DQM FOR REGULATORY CONTRACTS

Rhonda Lenoir DQM Support Center Mobile District, Spatial Data Branch National Dredging Quality Management Program

WEDA Pacific Chapter 2023 Annual Meeting San Diego, CA DREDGING QUALITY MANAGEMENT

October 26, 2023





OVERVIEW



- What is DQM and When is DQM required?
- What data is collected and How is it collected?
- How can the data be used?







What is DQM and When is DQM required?



What is DQM and when is it required?

What data is collected and how

National Dredging Quality Management Program

US Army Corps of Engineers •

- Corps Dredging Industry partnership
- Near real time, automated dredging monitoring system
- Standardizes dredge monitoring requirements nationwide
- Performance-based instrumentation requirements
- Provides tools to review and analyze dredging operations
- Repository for historical dredging operations information





What is DQM and when is it required?

What data is collected and how?

How can the data be used?

- Mandated for all hoppers and scows on civil and regulatory projects.
- Mandated for pipelines on unrestricted civil works contracts.





CECW-CO Memorandum, Nov 2019

- Expanded the use of DQM to unrestricted (Full and Open Competition) pipeline dredging contracts.
- New dredges continue to come online.





What is DQM and when is it required?

HQ updates mandate for DQM

monitoring for all civil contracts

& regulatory projects on Section 10 navigable waters with DA permits

2023

HQ updates manda

for pipeline monitoring for all unrestricted ci ri

works contracts

2019

What data is collected and how

How can the data be used?



Regulatory Guidance Letter No. 23-01

Applies to all dredge types and all DA permits for dredging and/or

• If a project requires a USACE dredging permit, DQM is Required!

DREDGING QUALITY MANAGEME



National Dredging Quality Management Program





A NATIONWIDE PROGRAM



DQM is currently receiving data from:

- 24 Hopper Dredges
- Over 300 Scows
- Over 80 Pipeline Dredges
- ... and increasing weekly!
- >1700 Contracts/Permits

32 USACE Districts



DREDGING DATABASES





Historical information from the 1960s to the present

from 2010 to the present

DQM CENTER PERSONNEL

Rhonda Lenoir—DQM Program Manager

- Anne Baumhower—Data QA, Report Coordination
- Jesse Hall—Systems Manager
- Michael Sessions—ODESS Program Manager
- Kari Servold—Operational and Customer Support (Project Tracking, Viewer)
- Jorge Beltran—Dredge Plant Support, Data Acquisition and QA, Special Analyses
- **TBD**—Data Acquisition and Analysis (Specifications, Certifications)
- * Field QA Team, Contractor Development Teams (Mobile/Charleston/Seattle)











What data is collected and How?



What is DQM and when is it required?

What data is collected and how?

WHAT DATA IS COLLECTED?

- Plant location
- Indicators of plant state

Plant State: Hopper/Scow Data

- Dredging/turning
- Transit (Lite/loaded)
- Disposal
- Undetermined





Plant Location



Plant State: Pipeline Data

Slurry detected



What is DQM and when is it required?

What data is collected and how?



TYPICAL INSTRUMENTATION

DQM Specification Updates

Pipeline Small Business Profile:

Added a new "profile" for small-business pipeline dredges that eliminates the requirement for density and velocity meters to be used at the discretion of local USACE district.

Measured/Transmitted

Telemetry GPS –Position, (Lat/Long), Course, Heading Speed, Time, Drag/Suction-Head position

Trag/Suction-Head Depth

Slurry Velocity, Density, & Pump RPM





PIPELINE DREDGE STATE DATA

Data entry, directly to webservice.





DQM State Data Tool

Data Gaps: Contractors can now submit backup data and address unfillable gaps through a web interface.
State Data: State data can be submitted through a web interface instead of utilizing the DQM OBS software.
Future Features: Edit DPIP, address sensor issues, and more!

