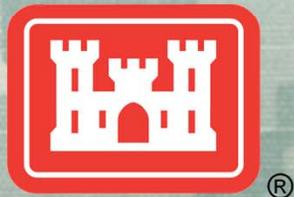


100 YEARS OF DUSTPAN DREDGING ON THE MISSISSIPPI RIVER

Vinton C. Bossert, P.E. – Marine Engineer
USACE Marine Design Center
Philadelphia, PA

Presentation for:
*WEDA XXXIV Technical Conference &
TAMU 45 Dredging Seminar*
Toronto, Ontario CA

June 2014



US Army Corps of Engineers
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Dustpan Dredging

- **History**
- Operational Concept
- Component Design Features
- Potential Future Improvements



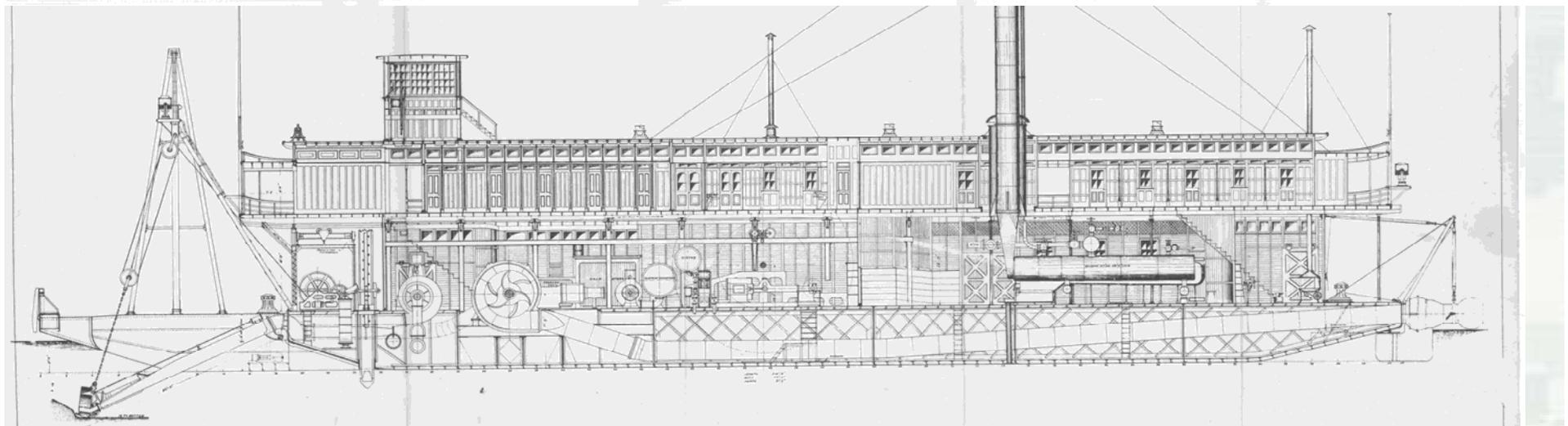
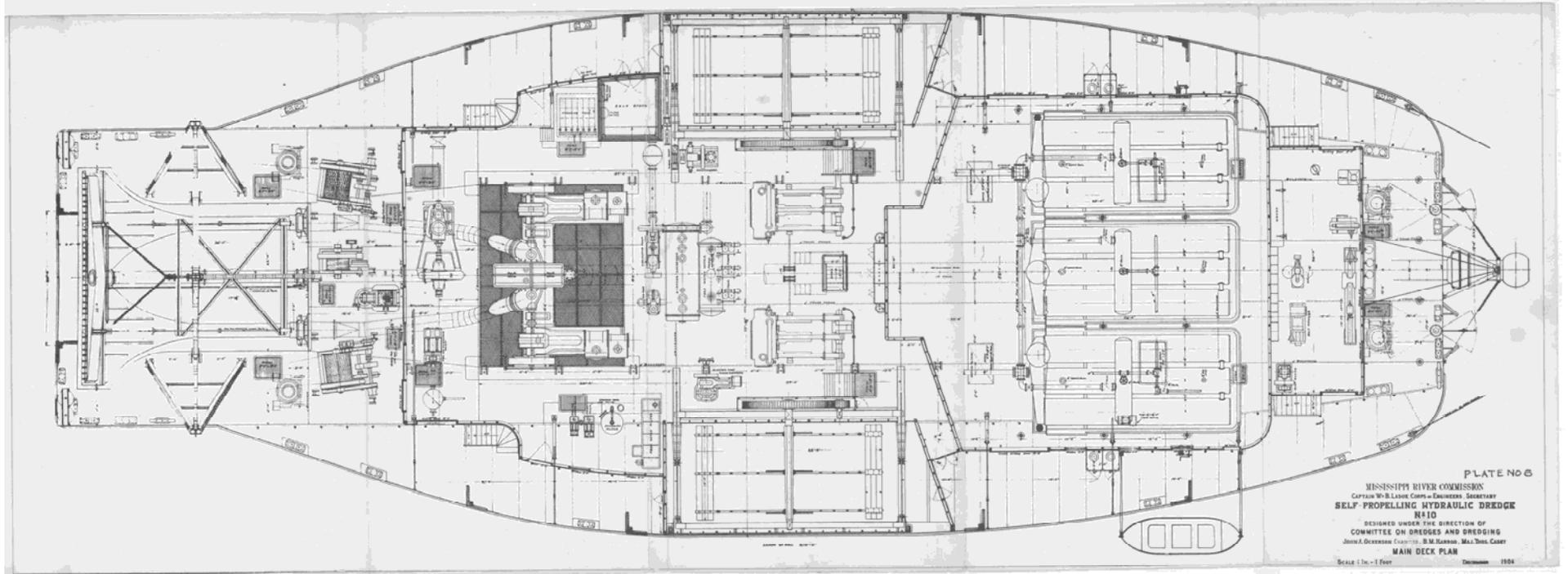
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Dustpan Dredging – History



