

# 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, 2021, through October 31, 2022

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 2021 through October 2022. 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 0.0 ac-ft of WMP run-of-river diversion and 0.0 ac-ft of WMP lakeside diversions and storage for a total of 0.0 ac-ft of water use under the System Operation Permit Water Management Plan (WMP) during this period. 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	Average	119	17	No
	Spring	Dry	0	0	No
	Summer	Dry	74	74	No
USGS 08089000 Brazos River near Palo Pinto	Winter	Average	10	0	No
	Spring	Dry	0	0	No
	Summer	Dry	0	0	No
USGS 08089100 Brazos River near Glen Rose	Winter	Average	120	0	No
	Spring	Dry	29	29	No
	Summer	Dry	68	68	No
USGS 08089500 Brazos River near Waco	Winter	Average	117	46	No
	Spring	Dry	37	37	No
	Summer	Dry	76	76	No
USGS 08100500 Leon River near Gatesville	Winter	Average	109	0	No
	Spring	Dry	0	0	No
	Summer	Dry	2	2	No
USGS 08104500 Little River near Little River	Winter	Average	46	6	No
	Spring	Dry	17	17	No
	Summer	Dry	5	5	No
USGS 08106500 Little River near Cameron	Winter	Average	0	0	No
	Spring	Dry	0	0	No
	Summer	Dry	0	0	No
USGS 08108700 Brazos River at SH21 near Bryan	Winter	Average	67	0	No
	Spring	Dry	2	2	No
	Summer	Dry	40	40	No
USGS 08110500 Navasota River near Easterly	Winter	Average	0	0	No
	Spring	Dry	0	0	No
	Summer	Dry	0	0	No
USGS 08111500 Brazos River near Hempstead	Winter	Average	78	0	No
	Spring	Dry	0	0	No
	Summer	Dry	0	0	No
USGS 08114000 Brazos River near Richmond	Winter	Average	67	0	No
	Spring	Dry	0	0	No
	Summer	Dry	18	18	No
USGS 08116650 Brazos River near Rosharon	Winter	Average	84	0	No
	Spring	Dry	4	4	No
	Summer	Dry	54	54	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? <sup>1</sup>	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	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	Yes	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	0.0
	Spring	No	No	No	0.0
	Summer	No	No	No	0.0
USGS 08100500 Leon River at Gatesville	Winter	No pulse req'd	No	No	0.0
	Spring	No	No	No	0.0
	Summer	No	No	No	0.0
USGS 08104500 Little River near Little River	Winter	Yes	No	No	0.0
	Spring	No	No	No	0.0
	Summer	Yes	No	No	0.0
USGS 08106500 Little River near Cameron	Winter	Yes	No	No	0.0
	Spring	Yes	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	0.0
	Spring	Yes	No	No	0.0
	Summer	No pulse req'd	No	No	0.0
USGS 08111500 Brazos River near Hempstead	Winter	No	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	No	No	No	0.0
USGS 08114000 Brazos River near Richmond	Winter	No	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	No	No	No	0.0
USGS 08116650 Brazos River near Rosharon	Winter	No	No	No	0.0
	Spring	Yes	No	No	0.0
	Summer	No	No	No	0.0

<sup>1</sup> Diversion rate trigger levels apply only to run-of-river diversions

### **Brazos River near South Bend**

For the reporting period November 2021 through October 2022, 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 average and the spring and summer seasons were dry. 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 Palo Pinto**

For the reporting period November 2021 through October 2022, 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 average and the spring and summer seasons were dry. 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 2021 through October 2022, 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 average and the spring and summer seasons were dry. 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 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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.

### **Leon River at Gatesville**

For the reporting period November 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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.

### **Little River near Little River**

For the reporting period November 2021 through October 2022, 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 the winter season was

average and the spring and summer seasons were dry. 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.

### **Little River near Cameron**

For the reporting period November 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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 at SH121 near Bryan**

For the reporting period November 2021 through October 2022, data reported at USGS Gage 08108700 Brazos River at SH121 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 the winter season was average and the spring and summer seasons were dry. 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 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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 Hempstead**

For the reporting period November 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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 Rosharon**

For the reporting period November 2021 through October 2022, 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 the winter season was average and the spring and summer seasons were dry. 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.