DASHBOARD > ELLIS ISLAND > 03/16/2022 DAILY REPORT	
Daily Data	
CONTRACT INFORMATION	
START TIME END TIME CONTRACT # COMMENTS	
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TYPICAL INSTRUMENTATION



Mechanical Dredges

First pilot test: Successfully underway in a partnership between DQM, the dredging industry, and system providers. **Draft specifications:** Available upon request. Working with EPA to ensure DQM Mechanical specifications fulfill future EPA reporting requirements.

Measured/Transmitted

Bucket Position (Latitude, Longitude, Depth)
Dredge Position (Latitude, Longitude, Depth)
Crane Orientation (Heading, Boom Angle)
Vertical Correction (Tide)





Data is reported every minute, as well as with each bucket open and close event.

What is DQM and when is it required?

What data is collected and how?

DATA ACQUISITION PATHWAY



DQM Specification Updates

Direct Transmission: Data can now be transmitted directly to DQM, without the need for a DQM PC or DQM OBS software. Transmission with the OBS will be eliminated as an option in 2024.



SPECIFICATIONS

How contractors know what is required.

- Requirements defined for instrumentation to collect and transmit dredging data to the DQM database.
- Please include the latest DQM specification in your dredging contract (civil works) or DA permit (regulatory).
- The latest is available on the DQM Website under **Dredge Plant Requirements**.

- DQM requirements:
 - Performance-based.
 - Allow 48 hours to address an issue once it is identified.





PROJECT WORKFLOW/ ROLES & RESPONSIBILITIES



"Data quality is everyone's responsibility."



What is DQM and when is it required?

What data is collected and how?

PROJECT WORKFLOW/ ROLES & RESPONSIBILITIES





What is DQM and when is it required?

What data is collected and how?

PROJECT WORKFLOW/ ROLES & RESPONSIBILITIES



 Notify the DQM Center of the projected startup by submitting a New Project Request Form (available on the DQM website, <u>https://dqm.usace.army.mil/Default.aspx</u>). (Permittee)

• Create map layers specific to the project. (Contact the DQM Center for instructions on how to add geospatial layers.) (Permittee)

Please submit your project information via the **DQM Project Setup Form** before your dredging project commencement date!

Q: Who should submit this form?

Project Setup

A: The Project Engineer, Project Manager, Permit Issuer, or Permittee.





SET UP YOUR PROJECT.

Setting up the database to receive data.





- Currently a PDF, will be a webform in the future. \succ
- Local District should submit to the DQM Center \geq (dqm-support@usace.army.mil) upon awareness of known upcoming dredging project.

District Symbol:	Contract/F	ermit Number	:						Mul	ti-Year? No		•
Contract Name:												
Contract Type:	-	Work Type:			- N	lew	Work?:		• Est.	Duration:		
Contractor:									Est.	Start Date:		
Dredge Plant(s): Id	entify the name of e	ach dredge plai	nt expected	to we	rk on	the	contract	Ł				
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Pipelines:												
Mechanical:												
Scows:										Scow Profile	6	•
Project Area Inform	ation:							S	tate Pla	ne:		•
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Dredging Area(s):	Please provide the fo	ollowing info for	each area	(Born	ow Are	ea, F	River Se	gme	nt, etc.)	where dredg	ing will occ	ır.
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SET UP YOUR PROJECT.



Setting up the database to receive data.

*Minimum Required Fields:

- Contract/Permit Number
- District POC Contact Information

NOTE: DQM will follow up for the Remaining information!

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What is DQM and when is it required?

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What data is collected and how?

How can the data be used?

computer and internet connection
Contractors ensure data continues

Prior to and during operations



- Contractor supplies on-board DQM

Responsibilities of the Contractor (Same for civil or regulatory).



ENSURING QUALITY DATA





23

What data is collected and how?

11:45 12:00 12:15 12:30 12:45 13:00 13:15 13:30 11:30

Density, Velocity, RPM

Depth

- Contractors ensure data continues to
 - meet DQM minimum specifications

•

Prior to and during operations







Discharge Heading

Contractor supplies sensors and ٠

ENSURING QUALITY DATA



instrumentation

24 US Army Corps of Engineers ® **ODESS** DREDGING QUALITY MANAGEMENT Responsibilities of the Contractor (Same for civil or regulatory).