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Dustpan Dredging – History



Dredge POTTER - Built 1932



St. Louis, MO – Max Depth 9m



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Dredge JADWIN – Built 1933



Vicksburg, MS – Max Depth 20m



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Dredge HURLEY – Built 1993



Memphis, TN – Max Depth 22.8m



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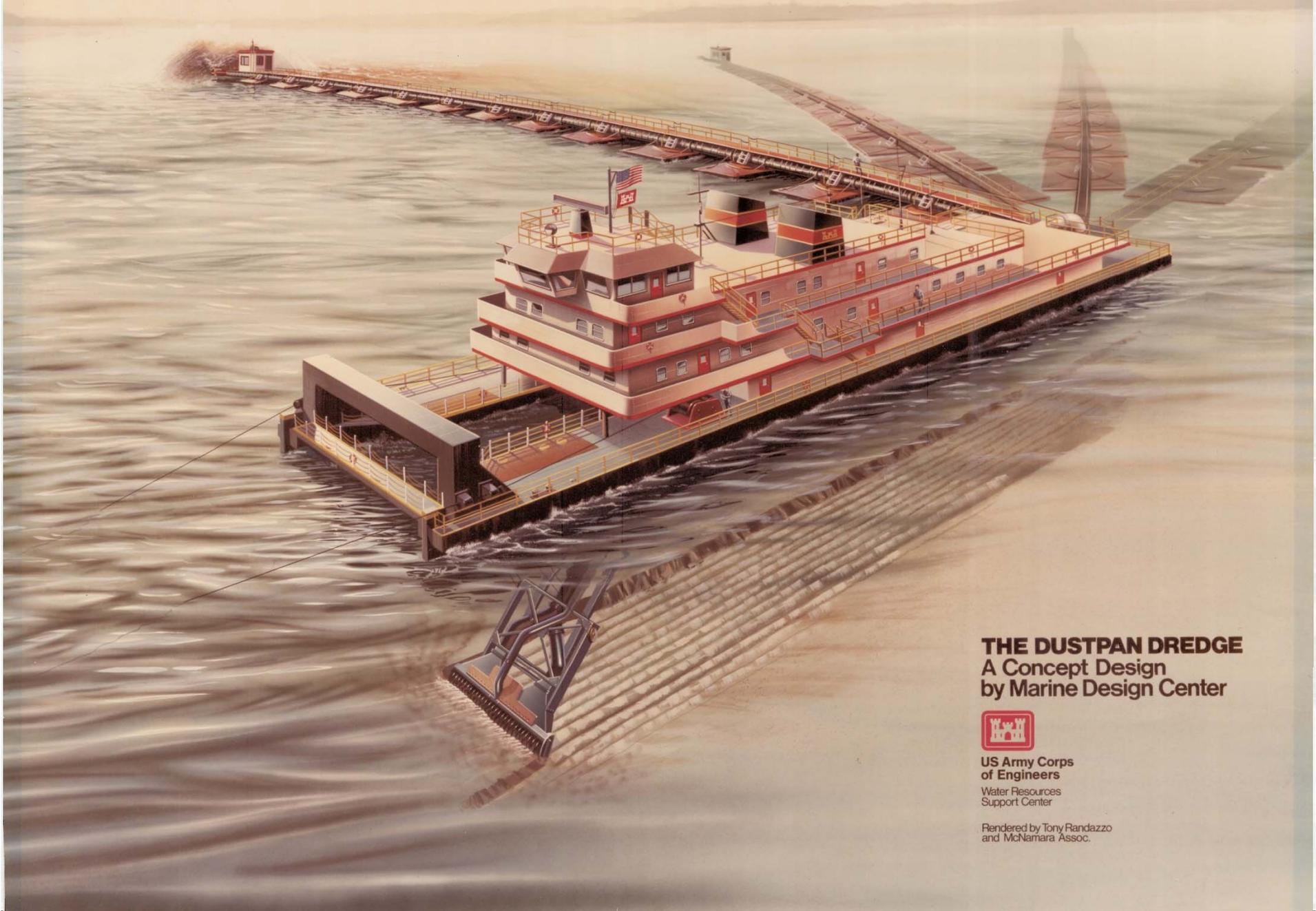
Dustpan Dredging

- History
- **Operational Concept**
- Component Design Features
- Potential Future Improvements



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Dustpan Dredging – Operational Concept



THE DUSTPAN DREDGE
A Concept Design
by Marine Design Center



**US Army Corps
of Engineers**
Water Resources
Support Center

Rendered by Tony Randazzo
and McNamara Assoc.

