended river systems. The role of the lead District is to be that of a coordinator and to set water control policies within the river system. A District designated as lead by IMTS Board will be responsible to ensure consistency for entire system and gain “buy-in” from Division and District Commanders on the path forward. Even though water control is a local function, it has regional impacts.

1. Identify regions where opportunity exists to allow users to load additional commodities if river forecasts are improved and communicated.
2. Develop a consistent approach to river forecasting within these regions, to allow for facilitation of problem solving and standardization.
3. It is recommended that the water control procedures within select river systems be standardized and that water control procedures (gate settings) be made to maximize the benefits to the entire river system (not an individual pool or set of pools within a given District).

4. In order to achieve the recommendations contained in this report it is suggested that water control procedures and coordination should be spear headed by 1 or 2 lead Districts within a recommended river systems. The role of the lead District is to be that of a coordinator and to set water control policies within the river system. The integrity of District structure to provide needed information on the dams within their District will not change. The purpose of the lead District is to convene meetings of the water control personnel within their river system and to mutually agree on “standardized procedures” to be used in the water control of the entire system to maximize the benefits of the entire water system.
5. The lead District shall, with the help of all of the Districts within a river system, ensure consistency and “buy-in” from Division and District Commanders on the path forward. Water control, without question, is a local function, however it has regional impacts.
6. The lead District shall help establish policies to be used throughout the river system on evaluation of forecasts (frequency), consistent checking of data, publishing of a “river system” data, communication with river system users and a centralized location for addressing the river system needs, as well as complaints, of the users.
7. The lead District shall have a quality assurance and a quality control mission within the river system. With the help of the Districts within the river system, it shall establish quality control measures for water control. The lead District shall be responsible for updating the quality control measures when changes are required. The lead District shall also serve a quality assurance role in coordinating with the Districts within a river system to insure all quality control measures are being implemented. The lead District shall facilitate that the customers of the river system have an entity which will serve to listen and react to their regional needs.
8. The lead District shall be responsible for assembling a team from the Districts with the river system (not every District needs to be represented, or representation can be on a rotating basis) to meet and advise the lead District on policies.

COST ANALYSIS

Existing FTEs shall be utilized to serve the role of coordination.

Dollar savings, or losses, due to incorrect river forecasts to the river industry could not be determined.

Performance costs gained or lost as a result of incorrectly loading of barges based on inaccurate river forecasts were not estimated.

BENEFITS

Increased opportunities for customers to move commodities through selected IMTS river systems

CHALLENGES

None

STATUTORY OR REGULATORY CHANGES REQUIRED TO ACHIEVE THE END STATE

None

ELEMENTS OF IMPLEMENTATION REQUIRING COORDINATION WITH EXTERNAL STAKEHOLDERS

None

IMPLEMENTATION

Activities/Steps

1. Recommendations approved.
2. Identify regions where opportunity exists to move additional commodities by providing accurate forecasts and coordination with users.
3. Gain concurrence of concepts with river users, communities of practice and District/Division commanders.
4. Select lead District within these regions.
5. Develop regional policies to be implemented within these regions.

Schedule

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
Charter		x												
Identify regions of opportunity		x	x	x										
Gain concurrence with users, CoPs, and Commanders					x	x	x	x						

Select lead Districts with regions Develop regional policies (more time required than 4 months shown)	<table style="width: 100%; text-align: center;"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td>x</td><td>x</td> </tr> </table>									x	x																			x	x	x	x
								x	x																								
												x	x	x	x																		

Resource Plan (\$000)

Activity ▼	Month ►	0	1	2	3	4	5	6	7	8	9	10	11	12
None Required - use existing resources.														

Relationship to Baseline Requirements Document

Required Service	Standard/performance requirement	Effect of Implementing BPR recommendation(s)
C.5.2. Operate Dam	Maintain pool level at the level defined in the water control manual (and adjustments) and water control plan.	Increased opportunities for customers to move commodities through selected IMTS river systems
5.2.2. Communicate with NavLocks System Users and Public Regarding Pool Levels and Flow Conditions.	Respond to inquiries from users and the public regarding pool level and flow conditions, particularly during high- and low-water conditions or events.	

Implementation Measurements

Determine with users, the regions where opportunity exists to move additional commodities on our systems.

Establish the lead District for these regions.

Establish regional policies and procedures.

Quality Assurance

Quality Assurance will be conducted by the Division.