

LD 2020 REVIEW & 2021 WORK

Presentation for the Mississippi Managers Meeting

Jim Rand, LD Chief

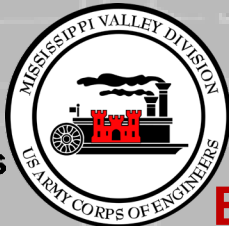
02 Feb 2021



Lock and Dam 6, Trempealeau WI.



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2020 UPPER MISSISSIPPI RIVER NAVIGATION STATISTICS

First



Tow

March 18 -
Motor Vessel
Miss Doris

Last



Tow

November 30 -
Motor Vessel
The Colonel



TONNAGE



2 ton 2 ton 2 ton

Total commodities shipped
117,768,377 tons

**This is an increase of over
36M tons in 2019 and
over 17M tons in 2018**

Commercial lockages



Total lockages
20,529

**2,109 lockages
above the
10-year average**



Recreational lockages & vessels



Total
lockages
15,902



Total Vessels
39,735



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Readiness

Lock and Dam 4 Dewatering

SUMMARY: St Paul District dewatered Lock and Dam 4 in Alma, Wisconsin, to conduct preventive and corrective maintenance.

COMMUNICATION OBJECTIVES:

- 20-year cyclical maintenance of lock chamber critical elements, to include: sand blasting and painting miter gates, repairing delaminated and damaged concrete on vertical surfaces of lock chamber walls, replacement of bubbler system piping and the rehabilitation of weep holes on chamber floor.
- Our navigation mission requires us to complete routine maintenance to ensure that MVP provides safe, reliable and efficient waterway transportation to all users of the Upper Mississippi River.

KEY TAKEAWAYS:

- Work completed over non-navigation season (winter). No impacts to navigation stakeholders.
- All labor completed by the district maintenance and repair crew, supplemented with seasonal staff from locks and dams and Dredge Goetz.
- Additional safety measures were added due to winter conditions and COVID.



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PEOPLE/REVOLUTIONIZE:

Lock and Dam 2 Replacement of Miter Gate Anchorages

SUMMARY: St. Paul District is currently overseeing the install of new top-mounted anchorages at Lock and Dam 2 in Hastings, Minnesota, for newly fabricated miter gates. The gates are scheduled to be installed Summer of 2021.

OBJECTIVES:

- Remove the current anchorage system that has been in place since the 1930s
- Install a newly designed, more robust top-mounted anchorage system
- Complete the excavation of the monolith, removal of old anchorage, install of new anchorage and be offsite by the opening of the FY 2021 navigation season

KEY TAKEAWAYS:

- This was the St. Paul District's first installation of the newly designed anchorage system.
- The new anchorage system is more robust, ensuring the new miter gates have secure operation for the life of the gates.



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In December 2020, representatives from the installation Contractor's QC, the USACE contracting representative, technical lead and project manager observe a "Pull Test," measuring the movement of test anchor rods. The jack (in the background) pulls upwards on the grouted anchor rods to measure if any movement occurs. The measuring device (mechanical dial) can be seen on top of the jack.

The test was a success.





MITER GATE REPLACEMENT

5



Lock and Dam 2:

