

U.S. Army Corps of Engineers - Little Rock District
 Pertinent Data File
 for the 2019 Low Dissolved Oxygen (DO) Season

- 15May - Beaver penstock and tailwater D.O./temp gages installed.
- 20May - Table Rock and SC.OF.OZ sensors installed.
- 22May - Norfork penstock and tailwater D.O./temp gages installed.
- 23May - Bull Shoals penstock and tailwater D.O./temp gages installed.
- 23May - All gages are all installed, Table Rock gages are having DCP issues. USGS is working on a fix.
- 18Jun - 25.3 tons LOX on hand.
- 24-27 Jun - First lake profiles delivered. Conditions similar to last year.

Beaver	18 Jun 18	7.93 vs 8.06	24 Jun 19
Table Rock	19 Jun 18	7.04 vs 6.70	25 Jun 19
Bull Shoals	20 Jun 18	7.89 vs 8.30	26 Jun 19
Norfork	20 Jun 18	7.09 vs 6.14	26 Jun 19
Greers Ferry	21 Jun 18	7.76 vs 7.87	27 Jun 19
- 01Jul - Spillway releases have caused sediment issues at Beaver tailwater D.O./temp gage.
 - USGS is working on a fix.
- 02Jul - USGS has fixed the Beaver tailwater D.O. gage.
- 09Jul - Table Rock DCP has been replaced and is now transmitting.
- 09Jul - Norfork blocked open vacuum breaker vents.
- 15Jul - Table Rock blocked open vacuum breaker vents.
- 16Jul - 1.1 ton LOx loss between 7/7 - 7/14; 23.5 tons on hand.
- 02Aug - July lake profiles delivered.

Table Rock	11 Jul 18	6.79 vs 4.21	30 Jul 19
Bull Shoals	10 Jul 18	7.25 vs 6.53	31 Jul 19
Norfork	11 Jul 18	6.27 vs 3.58	31 Jul 19
- 06Aug - Greers Ferry blocked open vacuum breaker vents.
- 07Aug - Table Rock RMGR 90% nameplate, 180 MW.
- 09Aug - 0.7 ton LOx loss between 7/28 - 8/7; 22.3 tons on hand.
- 12Aug - Greers Ferry closed vacuum breaker vents.
- 14Aug - 3.1 tons LOx injected in past 24 hrs; 19.2 tons on hand
- 14Aug - DO dropped below 4 PPM at 14:00 on 8/13 and remained around 3.6 PPM for approximately 4 hours before it was noticed by controllers and injection of liquid oxygen began.
- 15Aug - 10.4 tons of LOX injected in past 24 hrs. 8.8 tons on hand.
- 15Aug - Table Rock RMGR 84% nameplate, 42 MW per unit.
- 19Aug - Norfork RMGR 90% nameplate, 36 MW per unit.
- 20Aug - 2.6 tons LOx injected in past 24 hrs; also 22.9 tons delivered; 29.1 tons on hand
- 21Aug - Norfork RMGR 80% nameplate, 32 MW per unit.
- 21Aug - 10.1 tons LOx injected in past 24 hrs; 19.0 tons on hand
- 26Aug - Greers Ferry blocked open vacuum breaker vents.
- 27Aug - 27.2 tons LOx delivered; 55.2 tons on hand.
- 30Aug - August lake profiles delivered.

Table Rock	29 Aug 18	3.79 vs 2.32	27 Aug 19
Bull Shoals	28 Aug 18	5.01 vs 4.41	28 Aug 19
Norfork	27 Aug 18	2.87 vs 1.67	27 Aug 19
- 03Sep - Beaver blocked open vacuum breaker vents.
- 04Sep - Bull Shoals blocked open vacuum breaker vents.