ENSURING QUALITY DATA Responsibilities of the Local USACE Districts: *Civil*.



• Compile dredging specifications, solicit bids and Award contracts.



• Fill out and submit the project setup form to notify DQM of impeding project.



• Verify placement/borrow areas being used are documented.



• Verify that all plants are certified.



• Monitor and review transmitted data and contract compliance.



• Notify DQM when project is complete.

ENSURING QUALITY DATA



Responsibilities of the Local USACE Districts: *Regulatory*.



• Provide the Special Conditions to require DQM monitoring.



• Fill out and submit the project setup form to notify DQM of impeding project.



Verify placement/borrow areas being used are documented.



• Verify that all plants are certified.



Monitor and review transmitted data and permit compliance.



• Notify DQM when project is complete.

ENSURING QUALITY DATA





DQM Support Center responsibilities.

- Certify dredge plant for DQM compliance •
 - Schedule/Conduct QA Checks
 - Maintain listing of current certified plant
- Certification does not guarantee that data will always be accurate, just that the plant is capable of providing good quality data.





What data is collected and how?

DQM WEBSITE

https://www.sam.usace.army.mil/Missions/Spatial-Data-Branch/Dredging-Quality-Management/



(Previously: <u>https://dqm.usace.army.mil/</u>)



New Project Setup Form



About - Business With Us - Mission	is • Locations • Careers • Media • Library Contact • Coronavirus	Search M
US Army Corps of Engineers Mobile Distr	ict Website	
🛠 / Missions / Spatial Data Branch / Dredging Quality	Management	
Dredging Quality Management (DQM)		Quick Links
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What data is collected and how?



How can the data be used?



What is DQM and when is it required?

What data is collected and how?

DATA USE HIERARCHY





What is DQM and when is it required?

What data is collected and how





Review of all sensor data received for the previous week:

- "Investigate Further": issues we would like to have resolves along with an explanation of the issue or a plan of action for resolving the issue.
- "Advisory Items": items that we noticed but that we do not feel are significant enough to warrant immediate action; e.g. one-off incidents or minor issues with "lower-importance" sensors, which generally do not affect our ability to make dredge state determinations or perform data analysis.
- "Acknowledged": issues that have been previously identified and for which a plan of action or explanation has been provided by the contractor; these are listed until they are resolved or the planned timeframe for repair has elapsed, at which time they are moved back to "Investigate Further".

Investigate Further Items, Unfilled data gaps, Contractor responses

filling data gaps for your project. Responding to

emails helps us to get your data gaps filled!

oncerns are noted B.E. Lindholm: Holden Beach. NC SAW-2012-00286 15-Mar-2022 13:44:53 - 21-Mar-2022 08:29:47 oads 327 - 355 oad number does not increment after the hopper door disposal during load 342. bad number increments near the end of sailing light or while dredging during many loads harleston: Ocean Isle Reach W912PM-21-C-002 04-Mar-2022 13:17:17 - 13-Mar-2022 10:59:54 NOTE: It is important to fill in the correct Contact Surry density is effectively static at 1 gcc from the start of the dataset until 1000 on 03/12 (local time), and hen is frequently maxed out at 1.6 gcc while both dredging and not dredging. rertical correction is disjointed between two signals for the entire dataset. Information in the Project Setup Form to support Thanks. Anne Baumhowe

Forward Cn .

aumhower, Anne K CIV USARMY CESAM (USA)

DQM Data Review - Wilmington District

USACE Local Districts

Cc Q Allen, Brenda P CIV USARMY CESAM (USA): O Hall, Jesse K CIV USARMY CESAM (USA

The list below is based on a preliminary review of data quality for the previous week's data. The following

(())