Dustpan Dredge – Operational Concept



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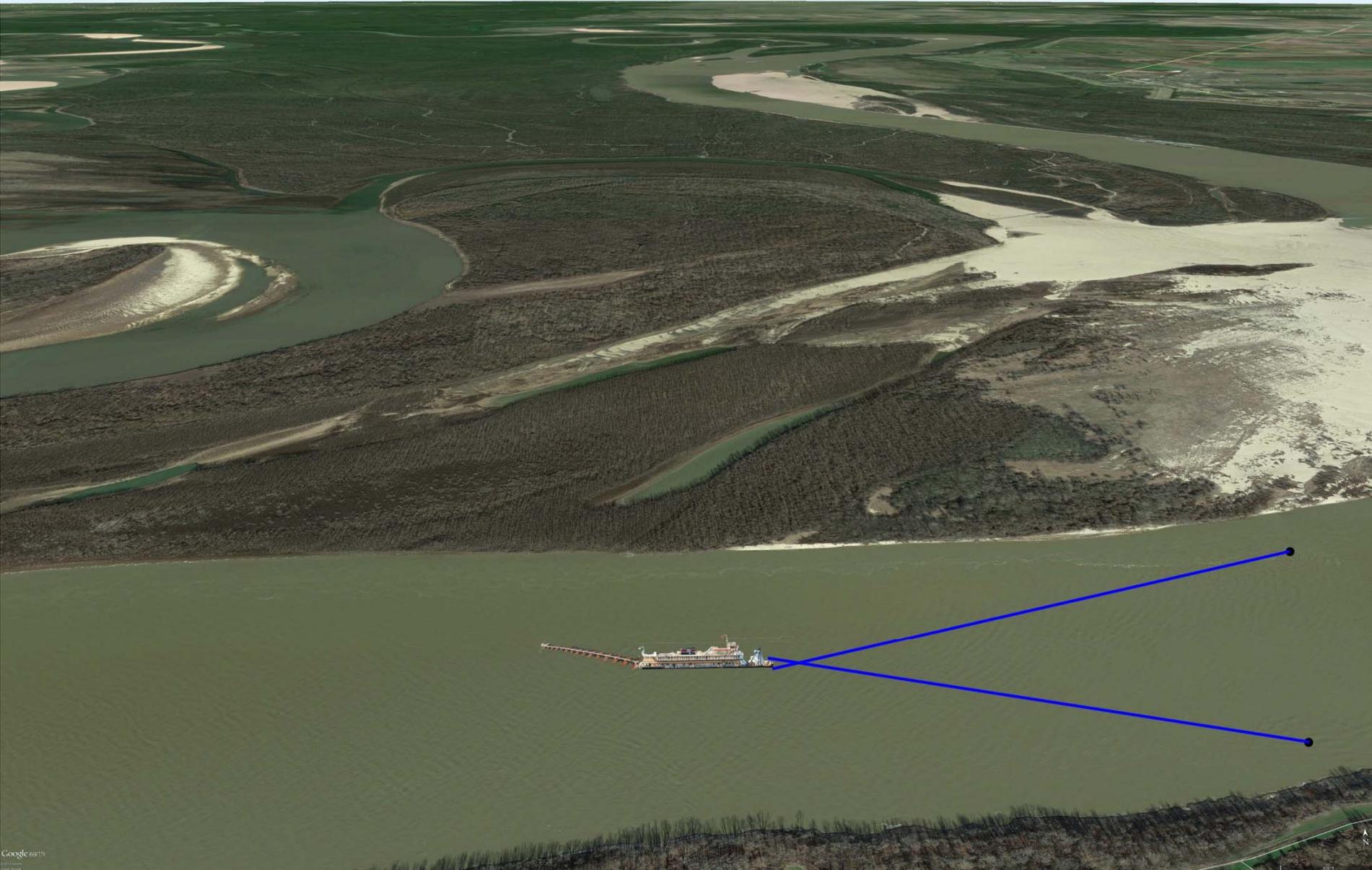
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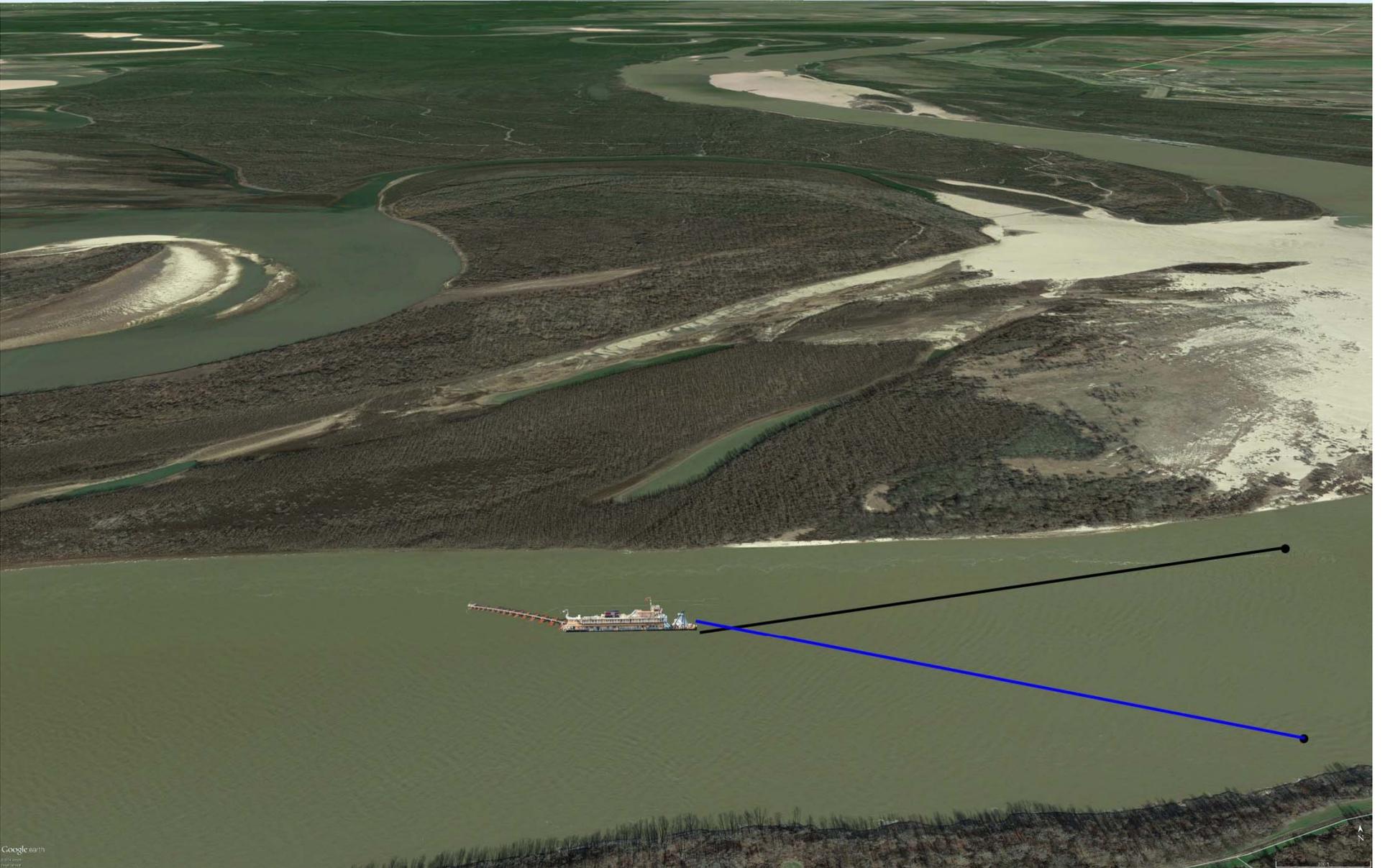
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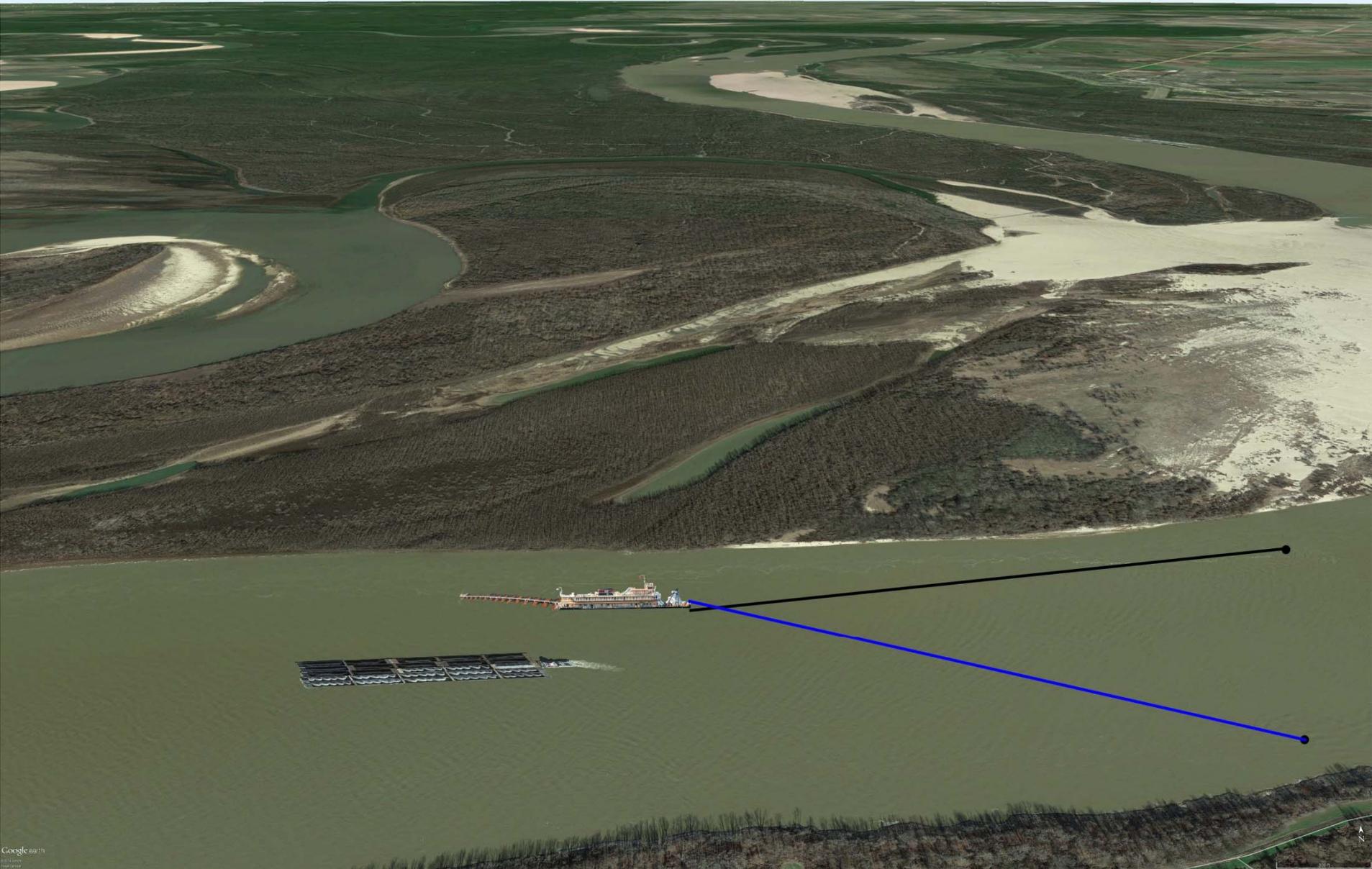


