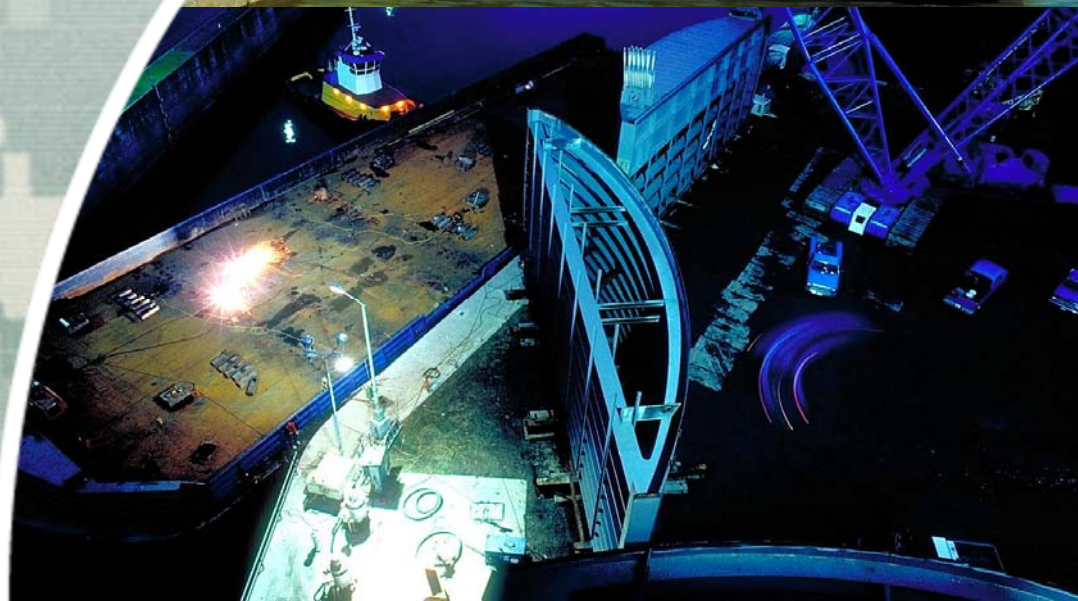
Inland Marine Transportation System (IMTS) Maintenance Activities