DQM Data Review - Wheeler - Message (HTML) Message Help Acrobat O Tell me what you want to do 5 a 2 A) 🔨 Reply All 🗔 · DOM Data Review - Wheele Baumhower, Anne K CIV USARMY CESAM (USA) O Morehouse, Edward A CIV USARMY CEMVN (USA): O ian@enterline-marine.com Wed 3/30 The list below is based on a preliminary review of data quality for the previous week's data. The following concerns are noted Wheeler: Southwest Pass MVN-WI R-2022 15-Mar-2022 21:51:13 - 29-Mar-2022 05:04:43 Loads 1 - 100 Data Gans Load Numbers Start Data Gap End Data Gap Length of Gap (dd HH:MM:SS) DOM Dredge State 17-22 18-Mar-2022 01:35:32 18-Mar-2022 18:52:33 00 17:17:01 Unknown *Investigate Eurther Starboard draghead velocity (and occasionally port) is often maxed out at 33.9 ft/s. *Advisory Items Load number decrements erroneously after the disposal of load 33 Thanks. Anne Baumhowe National Dredging Quality Management Program (DQM) U.S. Army Corps of Engineers, Mobile District, CESAM-OP-109 Saint Joseph St Mobile, AL 36602 (251) 690-2311 (office Contractor

DQM Support Center

How can the data be used?

National Dred





- Query the DQM Production database
- Document dredging activities (where digging, how deep, progress)
- View track and sensor values by load or by day
- Produce user-generated reports to analyze dredge or disposal events on a single or multi-load/day basis
- Produce summary reports of all disposal operations for a given contract
- Produce reports to support other government organizations (EPA, BOEM) to validate compliance with environmental and ecological agreements