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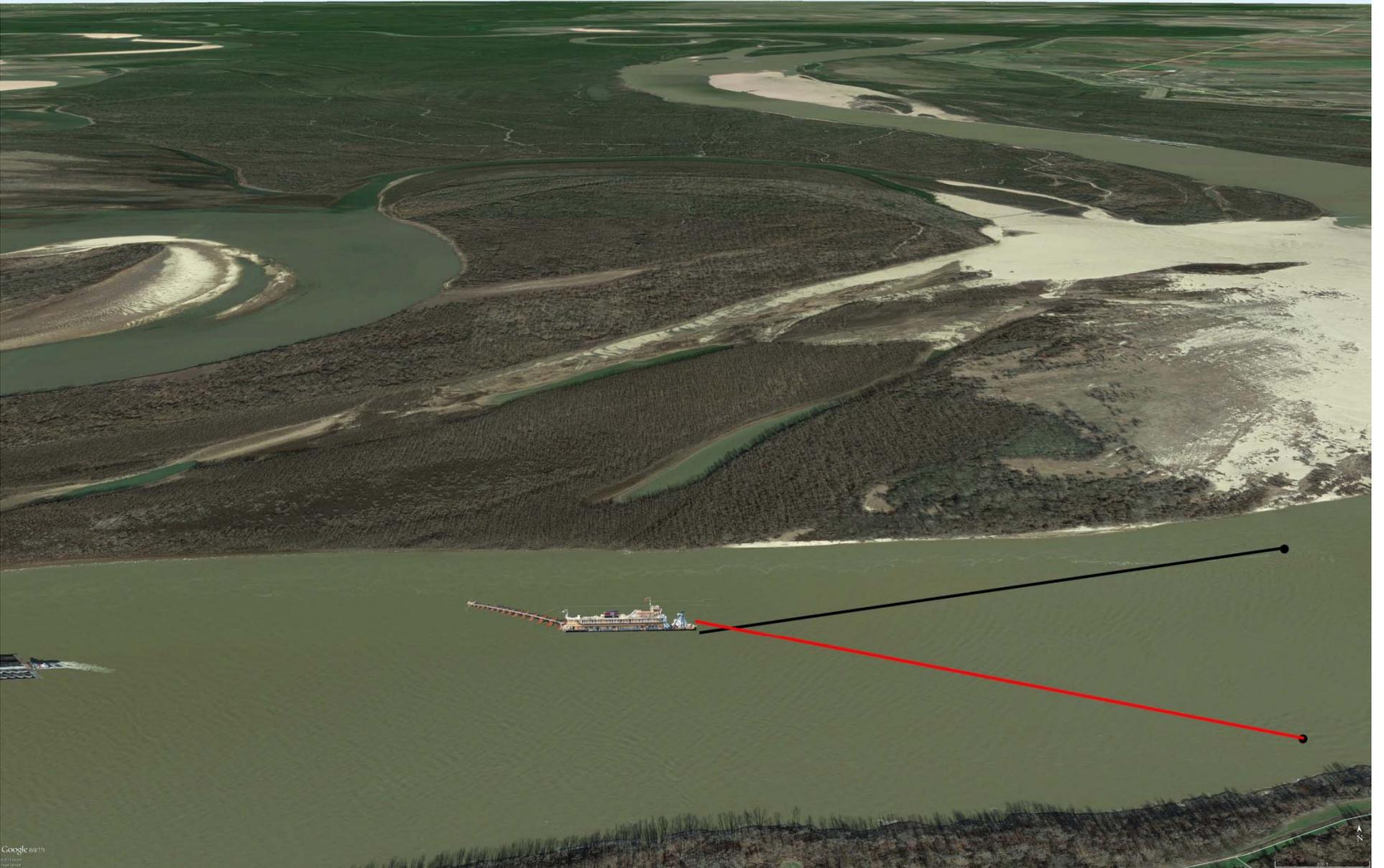
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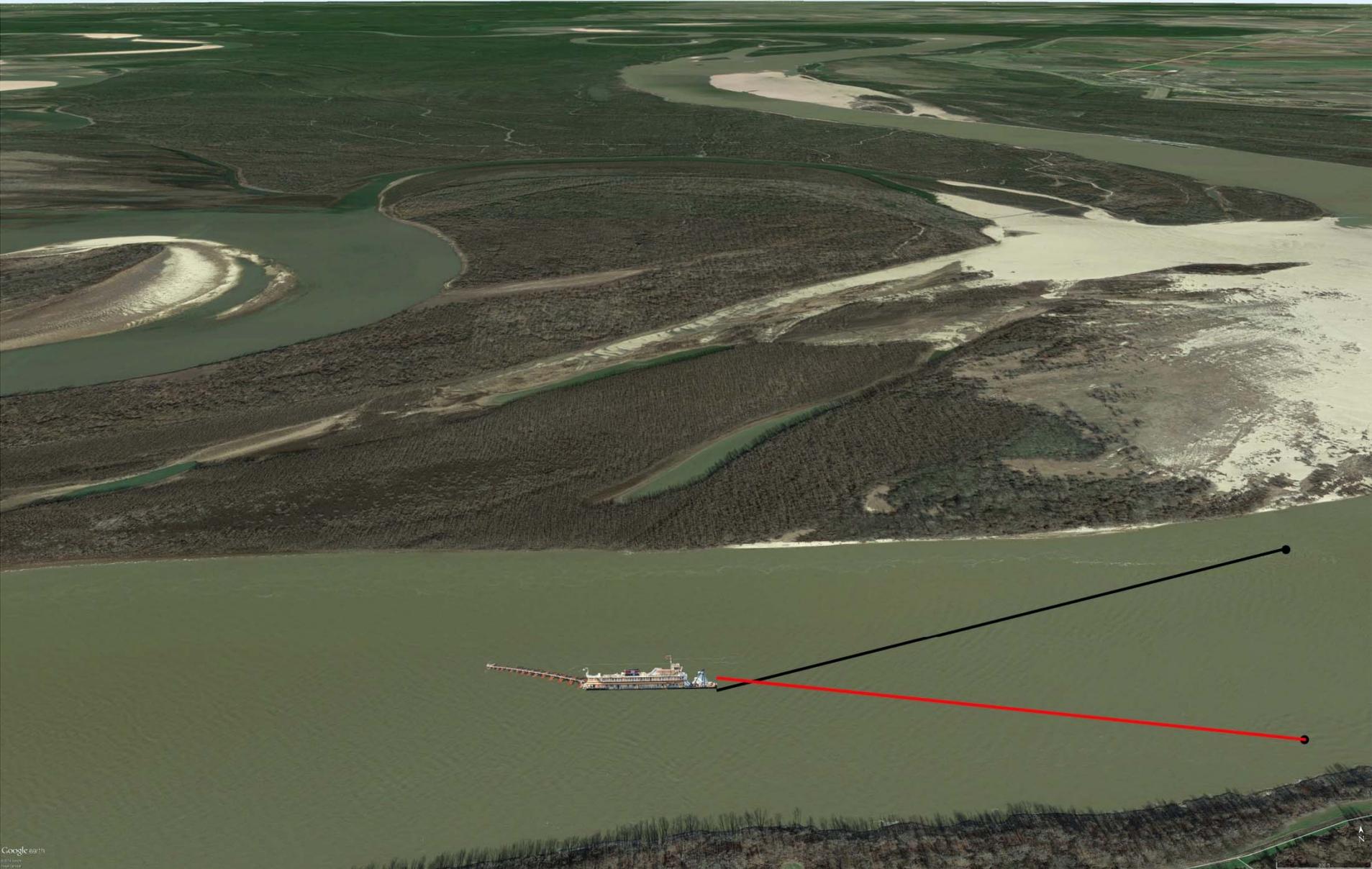