Briefing for Locks Maintenance Workshop
1 Mar 2012

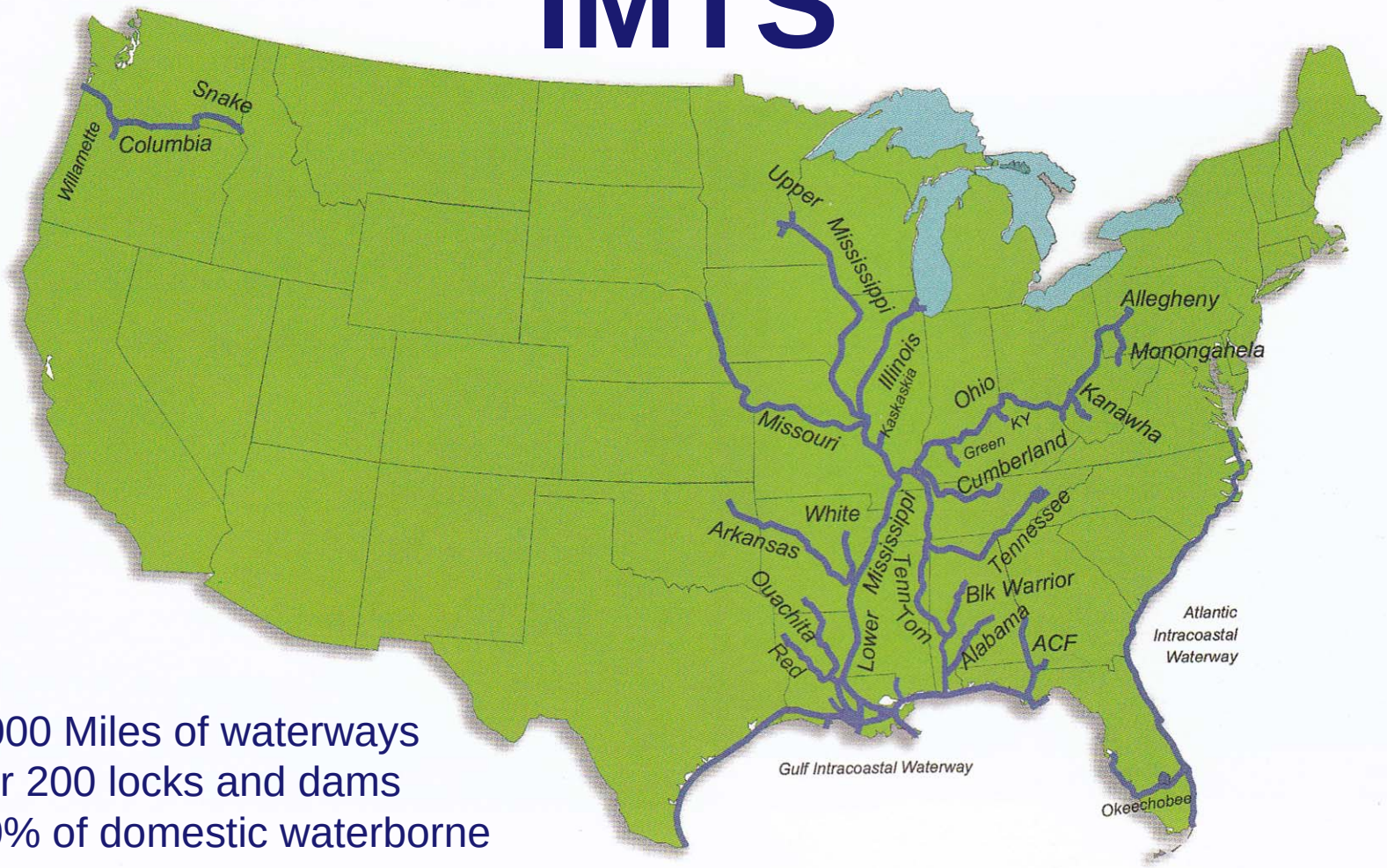
John Cheek and Dave Johnson,
IMTS Working Group



US Army Corps of Engineers
BUILDING STRONG®

Inland Marine Transportation System

IMTS



12,000 Miles of waterways
Over 200 locks and dams
- 60% of domestic waterborne tonnage

Introduction/Background

- NavLocks Study 2007-8
  - Business Process Review
  - 115 Improvement ideas from workforce and industry

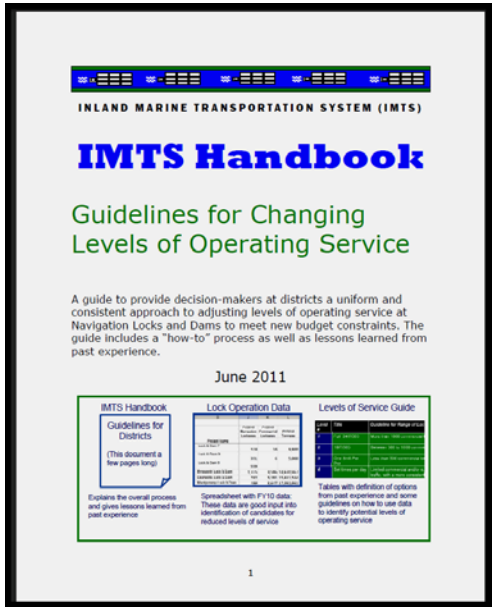
Improvement ideas were gathered from both workforce and industry during visits & listening sessions

Important: we also work on "new ideas" as part of continuous improvement

Levels of Operating Service

Example of "new" improvement idea

- Driver: expected budget reductions
- Uniform and consistent process to evaluate Levels of Operating Service
- Key aspect of process: uniform and consistent approach



INLAND MARINE TRANSPORTATION SYSTEM (IMTS)

IMTS Handbook

Guidelines for Changing Levels of Operating Service

A guide to provide decision-makers at districts a uniform and consistent approach to adjusting levels of operating service at Navigation Locks and Dams to meet new budget constraints. The guide includes a "how-to" process as well as lessons learned from past experience.

