National Dredging Quality Management (DQM) Program

Harbors & Navigation Committee Meeting
February 13, 2014
Mobile, Alabama

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National DQM Center
Presentation Outline

- What DQM is
- History
- How it works
- Future objectives and challenges
National Dredging Quality Management Program (DQM)

Is an automated dredge contract monitoring system - a “quality assurance tool”

- Location & Movement
- Dredge State
- Quantity Estimates
- Environmental Compliance
Benefits to Government and Industry

Government
- 24x7 coverage of operations
- Valuable data for environmental monitoring compliance
- Fast response to public or environmental concerns
- Quality Reliable Certified Work Documentation
- Improves project management
- Flexible scheduling of inspectors
- Centralized National Database
- Rental Production Monitoring

Industry
- Standardized data collection and reporting
- Standard base for dispute resolution/avoidance
- Reliable digital record of operations/performance
Program Evolution

Early 1990s
Dredging Research Program (DRP)
2006 Transitioned to Operational

Today
National Dredging Quality Management Program
TYPES OF DREDGES
Data Management Process

Collection -> Transmission -> Processing -> Storage

Accessing/Viewing
Data Management Process

Collection → Transmission → Processing → Storage → Accessing/Viewing
Specifications

- Contractor-provided sensor and data requirements-type, number, locations,
- Minimum data performance requirements
- Data reporting and format
- Reference datum(s)
- Contractor-provided computer equipment
- Certification requirements
- QA/QC requirements (pre-dredge and during)
- Consistent National Standard
Hopper Dredge Instrumentation vs. Data Parameters Transmitted

Positioning System
Open/Close sensor
Draft sensors
Ullage sensors
Drag head depth sensor
Density Meter
Velocity Meter
Pump RPM’s
Computer
  Corps Software receives the data string
Telemetry system

Date and Time
Vessel Longitude & Latitude
Draghead Longitude & Latitude
Dredge Course
Dredge Speed
Dredge Heading
Hull Status
Load Number
Tide (Vertical Correction)
Fore and Aft Draft
Fore and Aft Ullage
Hopper Volume
Displacement
Empty Displacement
Draghead Depths
Slurry Density in Dragarms
Slurry Velocity in Dragarms
Pump RPM
Minimum Pump Effort
Pumping Water
Material Recovery
Pumpout
DQM Certification
DQM On-Board Software (DQMOBS)
http://dqm.usace.army.mil/
DQM TOOLS

The DQM Viewer is the latest and greatest addition to the USACE dredging tools collection, providing an interactive Silverlight application for selecting dredging projects, graphing load data, managing and requesting disposal plot information, as well as providing data exports.

COMING SOON
- Email alerts for compliance issues
- Viewing/exporting multiple loads
- Dredge plots
Jacksonville Harbor
Snohomish River, WA
Cleveland Harbor
Port Everglades
Pascagoula Harbor
EPA Vessel Monitoring Data

**Project Information**
- **Contract:**
- **Placement Area:** Example Norfolk  Site Type: 102
- **Profile:** Monitoring
- **Coordinate Type:** LL
- **State Plane Datum:**

* Optional field, data may not be required for project.
** State Plane Datum not required when Coordinate Type is LL

**Load Number: 62**
- **Vessel Name:**
- **Type:** Hopper  **Technique:** Bottom Dump
- **Tow Vessel Name:**
- **Vessel Captain:**
- **Estimated Volume:** 10850
- **Material Description:** sand
- **Material Source:** North Turning Basin
- **Disposal Start Time:** 03/08/10 00:07:13
- **Disposal End Time:** 03/08/10 00:10:09
- **Disposal X:** -79.767454
- **Disposal Y:** 32.450969
- **Disposal End X:** -79.767896
- **Disposal End Y:** 32.645553
- **Observed Water Depth:**
- **Comments:**

**Position/Sensor Data**

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<th>Vessel Y</th>
<th>Fore Draft</th>
<th>Aft Draft</th>
<th>Avg Draft</th>
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QC Legend: OK, Error, Range Error, Suspect, QC
New Endeavors

- Evaluate applicability on cutterhead and mechanical dredges
- Develop web-based tools to meet the needs of the ever changing dredging manager needs and requirements.
- National Turtle Warehouse/Website
The DQM Program is a partnership between the Corps and the dredging industry for automated monitoring of dredge activities.

Onboard sensors provide near-real-time data that allows for immediate response to emerging situations.

Districts can use the web-based DQM software to view, analyze, report on, and export dredging data.

The data can be used to improve business practice, ensure environmental compliance, and increase our understanding of dredging science and technology.

http://dqm.usace.army.mil

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