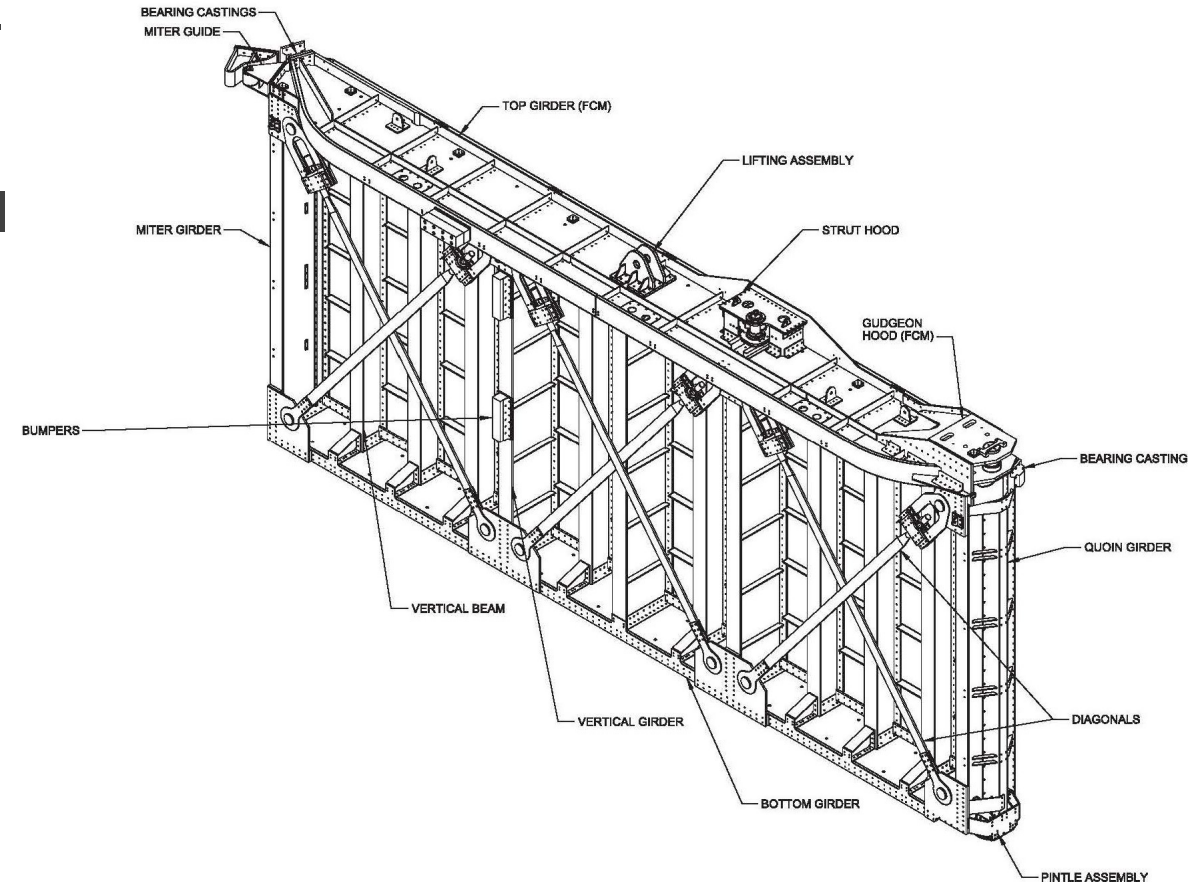
- Scheduled install July 2021, four 12-hour closures (Tuesdays and Thursdays) with assistance from MVR maintenance crew and heavy lift crane.

Locks and Dams 5A, 8 and 10:

- Anchorage design awarded to AE firm, install winter 21-22.
- MG currently in fabrication.
 - Tentative delivery and install between 2022 and 2024.

Lock and Dam 6:

- MG currently in design.
- Anticipated delivery 2025.



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Readiness:

Lock and Dam Tow Rail Design-Build

SUMMARY: A \$20M+ design-build contract was awarded in May 2019, design and construction for six locks and dams are ongoing.

COMMUNICATION OBJECTIVES:

- MVP will invite state representatives and media at Locks and Dams 5 and 5A; MVD will also be invited to attend this site visit.
- The rehabilitation of these tow rail systems are integral to the safety of the navigation industry as they travel upriver.

