



## ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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### Response Summary:

Training was requested for engineering staff (ERDC and Norfolk District) in applying the Multiple Placement FATE (MPFATE) model. Jarrell Smith prepared training and reference materials and conducted two training sessions spanning 16-hours of instruction over three days on the ERDC-Vicksburg campus (attendance: five students). The training introduced the physical processes simulated by the model and the approach in setting up model input through the recently released MPFATE model interface. Students received printed reference materials to aid in developing model inputs for the training and future model applications. The students simulated placements at the Dam Neck Ocean Disposal Site (near the Chesapeake Bay entrance) as a training exercise.

### Period of Performance:

03 Mar 2019 through 07 Aug 2019.

### Benefits of the Response to the USACE Dredging/Navigation Program:

The recent retirement of several MPFATE modelers within the ERDC and USACE districts has reduced USACE capacity to evaluate dredged material management alternatives for offshore placement sites. The training provided by this DOTS requests prepares the attendees for the present (Dam Neck Ocean Disposal Site) model application and future evaluations of dredged material placement schemes. Two of the attendees participated in the DNODS study (an immediate benefit) and the remainder are prepared to execute future studies with the MPFATE model. The prepared training materials are available and suitable for future training requests.

### Deliverable:

Training (04-05 April 2019, 01 May 2019)

Training Materials: Powerpoint presentations covering model theory, MPFATE interface, preparing model input for a study, and evaluating model output.

Reference Materials. An electronic reference including: recommended coefficients, sediment distributions, void ratios, and charts for determining settling velocities and critical stress for deposition of dredged material. A database of dredging vessel parameters. Key relationships for converting between water content, void ratio, porosity, and bulk density are provided along with discussions for determining and treating the presence of clay balls and mud aggregates.



Providing environmental and engineering technical support to the U.S. Army Corps of Engineers  
Operations and Maintenance navigation and dredging missions

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