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 Optional field, data may not be required for project. 	e/Time Loaded	X Pos (E)	Y Pos (N)	Avg Disp	Avg Vol	Date/Time Empty	X Pos (E)	Y Pos (N)	Avg Disp	Avg Vol	Avg ∆ Disp	Avg ∆ Vol	Est & Vol	Time	X Pos (E)	Y Pos (N)	Speed (Kn)
** State Plane Datum not required when Coordinate Type is LL	imn2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12	Column13	Column14	Column15	Column16	Column17	Column18
	/10/18 06:27:19	-70.5986	42.4309	5822.5	3 NaN	07/10/18 06:33:08	-70.5996	42.4335	1099.5	NaN	4722.8	NaN	3731.6	07/10/18 06:27:46	-70.5981	42.4310	1.0
Load Number: 62	/10/18 21:03:48	-70.5982	42.4315	5879.1	1 NaN	07/10/18 21:09:23	-70.5995	42.4339	1044.0	NaN	4835.1	NaN	3820.3	07/10/18 21:04:17	-70.5980	42.4315	0.5
	/11/18 15:06:13	-70.5982	42.4310	5773.1	1 NaN	07/11/18 15:11:47	-70.5968	42.4341	1127.0	NaN	4646.1	NaN	3671.0	07/11/18 15:06:41	-70.5980	42.4312	1.9
Vessel Name: Dredge Plant Type: Hopper * Technique: Bottom Dump	/12/18 05:47:00	-70.5763	42.4283	5862.0	0 NaN	07/12/18 05:53:35	-70.5685	42.4320	1134.0	NaN	4728.0	NaN	3735.7	07/12/18 05:47:41	-70.5751	42.4286	4.5
Vasial Cantain	/13/18/02/05/41	-70.5956	42.4322	5822.6	5 NaN	0//13/18 02:13:04	-70.5962	42.4324	1224.3	NaN	4598.5	NaN	3655.4	07/13/18 02:07:22	-70.595	42.4321	0.7
Estimated Volume: 10850	/13/18 15:46:2	-70.5945	42.4321	5985.5	D NaN	07/13/18 15:52:22	-70.5914	42.435	1202	NaN	4789.2	NaN	3759.4	07/13/18 15:47:10	-70.5938	42,4325	2.1
Material Description: sand	/15/18 01:45:44	-70.0000	42,4316	6074.4	4 NaN	07/15/18 01:51:22	-70.5935	42,4320	1127.0	NaN	4947.4	NaN	3000 1	07/15/18 01:46:05	-70.5989	42,4312	31
Material Source: North Turning Basin	/15/18 13:30:34	-70 5977	42 4320	5643.9	9 NaN	07/15/18 13:37:57	-70 5885	42 432	1099	NaN	4544.4	NaN	3590.6	07/15/18 13:31:01	-70 5973	42 4321	31
Disposal Start Time: 03/08/10 00:07:13	/16/18 21-29:03	-70 5939	42 4324	6067 5	5 NaN	07/16/18 21:34:38	-70 5952	42 4363	1092	NaN	4974 9	NaN	3930.8	07/16/18 21:29:26	-70 5939	42 4325	2.4
Dispesal End Time: 03/05/10/00/10/09	/17/18 20:01:51	-70.6004	42.4320	5969.5	5 NaN	07/17/18 20:07:38	-70.6007	42.4331	1043.9	NaN	4925.6	NaN	3891.8	07/17/18 20:02:01	-70.6005	42.4320	2.0
Disposal Start Y: 32.645969	/18/18 14:00:14	-70.5982	42.4321	5505.1	1 NaN	07/18/18 14:06:07	-70.5923	42.4331	1050.9	NaN	4454.2	NaN	3519.4	07/18/18 14:00:31	-70.5979	42.4321	2.4
Disposal End X: -79.757896	/19/18 12:39:56	-70.5971	42.4324	5521.6	6 NaN	07/19/18 12:45:36	-70.5905	42.4340	1141.3	NaN	4380.5	NaN	3461.1	07/19/18 12:40:17	-70.5968	42.4326	2.8
Disposal End V: 32.64558	/20/18 06:13:19	-70.6014	42.4316	5919.5	5 NaN	07/20/18 06:19:54	-70.5986	42.4382	1175.	NaN	4743.8	NaN	3748.2	07/20/18 06:13:54	-70.6006	42.4316	3.6
Observed Water Depth:	/20/18 21:35:13	-70.6002	42.4319	6098.9	9 NaN	07/20/18 21:40:48	-70.5927	42.4344	1155.1	NaN	4943.8	NaN	3906.2	07/20/18 21:35:42	-70.5997	42.4320	3.5
* Comments:	/21/18 19:22:37	-70.5979	42.4330	5909.9	9 NaN	07/21/18 19:28:48	-70.5885	42.4328	1175.8	NaN	4734.1	NaN	3740.5	07/21/18 19:23:12	-70.5973	42.4332	. 3.4
Participant Provide Press	/22/18 15:42:54	-70.6016	42.4322	5936.0	DINAN	07/22/18 15:48:47	-70.5941	42.4348	1161.0	NaN	4774.4	NaN	3772.4	07/22/18 15:43:29	-70.6010	42,4324	3.2
Position/Sensor Data																	
Sample Date Time Venel X Venel Y Draft Draft Draft Speed Heading Course Status																	
03:07/10:00:00:04 -79:754631 32:6549 23:55 25:28 5.4 191 181 Closed																	
03:07/10:00:00:15 -79:754684 32:654633 23:56 25:28 5.3 191 193 Closed																	
03/07/10/00:00:26 -79/754745 32/654366 23:53 25:32 5.3 192 190 Closed																	
QC Legend: OK. Error, Range Error, Suspect, QC																	

What is DQM and when is it required?

What data is collected and how





- Nationwide 24/7 dredge monitoring
- Displays hoppers, scows, and pipelines
- Data can be exported (PDF reports, CSV files)
- Works best in Google Chrome







What is DQM and when is it required?

What data is collected and how





Selectron: Select Data Displays the Selectron to select and view data.



A tool to track your project.

- Selectron
- Track Display
- Graphs
- Layers
- Contract/Point Info



What is DQM and when is it required?

What data is collected and how