June 2011

IMTS Handbook — Guidelines for Districts (This document a few pages long) — Explains the overall process and gives lessons learned from past experience

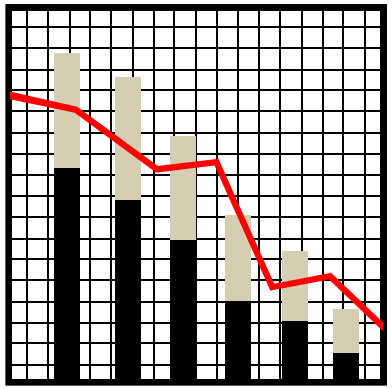
Lock Operation Data — Spreadsheet with FY10 data: These data are good input into identification of candidates for reduced levels of service

Levels of Service Guide — Tables with definition of options from past experience and some guidelines on how to use data to identify potential levels of operating service

1

Levels of Service Guide

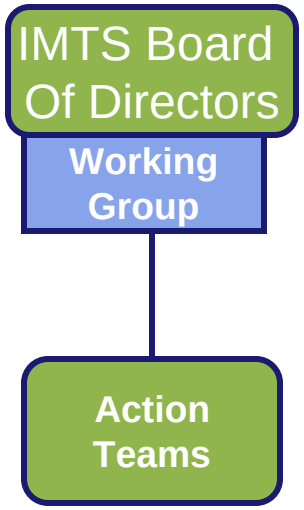
Level #	Title	Guideline for Range of Lock
1	Full 24/7/365	More than 1000 commercial lo
2	Two Shifts Per Day	Between 500 to 1000 comme
3	One Shift Per Day	Less than 500 commercial loc
4	Set times per day	Limited commercial and/or su traffic, with a more consistent



Budget cuts force change

IMTS Structure and Process

- IMTS Board of Directors:
  - Chaired by Deputy CG for Civil Works and Emergency Ops
  - Members are Division Commanders and HQ USACE Chief of Ops
  - Working Group: cross section of skills from across IMTS
- Action Teams
  - Composed of experts with hands-on experience (lockmasters, Ops Managers, etc.)
  - Develop draft outputs for review by workforce and industry, review and approval by Board
  - Implementation of new standards/policies IMTS-wide by Board of Directors



Key: an open process with participation by workforce and industry users

IMTS Maintenance Activities

- Outline of what we will cover
  - IMTS Maintenance Standard: overall status
  - Draft Interlock Standard: final draft completed
  - Major Maintenance Scheduling
  - Enhanced Communications
  - Monthly webinars (joint with Engineering)

IMTS Maintenance Standard

- Action Team Members
  - John Cheek, LRD – Action Team Leader
  - NWD*: Eric Braun and John LaRandeau (Jay L'Estrange, Doris McKillip)
  - NWP: Matthew Cutts, Stephen Perkins
  - SWD: Kathleen Wu
  - MVD: Leon Mucha
  - SAD: Steve Hrabovsky/Dylan Davis

*Eric Braun was deployed and others substituted for him

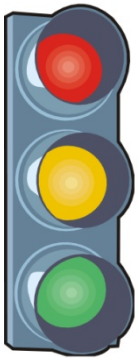
IMTS Action team developed draft standard and overall approach

Maintenance Standard for Navigation Locks and Dams

- Overall approach
  - Develop IMTS Baseline standard for consensus minimum standards
  - *MSC-specific annexes to be added by divisions/districts
  - Serve as Foundation for "World-class" Maintenance Management System for NavLocks

Scheduling Major Maintenance

- Status:
  - Draft baseline standard completed
  - Collecting review comments and adding sections (draft interlock standard etc)
- Target
  - Implement standard in FY12



Rating system:
Red-amber-green

Allow room to explain rating (if needed)

