

Annual Environmental Flows Achievement Report

Submitted by: Brazos River Authority

Submitted to: Texas Commission on Environmental Quality

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Reporting Period: November 1, 2019, through October 31, 2020

The Brazos River Authority System Operation Permit was approved by the Texas Commission on Environmental Quality (TCEQ) and was issued November 30, 2016. The conformed Water Management Plan (WMP) was subsequently approved on April 2, 2018. The Annual Environmental Flows Achievement Report is required in Support of the WMP.

This report summarizes environmental flow achievement for the reporting period from November 2019 through October 2020. If environmental flow conditions were not achieved, the report identifies if operations (i.e. water storage and/or diversion) under the System Operation Permit WMP caused the non-achievement, and if so, how further non-achievement will be prevented. Herein *WMP water use* refers to WMP water storage and/or diversion that is accounted against the System Operation Permit.

There was 122.8 ac-ft of WMP run-of-river diversion and 4,543.7 ac-ft of WMP lakeside diversions and storage for a total of 4,666.5 ac-ft of water use under the System Operation Permit Water Management Plan (WMP) during this period. Water use reported in this annual report occurred during November and December 2019 (lakeside), and September and October 2020 (run of river). Table 1 is a summary of all WMP measurement points and if WMP water use impacted achievement of HFP, baseflow or subsistence environmental flow conditions during the reporting period.

Table 1. WMP Measurement Point Summary.

Measurement Point	Did WMP Water Use Impact HFP Achievement?	Did WMP Water Use Impact Baseflow Achievement?	Did WMP Water Use Impact Subsistence Achievement?
USGS 08088000 Brazos River near South Bend	No	No	No
USGS 08089000 Brazos River near Palo Pinto	No	No	No
USGS 08089100 Brazos River near Glen Rose	No	No	No
USGS 08089500 Brazos River near Waco	No	No	No
USGS 08100500 Leon River near Gatesville	No	No	No
USGS 08104500 Little River near Little River	No	No	No
USGS 08106500 Little River near Cameron	No	No	No
USGS 08108700 Brazos River at SH21 near Bryan	No	No	No
USGS 08110500 Navasota River near Easterly	No	No	No
USGS 08111500 Brazos River near Hempstead	No	No	No
USGS 08114000 Brazos River near Richmond	No	No	No
USGS 08116650 Brazos River near Rosharon	No	No	No

Measurement Points' Hydrologic Condition, Baseflow, & Subsistence

Table 2 lists each measurement point's seasonal hydrologic condition, total number of days per season that baseflow conditions were not met, and the total number of days subsistence conditions were not met.

Table 2. WMP Measurement points' hydrologic conditions, baseflow and subsistence days not met.

Measurement Point	Season	Hydrologic Condition	Total Number of Days Baseflow not Met	Total Number of Days Subsistence not Met	Did water storage or diversion under the WMP occur in applicable reach on any days not meeting criteria?
USGS 08088000 Brazos River near South Bend	Winter	Wet	56	0	No
	Spring	Average	0	0	No
	Summer	Average	45	0	No
USGS 08089000 Brazos River near Palo Pinto	Winter	Wet	70	0	No
	Spring	Average	0	0	No
	Summer	Average	19	0	No
USGS 08089100 Brazos River near Glen Rose	Winter	Wet	96	0	No
	Spring	Average	23	4	No
	Summer	Average	78	21	No
USGS 08089500 Brazos River near Waco	Winter	Average	97	0	No
	Spring	Average	32	0	No
	Summer	Average	57	0	No
USGS 08100500 Leon River near Gatesville	Winter	Average	32	0	No
	Spring	Average	14	0	No
	Summer	Average	26	0	No
USGS 08104500 Little River near Little River	Winter	Average	99	0	No
	Spring	Average	55	0	No
	Summer	Average	92	24	No
USGS 08106500 Little River near Cameron	Winter	Average	40	0	No
	Spring	Average	43	0	No
	Summer	Average	79	3	No
USGS 08108700 Brazos River at SH21 near Bryan	Winter	Average	101	0	No
	Spring	Average	25	0	No
	Summer	Average	67	3	No
USGS 08110500 Navasota River near Easterly	Winter	Average	1	0	No
	Spring	Average	20	0	No
	Summer	Average	0	0	No
USGS 08111500 Brazos River near Hempstead	Winter	Average	105	0	No
	Spring	Average	20	0	No
	Summer	Average	66	3	No
USGS 08114000 Brazos River near Richmond	Winter	Average	100	0	No
	Spring	Average	14	0	No
	Summer	Average	62	7	No
USGS 08116650 Brazos River near Rosharon	Winter	Average	103	0	No
	Spring	Average	12	0	No
	Summer	Average	50	0	No

Measurement Points' High Flow Pulses & WMP Water Use

Table 3 lists each WMP measurement point and information related to achievement of HFP environmental flow conditions. At some measurement points during select hydrologic conditions, no pulse is required (“no pulse req’d”).

