Support PCB bioaccumulation control from Lake Erie basin sediment for the Buffalo District

ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG®

Response Summary:

Activated carbon (AC) can be mixed into dredged material to reduce the thermodynamic potential for bioaccumulation from that material. Bioassays are being conducted in the presence of passive samplers made of different polymers (polydimethylsiloxane and other silicones). The labor associated with the analysis of these polymers is less than standard tissue and sediment analysis, making polymers an attractive cost saving alternative. The precision of the data obtained from polymers is also higher than for standard tissue and sediment analysis. This DOTS request was a response to these new technologies. If polymers can be used to replace tissue measurements to support AC amendment activities in the USACE Buffalo District dredging activities, this could result in cost savings. In addition to savings on analytical chemistry measurements, savings could also be realized by diverting dredged material away from confined disposal facilities (CDFs) to open water placement – once the material is remediated with AC.

Period of Performance:

May 31st 2024 to September 30th 2024

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

AC amendment combined with polymer passive sampling are both new technologies with potential cost savings to the Dredging /Navigation program. However, there are several options in how these technologies can be implemented. This DOTS request is a response to the need to explore these options, particularly with the interpretation of polymer passive sampler data. AC amendment dosing and application modes will also be explored.

Deliverable:

The products generated from this request will include results of applying polymer passive samplers and AC amendment, development of these capabilities, and a journal article documenting the efforts.

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