*We use MSC in the document to avoid confusion with divisions at a district

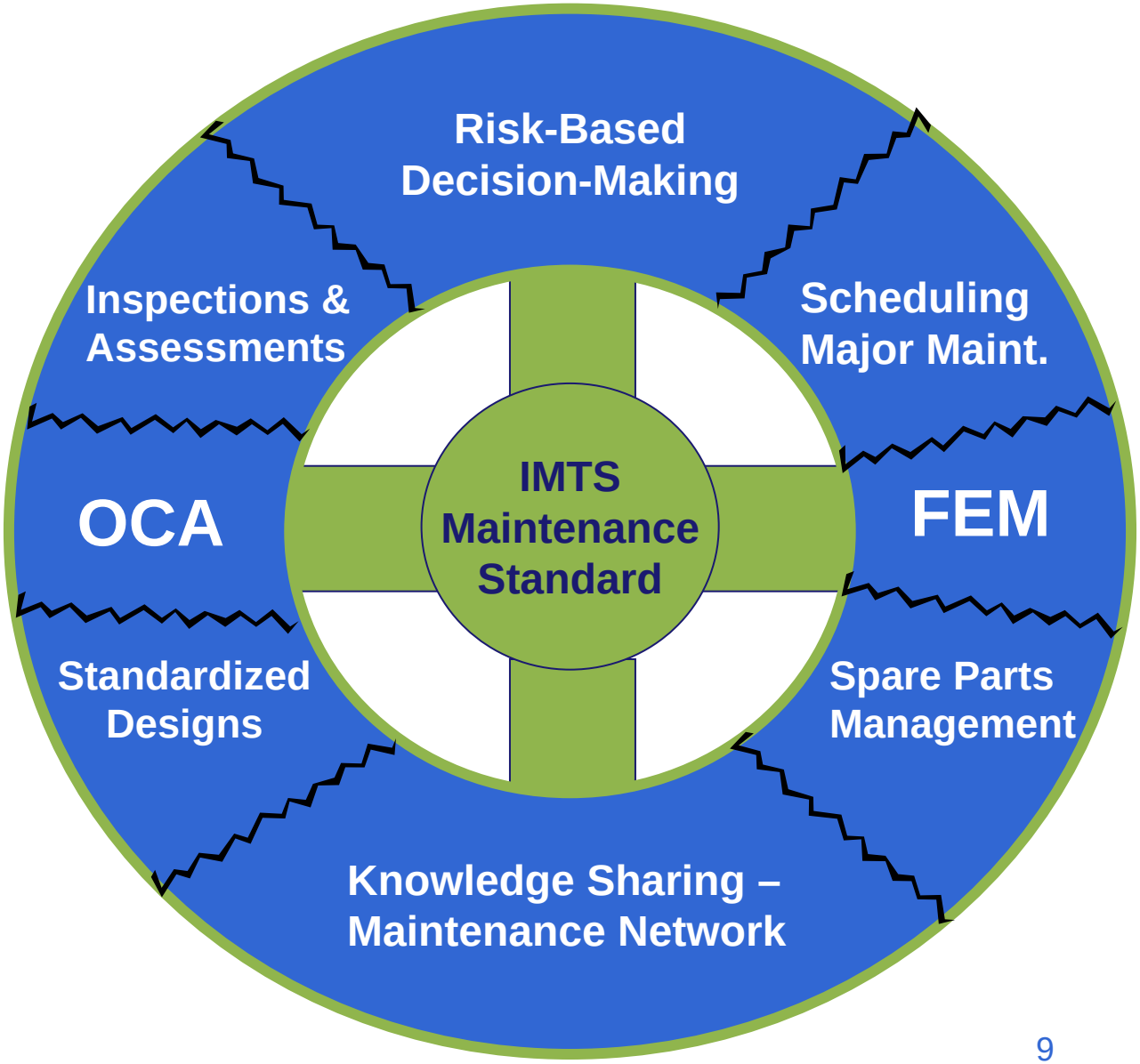
Maintenance Management System

Overall concept:

Use world class tools and methods for managing the maintenance.