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Dustpan Dredging

- History
- Operational Concept
- **Component Design Features**
- Potential Future Improvements



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Marine Design Center

Positioning



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Ladder Handling



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Ladder Handling



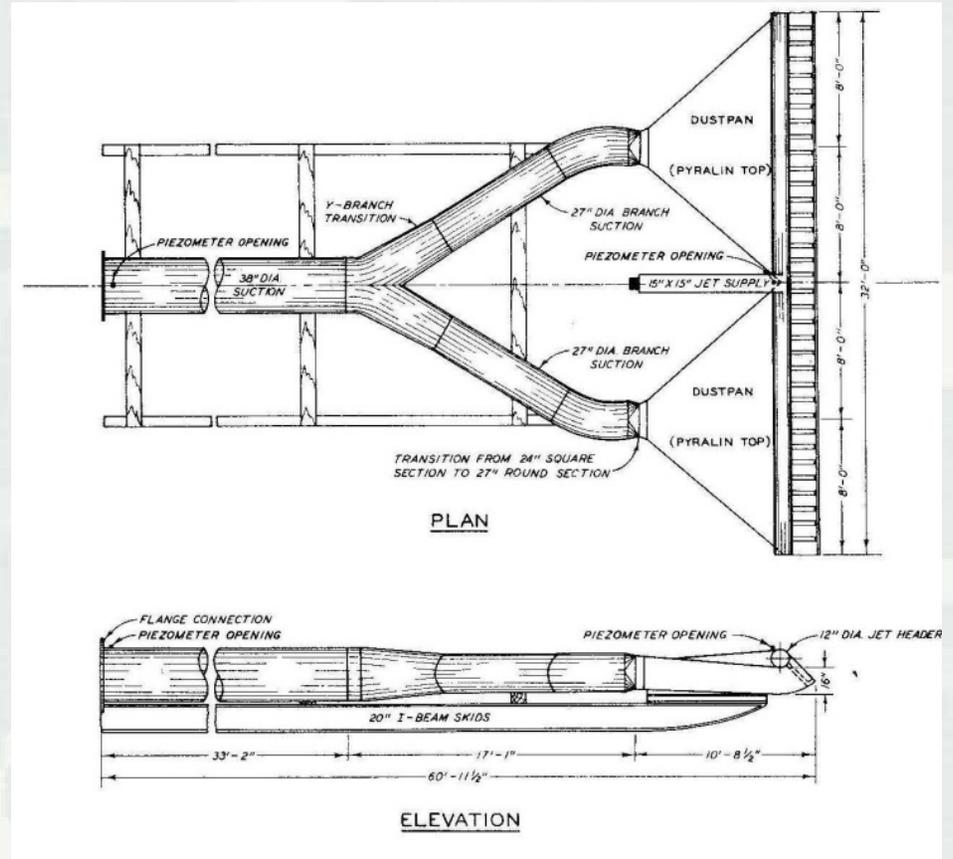
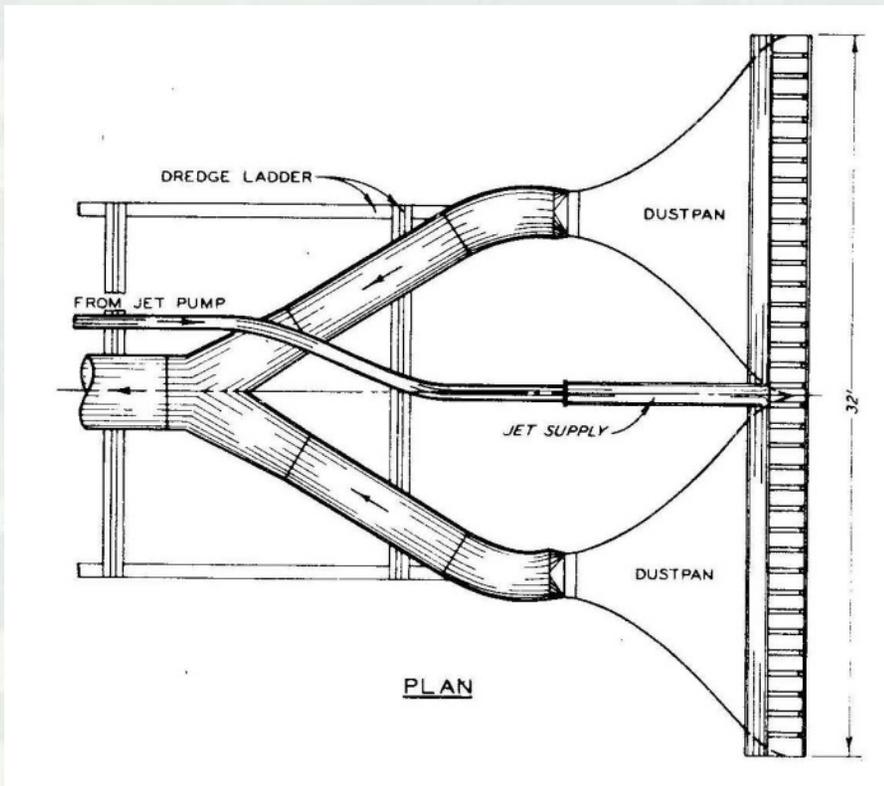
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Ladder Handling



