

WINFIELD LOCKS & DAM

Main Lock Anchorage Replacement

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US Army Corps of Engineers
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Winfield Locks & Dam



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Winfield Locks & Dam

- LOCATION: Winfield, WV, Kanawha River approximately 31 miles from the mouth
- LOCKS : Original twin locks are 56' x 360' each, placed in operation September 1935
Additional 110' x 800' was built and started operation November 1997
- DAM: Non-navigable gated dam and consists of six roller gates with a roller flap gate on roller number six for passing debris
- Hydroelectric: Three unit hydroelectric power plant on left descending abutment of dam. 4920 KW capacity per unit.



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- The existing miter gate anchorages were replaced due to cracks in the gudgeon barrel assembly. Cracks formed in the fillet welds on the triangular stiffeners as well as the gudgeon barrel sleeve.
- A new barrel design was developed utilizing identical eyebars
- Spherical bearings were installed on the eyebar end that attached to the barrel assembly providing some flexibility in the linkages.
- All new anchorage components were nickel plated.
- Job started on Monday February 6, 2012. Completed Friday February 17, 2012.
- Upper gates completed in four days using two 12 hour shifts
- Started on Lower Gates Monday February 13, 2012 and also completed in four days



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Cracks in Original Gudgeon Barrel



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Getting Started Day 1



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Original Gate Anchorage



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Removing original Gate Anchorage



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Gudgeon Barrel



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Boring embedded anchorage for new steel sleeves



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Completed Bore ready for Steel Sleeves



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Steel Sleeve installed in lower embedded anchorage



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Bottom Gudgeon Plate actually consisting of three Individual plates



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Bottom Gudgeon Plate after installing steel sleeve



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Bore Welding the Upper Gudgeon Plate



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Completed Bore Weld



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Machining Upper Gudgeon Plate



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Upper Gudgeon Plate after Machining



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New Gudgeon Barrel



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Spherical Bearing



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Installing New Gudgeon Barrel



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Completed Anchorage



Questions?



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