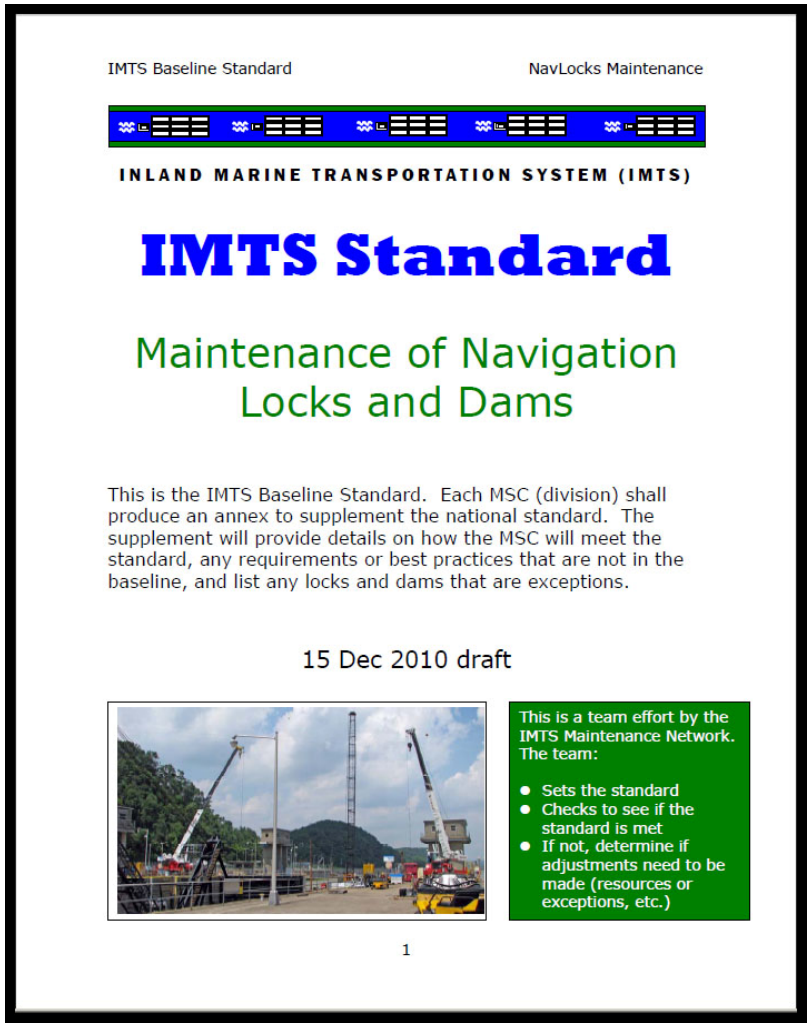
Goal:

Achieve highest possible system reliability given our resource constraints.



Key Principles of Overall Approach

- Maintenance standard should be meaningful and achievable
- Include what we can do now and future goals where possible
- Must take into consideration “low use” locks and “very high use” locks
- Must also have “exceptions” that are approved at MSC level



IMTS Baseline Standard NavLocks Maintenance

INLAND MARINE TRANSPORTATION SYSTEM (IMTS)

IMTS Standard

Maintenance of Navigation Locks and Dams

This is the IMTS Baseline Standard. Each MSC (division) shall produce an annex to supplement the national standard. The supplement will provide details on how the MSC will meet the standard, any requirements or best practices that are not in the baseline, and list any locks and dams that are exceptions.

15 Dec 2010 draft

This is a team effort by the IMTS Maintenance Network. The team:

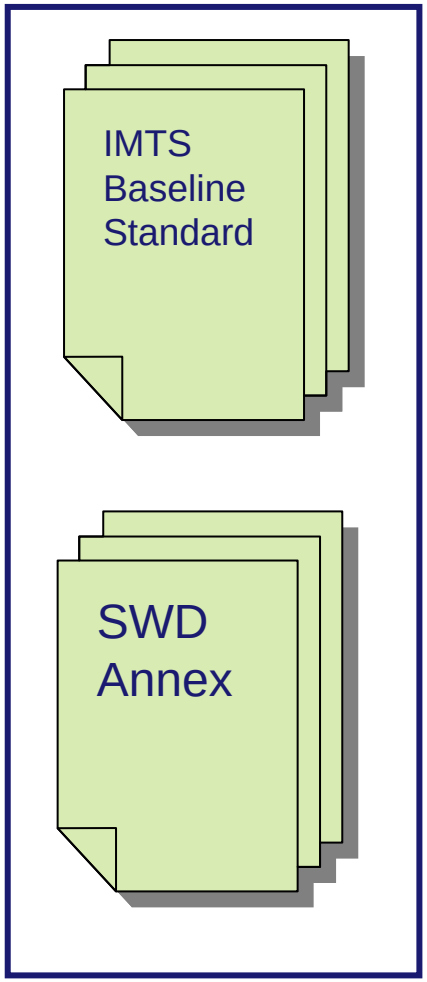
- Sets the standard
- Checks to see if the standard is met
- If not, determine if adjustments need to be made (resources or exceptions, etc.)