Table 3. WMP Measurement Points' HFP events and WMP water use.

Measurement Point	Season	Were SB3 HFP Standards met?	During HFP did WMP water use occur at a rate greater than diversion rate trigger levels? ¹	Did WMP water use occur during HFP after all HFP criteria were met?	Total WMP water storage or diversion within applicable reaches during season (acre-ft)
USGS 08088000 Brazos River near South Bend	Winter	No pulse req'd	not applicable=n/a	n/a	278.6
	Spring	Yes	No	No	0.0
	Summer	No	No	No	0.0
USGS 08089000 Brazos River near Palo Pinto	Winter	No	No	No	0.0
	Spring	No	No	No	0.0
	Summer	No	No	No	0.0
USGS 08089100 Brazos River near Glen Rose	Winter	No	No	No	0.0
	Spring	No	No	No	0.0
	Summer	No	No	No	0.0
USGS 08089500 Brazos River near Waco	Winter	No	No	No	54.0
	Spring	Yes	No	No	0.0
	Summer	Yes	No	No	0.0
USGS 08100500 Leon River at Gatesville	Winter	No pulse req'd	n/a	n/a	450.5
	Spring	No	No	No	0.0
	Summer	No	No	No	0.0
USGS 08104500 Little River near Little River	Winter	No	No	No	464.0
	Spring	Yes	No	No	0.0
	Summer	Yes	No	No	0.0
USGS 08106500 Little River near Cameron	Winter	No	No	No	978.9
	Spring	No	No	No	0.0
	Summer	Yes	No	No	0.0
USGS 08108700 Brazos River at SH21 near Bryan	Winter	No	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	Yes	No	No	0.0
USGS 08110500 Navasota River near Easterly	Winter	No	No	No	2317.8
	Spring	Yes	No	No	0.0
	Summer	No pulse req'd	n/a	n/a	0.0
USGS 08111500 Brazos River near Hempstead	Winter	No	No	No	0.0
	Spring	No	No	No	0.0
	Summer	Yes	No	No	0.0
USGS 08114000 Brazos River near Richmond	Winter	No	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	Yes	No	No	122.8

¹ Diversion rate trigger levels apply only to run-of-river diversions

Measurement Point	Season	Were SB3 HFP Standards met?	During HFP did WMP water use occur at a rate greater than diversion rate trigger levels? ¹	Did WMP water use occur during HFP after all HFP criteria were met?	Total WMP water storage or diversion within applicable reaches during season (acre-ft)
USGS 08116650 Brazos River near Rosharon	Winter	No	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	Yes	No	No	0.0

Brazos River near South Bend

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08088000 Brazos River near South Bend was used to determine if environmental flow conditions at the Brazos River near South Bend measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for the winter season was wet and the spring and summer seasons were average.

No run-of-river diversions were made during this period; therefore, no WMP diversion occurred at rates lower than diversion rate trigger levels during pulse events. There was 278.6 ac-ft of WMP lakeside diversion and storage during this period in the Possum Kingdom Lake reach associated with this applicable measurement point. Diversion rate trigger levels during pulse events do not apply to WMP lakeside diversions nor storage. No lakeside diversions occurred during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River near Palo Pinto

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08089000 Brazos River near Palo Pinto was used to determine if environmental flow conditions at the Brazos River near Palo Pinto measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for the winter season was wet and the spring and summer seasons was average. There was no WMP water storage or diversion during this period in any reaches associated with this applicable measurement point. No WMP water storage or diversion occurred at rates lower than diversion rate trigger levels during pulse events. WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River near Glen Rose

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08089100 Brazos River near Glen Rose was used to determine if environmental flow conditions at the Brazos River near Glen Rose measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for the winter season was wet and the spring and summer seasons was average. There was no WMP water storage or diversion during this period in any reaches associated with this applicable measurement point. No WMP water storage or diversion occurred at rates lower than diversion rate trigger levels during pulse events. WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River near Waco

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08089500 Brazos River near Waco was used to determine if environmental flow conditions at the Brazos River near Waco measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average.

