

USBR Asset Management

Presented by Ken Maxey for the
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for Civil Works Infrastructure
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RECLAMATION

USBR Asset Management

- The CARMA Project (MAXIMO)
- Draft Asset Management Plan
- Asset Management Tool (Facility Reliability Rating)
- Proposed PART measures

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Got “CARMA”?

- Capital Asset and Resource Management Application (CARMA)
- Based on MRO’s CMMS application, Maximo
- Maximo version 4.1 application. Databases deployed at 18 sites and used by over 50 Reclamation facilities

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Got “CARMA”?

- Project underway to migrate to Maximo Enterprise Suite - MXES (version 6.0)
- Phase I – Conducting comprehensive assessment of use, needs, and best practices for maintenance management using Maximo throughout Reclamation
- Phase II – Will implement and train on updated or new business practices throughout Reclamation
- Phase III - Will implement technical solution and consolidate 18 databases and application servers into one location

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Got “CARMA”?

- CARMA Project is “user-centric” -- will update maintenance management capability at the field level
- Will employ web technology and MCI VBNS backbone communication system
- Will support DOI and Reclamation Asset Management Plans
- Will prepare for consolidation into the DOI “Single Platform MAXIMO”
- Deliverable will be a report documenting existing practices, identifying best practices, and analyzing the gap in Reclamation.

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Draft Reclamation Asset Management Plan

- Defines Business Objectives
 - Delivery Reliability
 - Cost Effectiveness
 - Safety
 - Grid Support
- Defines Asset Management
 - Optimization of Asset Performance
 - Asset Contribution to Business Objectives
 - Asset Condition
 - Application of Reclamation Resources
- Defines Accountability and Roles

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Asset Contribution to Business Objectives

Decision principles for Capital Investment of >\$10 million, \$2 million → \$10 million, and < \$2 million

- Planning Documentation
- DEC Review
- Value Engineering Analysis
- Investment Review Board(s)
- Design and Construction
- Increased use of Earned Value Methodology

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Optimization of Asset Performance

- Potential adoption of RCM as “official” philosophy
- Maintenance of Assets
 - Use of CARMA technology
- Workshops and Communications

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Asset Condition

- Conduct of Periodic Facility Reviews
- Performance Monitoring
- Facility Reliability Rating (FRR)
- Maintenance Evaluation System (MES). Will use trending data with respect to:
 - FRRs, in particular, Category I and Category II maintenance recommendations
 - Deferred maintenance
 - Replacements, Additions and Extraordinary Work (RAX)
 - Accomplishment of preventive maintenance, corrective maintenance, resource utilization, planning effectiveness, and other relevant maintenance indicators

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Application of Reclamation Resources

- Asset Inventory
- Annual Evaluation of Maintenance by Budget Review Committee
 - The amount **expended** for Maintenance and Rehabilitation versus the amount **budgeted** for the previous three fiscal years;
 - The current amount of **deferred maintenance** by asset;
 - The current amount of **RAX outstanding** by asset;
 - A trending report on the status of **Category I and Category II recommendations** by project;
 - A summary report of **FRRs, FCIs and APIs** for mission-critical assets;
 - The BRC's analysis as to the **state of asset maintenance** within Reclamation, and recommendations to strengthen the maintenance program.

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Application of Reclamation Resources

The BRC is expected to evaluate . . .

- **Mission-critical assets maintenance needs** versus non-mission-critical maintenance needs;
- The expected level of **deferred maintenance** for that budget year;
- The expected level of **RAX work** for that budget year;
- **Outstanding Category I and II recommendations** and the schedule for their resolution.

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Asset Management Tool -- Facility Reliability Rating (FRR)

- Alternative to Facility Condition Index
- $FCI = \text{Deferred Maintenance} \div \text{Current Replacement Value}$
- For major facilities (dams), yields a very small number
- FRR attempts to capture relevant attributes and status of major facilities to arrive at a condition index rating
- Based on a 100-points system

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Asset Management Tool -- Facility Reliability Rating (FRR)

- For High- and Significant Hazard Dams . .
 - Currency of Site Inspections
 - Currency of SOPs and their exercise
 - Presence of trained dam operators
 - Status of security recommendations
 - Status of reservoir and operating restrictions
 - Status of dam safety recommendations
 - Structural performance (instrumentation)
 - Status of reservoir operations monitoring
 - Status of Category I and Category II recommendations

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Asset Management Tool -- Facility Reliability Rating (FRR)

- For Reserved Associated Facilities . . .
 - Currency of Site Inspections
 - Currency of operating documents
 - Presence of trained operators
 - Status of operating restrictions
 - Status of operation and security recommendations
 - Status of maintenance recommendations

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Proposed PART Measures

- Percent increase in Reclamation's cost to operate and maintain its water storage infrastructure compared to (over) the five-year rolling average.
- Water infrastructure in fair to good condition as measured by the Facility Reliability Ratings.
- Facilities (reserved works buildings) (exclusive of FRR facilities) are in fair to good condition as measured by the Facility Condition Index.
- Percentage of water storage capacity that is associated with dams rated in "poor" condition using the FRR.

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Proposed PART Measures

- Shorten the average time it takes to correct/mitigate higher priority O&M deficiencies of reserved works facilities.
- Acre-feet of water delivered consistent with applicable substantive and procedural requirements of Federal and State water law
- Increased potential acre-feet of water supply made available through O&M enhancements and innovations.

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Questions?

Ken Maxey
Manager, Maintenance Services Office
Office of Program and Policy Services
Denver Federal Center
Bldg. 67, Room 1432
P.O. Box 25007 (D-5700)
Denver CO 80225-0007
Tel: 303-445-2727
Fax: 303-445-6683
email: kmaxey@do.usbr.gov

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