1

Each MSC will have an annex for exceptions and MSC-specific details

Approach to Documents

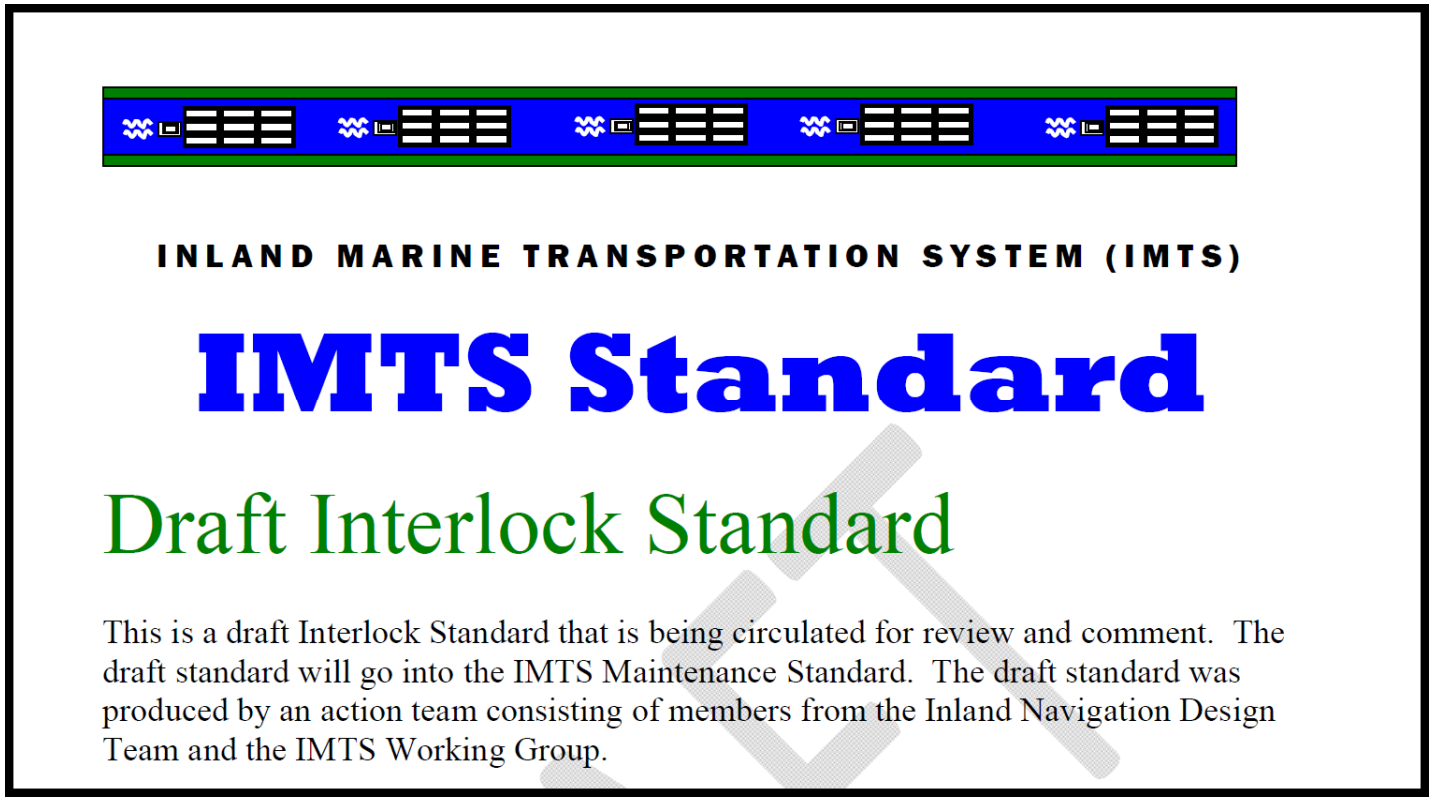
- IMTS Baseline Standard will be a separate electronic document
- Five division annexes will be separate electronic files (total of six files) and linked to baseline
  - Updated annually
  - Each MSC will have a coordinator (could be the Nav bus line manager)
  - Update annex and send out the two files together
- Role of Annexes
  - Supplement the national standard
  - Exceptions are approved by the MSC and then included in the annex.