No run-of-river diversions were made during this period; therefore, no WMP diversion occurred at rates lower than diversion rate trigger levels during pulse events. There was 54.0 ac-ft of WMP lakeside diversion and storage

during this period in the Lake Aquilla reach associated with this applicable measurement point. Diversion rate trigger levels during pulse events do not apply to WMP lakeside diversions nor storage. No lakeside diversion occurred during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Leon River at Gatesville

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08100500 Leon River at Gatesville was used to determine if environmental flow conditions at the Leon River at Gatesville measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average.

No run-of-river diversions were made during this period; therefore, no WMP diversion occurred at rates lower than diversion rate trigger levels during pulse events. There was 194.7 ac-ft of WMP lakeside diversion and storage during this period in the Lake Proctor reach associated with this applicable measurement point. There was 255.8 ac-ft of WMP lakeside diversion and storage during this period in the Lake Belton reach associated with this applicable measurement point. Diversion rate trigger levels during pulse events do not apply to WMP lakeside diversions nor storage. No lakeside diversion occurred during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Little River near Little River

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08104500 Little River near Little River was used to determine if environmental flow conditions at the Little River near Little River measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average.

No run-of-river diversions were made during this period; therefore, no WMP diversion occurred at rates lower than diversion rate trigger levels during pulse events. There was 464.0 ac-ft of WMP lakeside diversion and storage during this period in the Lake Stillhouse Hollow reach associated with this applicable measurement point. Diversion rate trigger levels during pulse events do not apply to WMP lakeside diversions nor storage. No lakeside diversion occurred during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Little River near Cameron

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08106500 Little River near Cameron was used to determine if environmental flow conditions at the Little River near Cameron measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average.

No run-of-river diversions were made during this period; therefore, no WMP diversion occurred at rates lower than diversion rate trigger levels during pulse events. There was 650.0 ac-ft of WMP lakeside diversion and storage during this period in the Lake Georgetown reach associated with this applicable measurement point. There was 328.9 ac-ft of WMP lakeside diversion and storage during this period in the Lake Granger reach associated with this applicable measurement point. Diversion rate trigger levels during pulse events do not apply to WMP lakeside diversions nor storage. No lakeside diversion occurred during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River at SH121 near Bryan

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08108700 Brazos River at SH21 near Bryan was used to determine if environmental flow conditions at the Brazos River at SH121

near Bryan measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average. There was no WMP water storage or diversion during this period in any reaches associated with this applicable measurement point. No WMP water storage or diversion occurred at rates lower than diversion rate trigger levels during pulse events. WMP water use did not contribute to non-achievement of environmental flow conditions.

Navasota River near Easterly

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08110500 Navasota River near Easterly was used to determine if environmental flow conditions at the Navasota near Easterly measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average.

No run-of-river diversions were made during this period; therefore, no WMP diversion occurred at rates lower than diversion rate trigger levels during pulse events. There was 2,317.8 ac-ft of WMP lakeside diversion and storage during this period in the Lake Limestone reach associated with this applicable measurement point. Diversion rate trigger levels during pulse events do not apply to WMP lakeside diversions nor storage. No lakeside diversion occurred during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River near Hempstead

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08111500 Brazos River near Hempstead was used to determine if environmental flow conditions at the Brazos River near Hempstead measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average. There was no WMP water storage or diversion during this period in any reaches associated with this applicable measurement point. No WMP water storage or diversion occurred at rates lower than diversion rate trigger levels during pulse events. WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River near Richmond

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08114000 Brazos River near Richmond was used to determine if environmental flow conditions at the Brazos River near Richmond measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average.

There was 122.8 ac-ft of run-of-river diversions made during this period in the Hempstead gage to Richmond gage reach associated with this applicable measurement point. There was no WMP lakeside diversion nor storage during this period in any reach associated with this applicable measurement point. No WMP water storage or diversion occurred at rates lower than diversion rate trigger levels during pulse events.

WMP water use did not contribute to non-achievement of environmental flow conditions.

Brazos River near Rosharon

For the reporting period November 2019 through October 2020, data reported at USGS Gage 08116650 Brazos River near Rosharon was used to determine if environmental flow conditions at the Brazos River near Rosharon measurement point were achieved (see Table 2 and Table 3). The hydrologic condition for all three seasons was average. There was no WMP water storage or diversion during this period in any reaches associated with this applicable measurement point. No WMP water storage or diversion occurred at rates lower than diversion rate trigger levels during pulse events. WMP water use did not contribute to non-achievement of environmental flow conditions.