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Dustpan Head Evolution



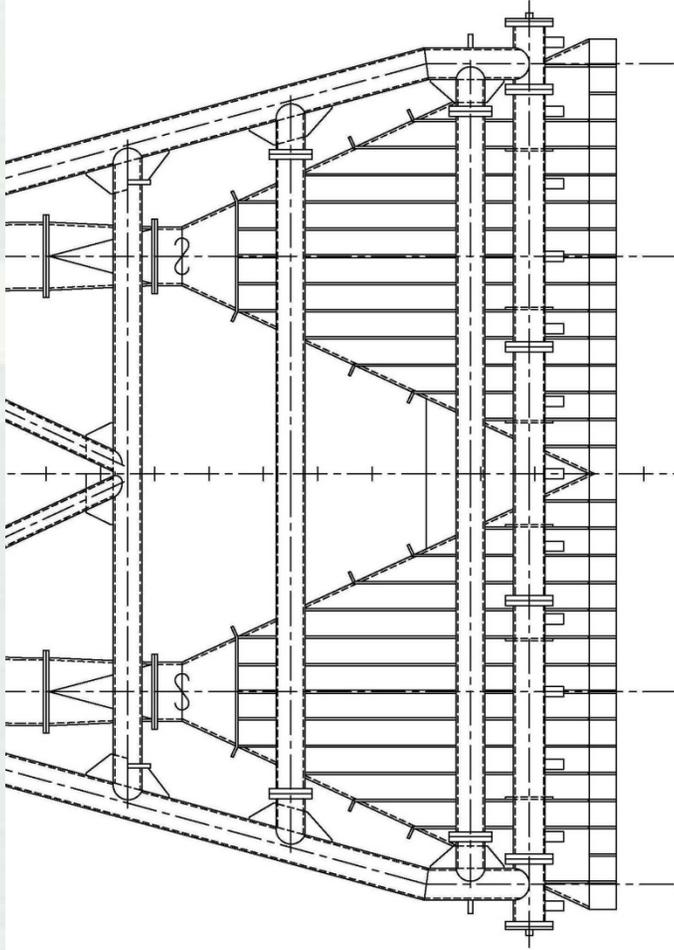
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JADWIN and POTTER Dustpan Head



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HURLEY Dustpan Head



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Dredge Pump



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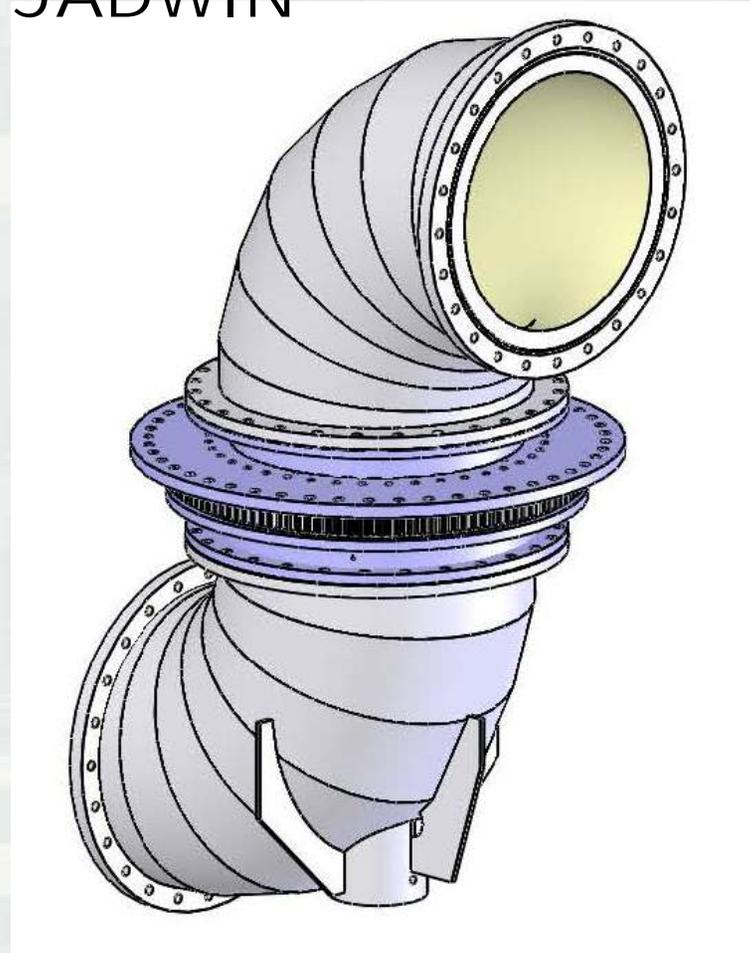
Discharge System POTTER & JADWIN



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Discharge System – Stern Swivel

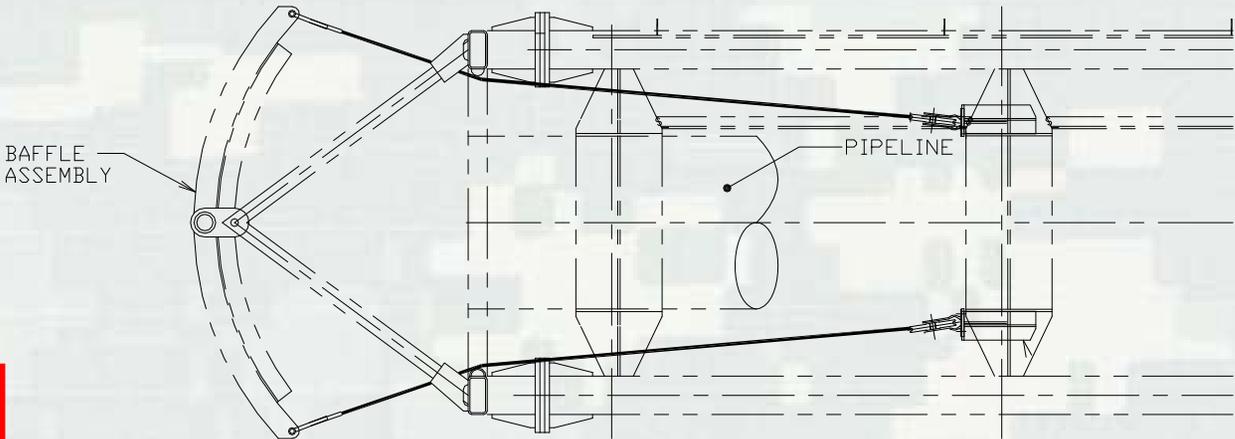
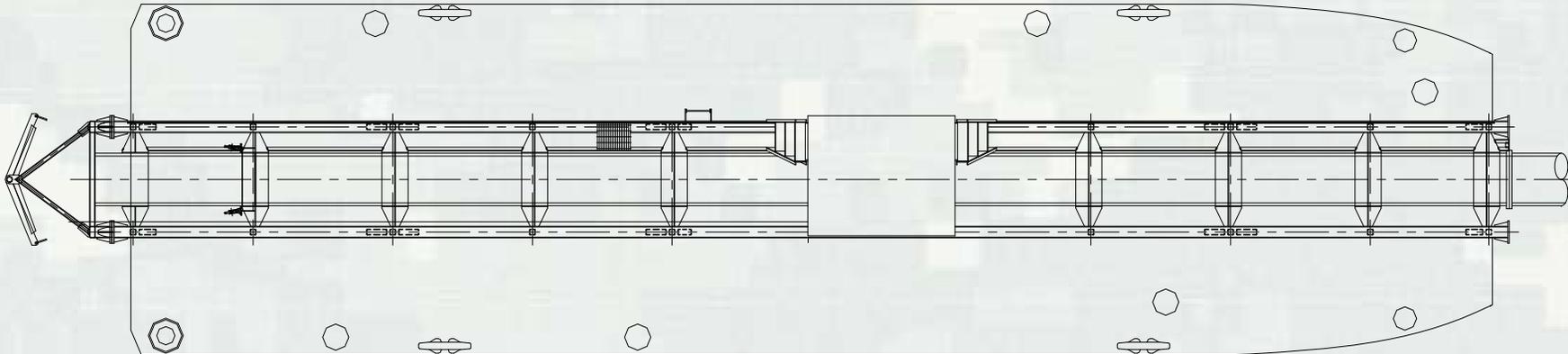
POTTER & JADWIN