05Sep - Table Rock RMGR 80% nameplate, 40 MW per unit.
 09Sep - Norfork RMGR 60% nameplate (48 MW, with unit 1 @ 20 MW and unit 2 @28 MW)
 10Sep - Table Rock LOx remaining updated to show 56.1 tons on hand.
 12Sep - Norfork siphon begins running 24 hours for DO improvement
 12Sep - Table Rock RMGR 60% nameplate, 30 MW per unit
 17Sep - Norfork unit 2 RMGR increased to 30 MW (75% nameplate). Unit to run at full power during conduit operations.
 18Sep - Norfork unit 2 RMGR increased to 32 MW (80% nameplate). Unit to run at full power during conduit operations.
 19Sep - Norfork unit 2 RMGR increased to 34 MW (85% nameplate). Unit to run at full power during conduit operations.
 20Sep - Norfork unit 2 RMGR increased to 36 MW (90% nameplate). Unit to run at full power during conduit operations.
 25Sep - Norfork unit 2 RMGR decreased to 34 MW (85% nameplate).
 30Sep - Norfork unit 2 RMGR decreased to 32 MW (80% nameplate).
 01Oct - Bull Shoals RMGR set to 100% nameplate of the 6 available units
 01Oct - 3.8 tons LOx injected in past 24 hrs; 39.5 tons on hand
 02Oct - Bull Shoals RMGR is 95% nameplate (38 MW units 1-4 and 42 MW units 5-8).
 02Oct - Norfork RMGR is 75% nameplate (30 MW).
 02Oct - 8.1 tons LOx injected in past 24 hrs; 31.4 tons on hand
 03Oct - 3.1 tons LOx injected in past 24 hrs; 28.3 tons on hand
 04Oct - Norfork RMGR is 70% nameplate (28 MW).
 04Oct - Bull Shoals RMGR is 90% nameplate (36 MW units 1-4 and 40 MW units 5-8).
 09Oct - September lake profiles delivered.
 Table Rock 19 Sep 18 2.65 vs 0.30 02 Oct 19
 Bull Shoals 18 Sep 18 4.47 vs 1.48 03 Oct 19
 Norfork 17 Sep 18 1.18 vs 0.26 03 Oct 19
 09Oct - Bull Shoals RMGR is 85% nameplate (34 MW units 1-4 and 38 MW units 5-8).
 09Oct - 13 tons LOx delivered; 1.4 tons loss; 41.3 tons on hand
 10Oct - Bull Shoals RMGR is 75% nameplate
 10Oct - Norfork RMGR is 65% nameplate (26 MW).
 10Oct - Norfork mixing 500 cfs spillway flows to improve D.O. and meet FRM requirements.
 11Oct - Table Rock is mixing 3,000 cfs spillway flows to improve D.O. and meet FRM requirements. Gates to close Tuesday.
 15Oct - Table Rock RMGR is 40% nameplate (20 MW per unit).
 15Oct - 41.8 tons LOX onhand.
 17Oct - 5.2 tons LOX injected.
 18Oct - Norfork RMGR is 50% nameplate (20 MW).
 18Oct - Bull Shoals RMGR is 72.5% nameplate (29 MW units 1-4 and 33 MW units 5-8).
 20Oct - 3.2 tons LOX injected. 33.4 tons on hand.
 21Oct - Bull Shoals RMGR is 67% nameplate (27 MW units 1-4 and 30 MW units 5-8).
 23Oct - Table Rock RMGR is 47% nameplate (95 MW total).
 25Oct - Table Rock RMGR is 56% nameplate (112 MW total).
 25Oct - Bull Shoals RMGR is 72.5% nameplate (29 MW units 1-4 and 33 MW units 5-8).
 25Oct - Norfork RMGR is 65% nameplate (26 MW).
 27Oct - Bull Shoals RMGR is 75% nameplate (30 MW units 1-4 and 34 MW units 5-8).
 27Oct - Norfork RMGR is 70% nameplate (28 MW).
 28Oct - Norfork RMGR is 75% nameplate (30 MW).
 28Oct - 2.1 tons LOX injected, 29.2 tons LOX on hand.
 29Oct - 8.5 tons LOX injected, 20.7 tons LOX on hand.
 31Oct - Bull Shoals RMGR is 80% nameplate (32 MW units 1-4 and 35 MW units 5-8).
 31Oct - Norfork RMGR is 80% nameplate (32 MW).

01Nov - 22.4 tons LOX delivered, 40.8 tons LOX on hand
 01Nov - Table Rock RMGR is 65% nameplate (130 MW total).
 01Nov - Bull Shoals RMGR is 90% nameplate (36 MW units 1-4 and 41 MW units 5-8).
 01Nov - Norfork RMGR is 90% nameplate (36 MW).
 04Nov - Bull Shoals RMGR is 95% nameplate (38 MW units 1-4 and 43 MW units 5-8).
 04Nov - Norfork RMGR is 95% nameplate (38 MW).
 05Nov - 1.5 tons LOX injected. 39.3 tons on hand.
 05Nov - 6.4 tons LOX injected. 32.9 tons on hand.
 06Nov - Bull Shoals RMGR 100% nameplate.
 06Nov - October lake profiles delivered.

Table Rock	29 Oct 18	1.26 vs 0.23	30 Oct 19
Bull Shoals	30 Oct 18	2.04 vs 2.78	31 Oct 19
Norfork	30 Oct 18	0.57 vs 3.09	01 Nov 19

11Nov - 2.8 tons LOX loss; 30.1 tons on hand.
 10Dec - December profiles delivered.

Beaver	05 Dec 18	6.70 vs 4.70	04 Dec 19
Table Rock	12 Dec 18	6.66 vs 7.06	04 Dec 19
Bull Shoals	04 Dec 18	7.90 vs 7.32	05 Dec 19
Norfork	03 Dec 18	6.90 vs 6.61	03 Dec 19
Greers Ferry	03 Dec 18	5.63 vs 3.71	02 Dec 19

10Dec - Vents closed at Bull Shoals, Table Rock and Norfork.
 20Dec - Vents closed at Beaver.
 23Dec - Vents closed at Greers Ferry.