KEY TAKEAWAYS:

- Construction was completed at Locks and Dams 8 and 9 in 2020. Construction is underway at Locks and Dams 5 and 5A. Construction for Locks and Dams 4 and 7 will begin Dec. 2021.
- The new tow rail systems at Locks and Dams 8 and 9 were utilized successfully during the 2020 navigation season, with positive feedback from the navigation industry.
- Construction at Locks and Dams 5 and 5A is ahead of schedule, concrete removal from the guidewall is anticipated to be complete by 16 January and concrete placement will continue into February which leads to early completion of construction at these sites.

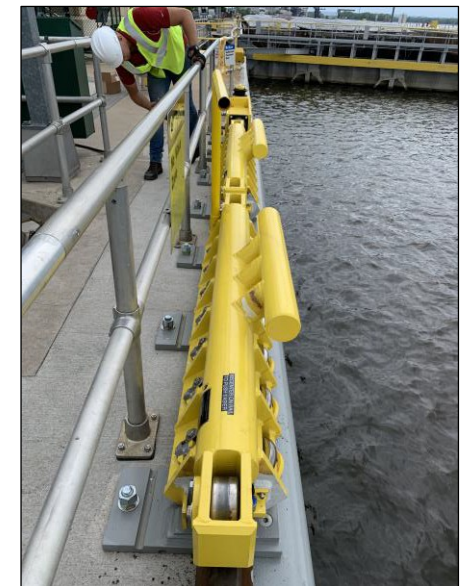
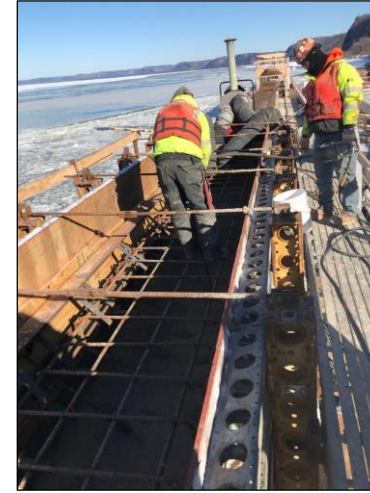