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Discharge System - Pipeline Pontoons & Baffle

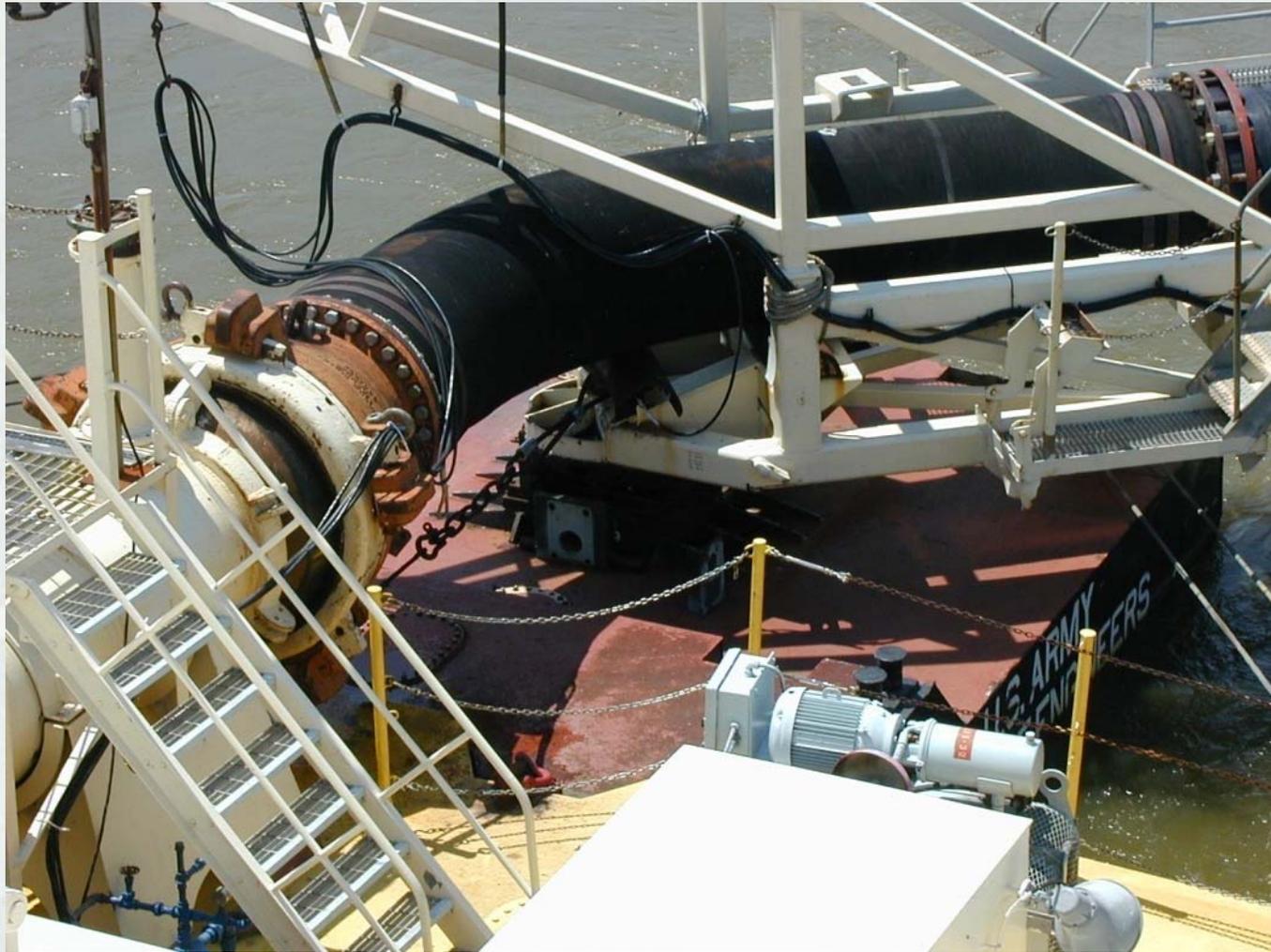
HURLEY



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Discharge System – Stern Swivel

HURLEY



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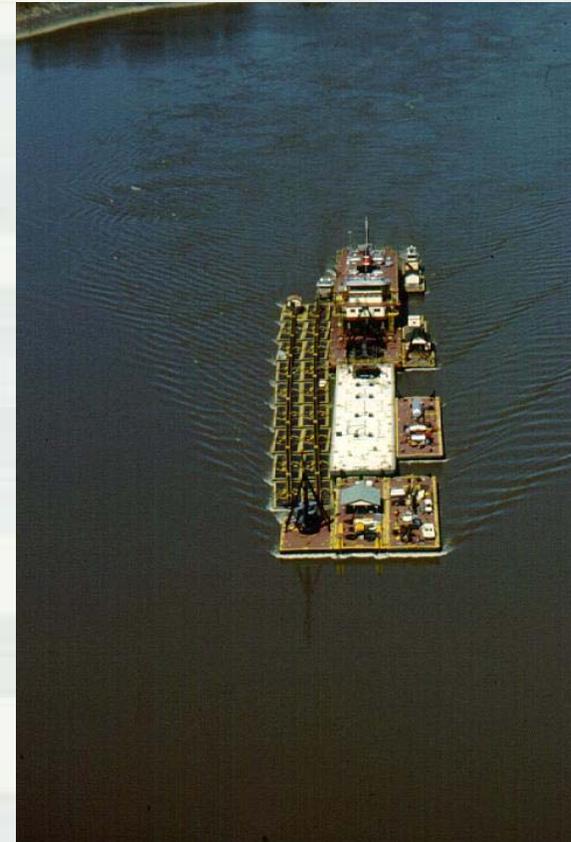
Discharge System – Pipeline

HURLEY



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Dustpan Dredge – Propulsion



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Dustpan Dredge – Propulsion



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Dustpan Dredging

- History
- Operational Concept
- Component Design Features
- Potential Future Improvements



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Potential Future Improvements

