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DREDGEPACK and the USACE National Dredging Quality Management Program for Pipeline Dredges

By John Marinuzzi

Pipeline dredging projects contracted by the USACE will be required to use their Dredging Quality Management system. From their specification (Section 35 20 23.33 - National Dredging Quality Management Program Pipeline Hydraulic Dredge Specification - http://dqm.usace.army.mil/Specifications/Pipeline.aspx):

> *"The work under this contract requires use of the US Army Corps of Engineers (USACE) National Dredging Quality Management Program (DQM) to monitor the dredge's status at all times during the contract and manage data history.*
>
> *This performance-based specification section identifies the minimum required output as well as the precision and instrumentation requirements. The requirements may be satisfied using equipment and technical procedures selected by the Contractor."*

In DREDGEPACK®, we are taking steps to help our customers meet this requirement. This is something we have been doing with hopper dredges for a while now, but lately the focus has been on cutter suction dredges.

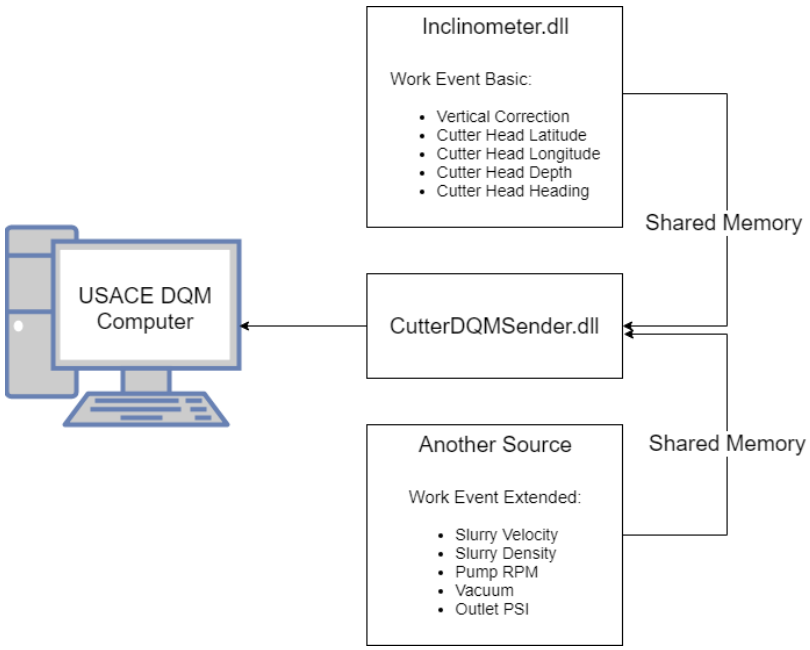
The specification is made of two types of messages: Dredge Events and State Events. We will be dealing only with the Dredge Events, or Work Events, in this article. The State Events messages are handled by using a device driver called CutterDQMSender.dll. The DREDGEPACK Cutter Suction DQM Device Driver article describes working with this driver.

The Work Event message is the only required message and must be sent at a consistent interval. This message consists of the following information:

- Vertical Correction
- Cutter Head Latitude
- Cutter Head Longitude
- Cutter Head Depth
- Cutter Head Heading
- Slurry Velocity
- Slurry Density
- Pump RPM
- Vacuum
- Outlet PSI

The primary device driver used in most of our cutter suction dredge installations is the Inclinometer.dll. We have just updated this driver to provide half of this information. However, the Inclinometer driver does not collect every piece of data needed to complete the Work Event message, so we broke the message down into two parts: Work Event Basic and Work Event Extended. Inclinometer will provide the Work Event Basic information (Figure 1).

FIGURE 1. *The Inclinometer Driver Provides Work Event Basic Information*



So what do we do about the extended information? Until now, we have just created special drivers on a per-customer basis to read this information, whether it be through a PLC, or OPC server, or whatever.

We are currently developing a driver, similar to the GenDevParser (Generic Input Parser) driver, that will read this information for all of the Work Event data. This driver will provide a way to collect all of the work event data, or just the extended data; whatever is needed to complete message.

If you have a cutter suction job that needs to conform to the USACE DQM specification, please contact us about the best way to get it to work. We will be able to come up with a solution.