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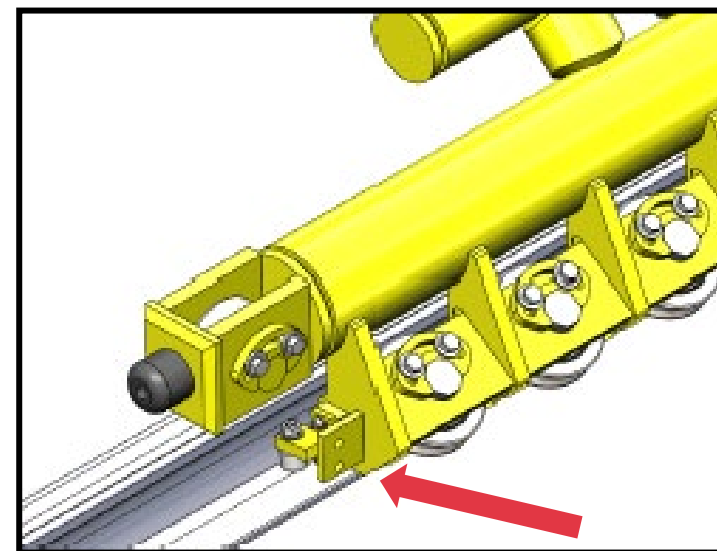
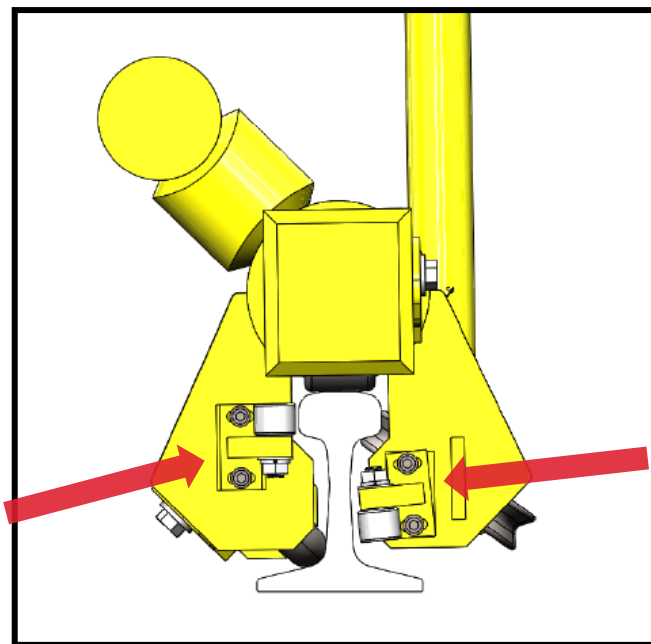
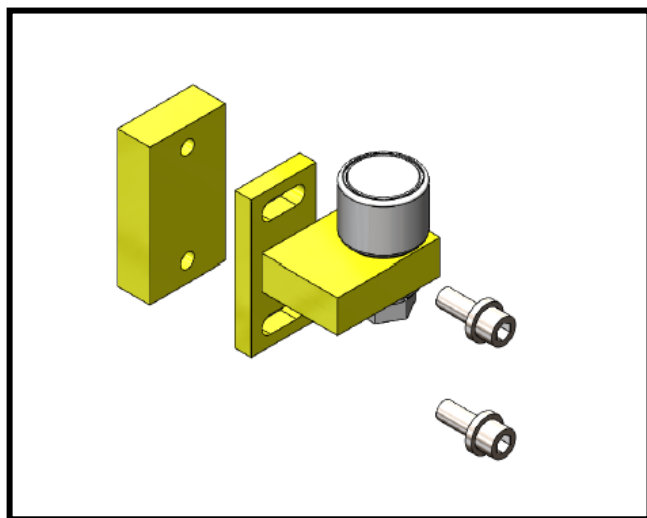
Clockwise from top left: Concrete removal; new concrete placement; thermite welding of new rail; close-up of new mules; new system being used by the navigation industry at Lock and Dam 8.



TOW RAIL REHAB - LESSONS LEARNED



- Added auxiliary roller assemblies to each end of the bit to assist with returning the traveling kevel downstream under human power.



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Partnerships: Lock & Dam 7 Weir Extension

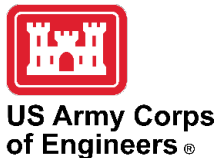
SUMMARY: The submerged rock weir at Lock and Dam 7 was extended by 340 feet in order to reduce outdraft velocities upstream of the lock.

COMMUNICATION OBJECTIVE:

Outdraft velocities at the upstream end of the lock chamber have been a threat to safe navigation. A rock weir was placed in the fall of 2018 to reduce the outdraft. Feedback from the towing industry following construction indicated that outdraft was still a concern at this location. Industry and the Corps worked together to identify alternatives and ultimately a path forward for the project. The selected alternative included plans to extend the rock weir further upstream an additional 340 feet. Recently the St. Paul District Maintenance and Repair crew and attending floating plant placed 1,200 tons of rock to complete the extension.