Annexes will have mirror image of outline of baseline standard. (Easy to compare)

Interlock Standard Action Team

- Jeff Stamper, MVS
- John Cheek, LRD
- Aaron McGee, SWL
- Tom Hood, HQ USACE
- Andy Schimpf, MVS



INLAND MARINE TRANSPORTATION SYSTEM (IMTS)

IMTS Standard

Draft Interlock Standard

This is a draft Interlock Standard that is being circulated for review and comment. The draft standard will go into the IMTS Maintenance Standard. The draft standard was produced by an action team consisting of members from the Inland Navigation Design Team and the IMTS Working Group.

Types of Interlocks at Lock and Dam

- Hardware Interlocks
  - Sensors are “hard-wired” into the controls to prevent an unsafe action from being taken or return hardware to a safe state
- SOP Interlocks
  - Standard Operation Procedures are employed by the lock staff
  - Example: lock operator checks to see that conditions are met (gates are mitered, vessels tied up) before opening filling valve

Review of Draft Interlock Standard

- Sent out draft and held webinar on Sep 27
- Incorporated comments and have final draft

We are now ready to move forward and plan the implementation of this.

Scheduling Major Maintenance

- Major section in IMTS Maintenance Standard
- Ready to start action team
- Held listening session with industry Input on 2 Nov 2011

Scheduling Major Maintenance

- Ready to start action team
- Any thoughts to help guide this effort?
- Initial thoughts on improvement
  - Better definition of major maintenance (terminology is broad issue)
  - Work on the process for scheduling major maintenance
  - Improve the communication to industry
- Send Ideas and comments to IMTS@usace.army.mil

Enhanced Communications

- Goal: strengthen ability to communicate
- Concept: enable users to “subscribe” to receive e-mails with information from IMTS
- Webinars
  - Monthly webinars joint with engineering
  - Future: webinars with industry users

Example of e-mail and webinar

We continue to add more innovations for communications

Monthly Webinars

Great way to share knowledge on timely basis

Date	*Subject (short)*	*Description*
Nov 2010	Greaseless Bushings	McAlpine Bushing Failures; Applications of Self-Lubricating Materials in Portland District
July 2011	PIANC	New Results from PIANC - Latest Lessons Learned and Best Practices
August 2011	Trunnion Rods	Success with New Testing Method for Trunnion Anchor Rods in Navigation Dams and Lessons Learned from Repair Designs
Sep 2011	Draft Interlock Standard	New Interlock Standard for Navigation Locks and Dams (John Cheek and Andy Schimpf)
Oct 2011	Composite Materials	Composite Materials: Future uses within USACE Inland Navigation
Dec 2011	2011 Flood Fight	Share Best Practices and Ideas for Improvement on 2011 record flood fight, invited USCG
Jan 2012	Inspections of Locks and Dams	New approach to access for Inspections of Locks and Dams by MVS Structural Engineers

Send us your ideas and suggestions! (IMTS@usace.army.mil)

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Questions?? Comments???

Operation & Maintenance

Major Maintenance Projects

Dredging

Reminder - Send questions or comments on the IMTS by e-mail to
E-mail address: IMTS@usace.army.mil

IMTS Web site for IMTS Navigation workforce, industry and public:
http://operations.usace.army.mil/navigation