- APPLICATION
- MANNING
- PERFORMANCE



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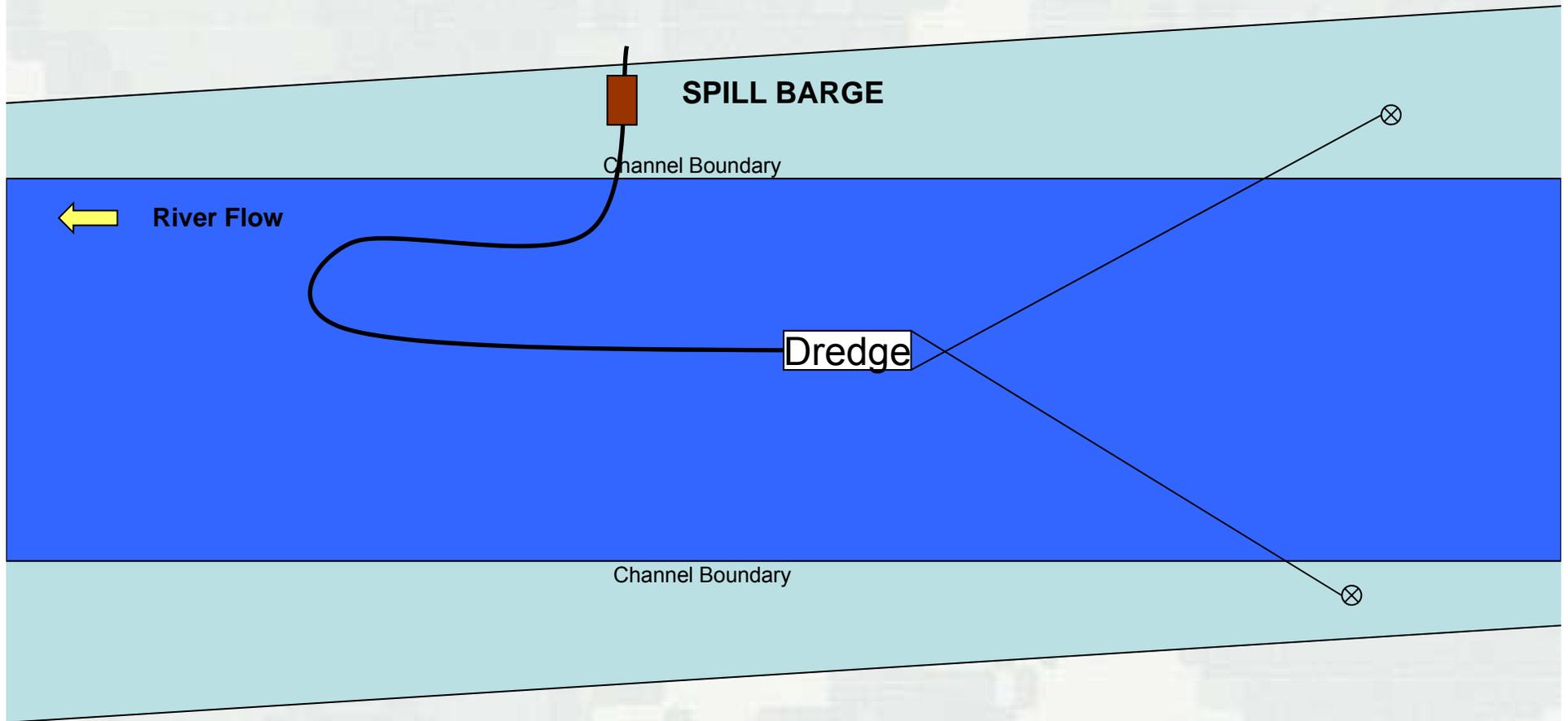
Potential Future Improvements

- APPLICATION
 - ▶ Transition to Upland Disposal
 - Longer Pipelines = Higher Pump HP
 - Pipeline Control
- MANNING
- PERFORMANCE



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Transition to Upland Disposal



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Transition to Upland Disposal



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Dredge POTTER Flexible Discharge System



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Dredge POTTER Flexible Discharge System



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Potential Future Improvements

- APPLICATION
- MANNING
 - ▶ Remote Baffle Plate Control
 - ▶ One Man Bridge
 - ▶ Support Systems and Personnel
 - ▶ Low Maintenance Materials
- PERFORMANCE



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Potential Future Improvements

- MANNING
 - ▶ Low Maintenance Materials



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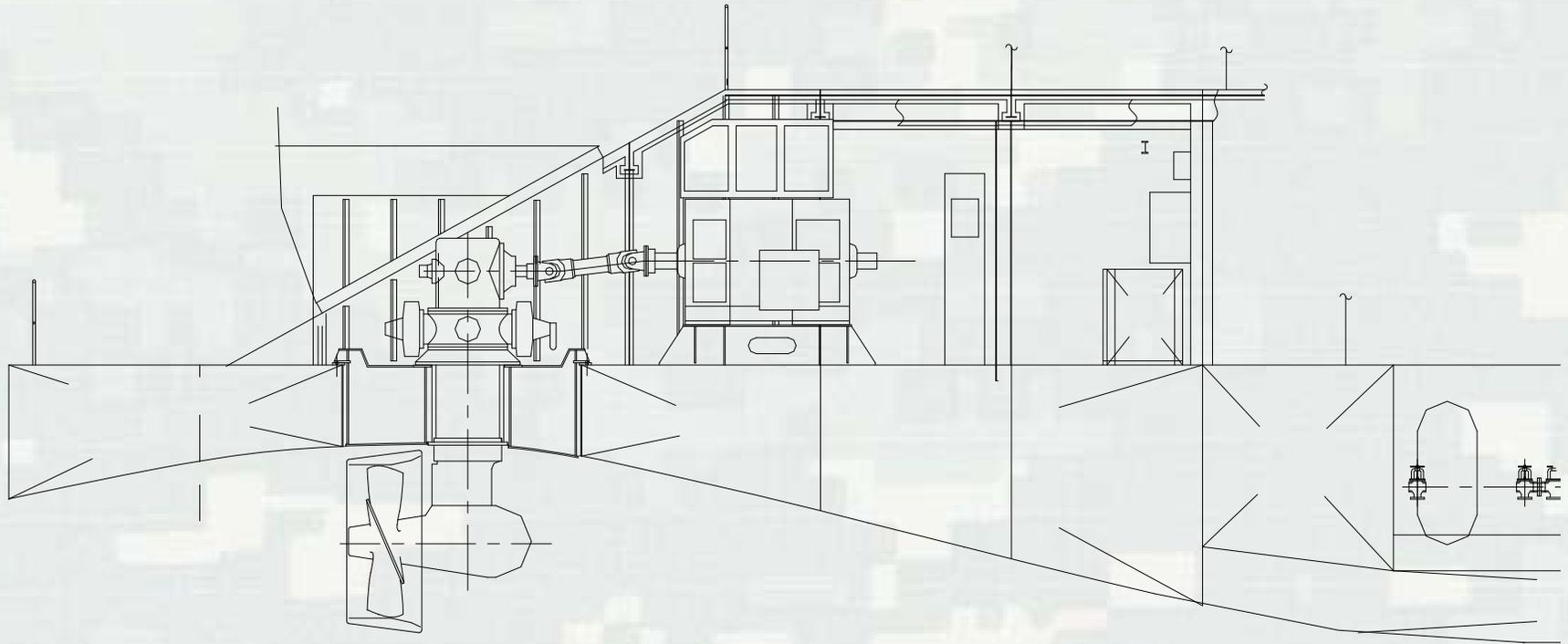
Potential Future Improvements

- APPLICATION
- MANNING
- PERFORMANCE
 - ▶ Dynamic Positioning (DP)
 - Auto Positioning
 - ▶ Auto Pump Control
 - ▶ Safety
 - Power Management



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Dynamic Positioning Z-Drives



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Safety



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Questions?



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