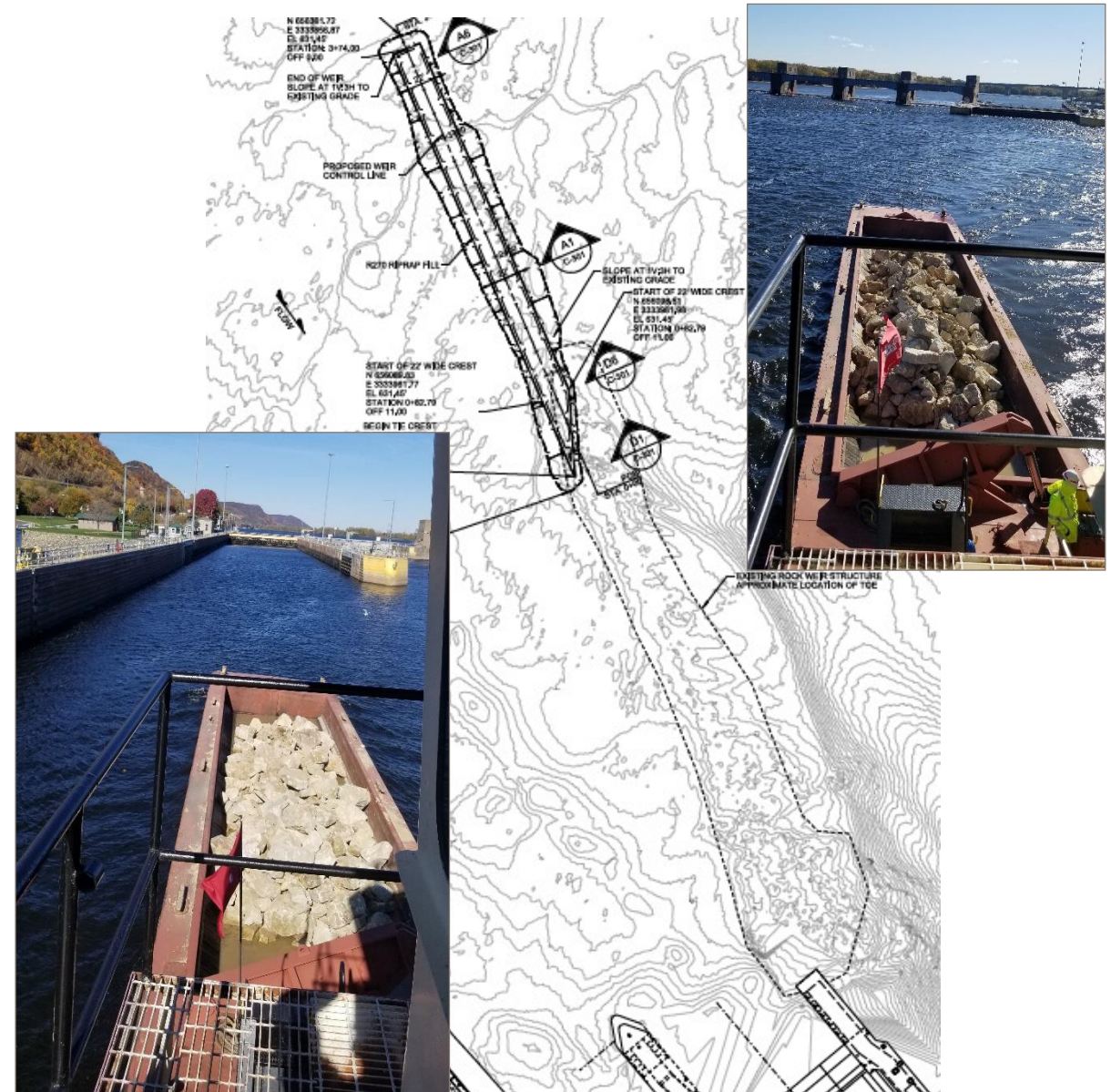
KEY TAKEAWAYS:

- The towing industry and the Corps worked together to improve the safety of navigation at Lock and Dam 7.
- Hydraulics used computer modeling to determine the best solution to reduce the outdraft without increasing sedimentation.



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SCHEDULED MAINTENANCE

9



- LD 2 - TG chain replacement.
 - No industry impacts.
- Base radio upgrades.
 - LD 2 – LD 7 completed.
 - LD 8, 9 & 10 scheduled this year.
- LD 4 & 7 – Tow rail rehab (next winter).
- Dewater LD 6
 - Inspect MG greaseless pintles.



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QUESTIONS?



Dec 18, 2020

Pool 8 – Sailboat stuck in the ice



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