9-275 c
(July 1935)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES BRANCH

RECORDED

DISCHARGE MEASUREMENT NOTES

Meas. No. 180

Checked by TCB

Date 1-10-1942

Main channel

Brazos River at Richmond, Texas.

Date Nov. 30, 1940 Party Dodd & Ribbeck

Width ~~650~~ 526 Area ~~17,400~~ 16,900 Vel. ~~6.44~~ 6.63 G. H. _____ Disch. 112,000

Method S.V. 6 ~~2.4~~ No. secs. 33 G. H. change -.02 in 2.0 hrs. Susp. 100-975

Method coef. * .90-1.00 Hor. angle coef. 1.00 Meter No. 1830 Susp. coef. 1.00

GAGE READINGS

Time		Recorder	Inside (TAPE)	Outside
9:45 am		37.92	37.92	37.94 ±.05
10:00 am	Start			
11:20		37.84		
12:00 pm	Finish			
12:40 pm		37.90	37.90	37.88 ±.05
Weighted M. G. H.			37.91	
G. H. correction				
Correct M. G. H.				

Date rated 7-28-39. Used rating for rod _____ susp. Meter 1.0 ft. above bottom of wt. Tags checked _____

Spin before meas. O.K. after O.K.

Meas. plots _____ % diff. from _____ rating

~~Wading, cable, ice, boat, upstr., downstr., side bridge~~ 270 feet, ~~mile, above, below gage, and~~ _____

Chain, wire, found _____, changed to _____ at _____

Correct length _____

Levels obtained _____

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section _____

Flow Slightly turbulent Weather Raining

Other Wind medium upstr.

Gage O.K.

Record removed NO Intake flushed NO

~~Observer~~ Note: * For soundings see blue x-section attached to meas. made 11/27/40 based on soundings this meas. at selected points. 'C' for S.V. based on 18 vert. vel. curves made 1932-40. (see compiled list in vert. vel. file)

Control _____

Remarks W.W.G. - 38.17 at 9:38 VLA

W.W.G. 38.14 at 12:35

Sheet No. 1 of 8 sheets. G. H. of zero flow _____ ft.

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80 • 75 •

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January 1935

UNITED STATES
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WATER RESOURCES BRANCH

start 10:00 am

85 •

Date 11/30/, 1940 **DISCHARGE MEASUREMENT NOTES**

Brazos River, at Richmond, Texas.

90 •

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	VELOCITY Mean in section	Area	Mean depth	Width	Discharge
REW 48		0	—	—	—	—	0					
								1.16	34	2.8	12	40
60	⊥	5.6		60	57½	2.30	2.33					
			100	60	56½	2.36		3.84	337	16.85	20	1290
80	⊥	28.1 (120)	6.74	200	68	6.50	5.34					
			22.96	100	53	4.18		6.38	677		20	4320
100	⊥	39.6	1.00	200	59½	(1.00) 7.42	7.42					
								7.36	852		20	6270
120	⊥	45.6	1.00	200	60½	(1.00) 7.30	7.30					
								6.96	916		20	6380 (400)
140	⊥	46.0	1.00	200	63½	(.96) 6.96	6.62					
								6.30	916		20	5770 (800)
160	⊥	45.6	1.00	200	66½	(.90) 6.64	5.98					
								6.57	899		20	5900
* 180	⊥	44.3	1.00	200	55½	(.90) 7.95	7.16					
								7.19	883		20	6350
200	⊥	44.0	1.00	200	55	(.90) 8.02	7.22					
								7.43	874		20	6490
220	⊥	43.4	1.00	200	52	(.90) 8.49	7.64					
								7.60	858		20	6500 (20)
240	⊥	42.4	1.00	200	52½	(.90) 8.41	7.57					
								7.54	840		20	6330 (40)
260	⊥	41.6	1.00	200	53	(.90) 8.33	7.50					
								7.58	826		20	6250 (300)

206
6180

No. 2 of 8 Sheets. Comp. by [illegible] Chk. by TCB

75 • * SEE page 8

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January 1935

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

Date 11/30/, 1940 **DISCHARGE MEASUREMENT NOTES**

Brazos River, at Richmond, Texas.

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	Velocity: At point	Velocity: Mean in vertical	Velocity: Mean in section	Area	Mean depth	Width	Discharge
280	1	41.0 / 41.0	1.00	200	53½	(.94) 8.25	7.76					
								8.08	826		20	6670
300	1	41.6	1.00	200	50½	(.96) 8.74	8.39		6608			
								8.08	836		20	6750
320	1	42.0	1.00	200	54½	(.96) 8.10	7.78					
								7.88	840		20	6620
340	1	42.0	1.00	200	55½	(1.00) 7.95	7.95					
								7.78	843		20	6560
360	1	42.3	1.00	200	58	(1.00) 7.61	7.61					
								7.02	865		20	6080
380	1	44.2	1.00	200	67½	(1.00) 6.50	6.54		6055			
								5.96	895		20	5370
400	13°	45.3 / 46.0	9.20	150	56	5.92	5.39					
								4.88	882		20	4310
420	17°	42.9 / 46.0	8.80	100	54½	4.86 / 4.07	4.36					
								4.22	839		20	3540
440	9°	41.0 / 41.4	8.20	100	63½	4.66 / 4.14	4.08					
								3.66	636		20	2330
460	1	22.6	4.52	80	52	4.02 / 3.41	3.24					
								2.22	298		20	660
480	1	7.2	1.44	40	51	3.06 / 1.75	1.20					
								1.28	140	465	30	180
510	1	2.1	1.13	40	65½	1.66 / 1.36	1.36					
								1.63	35		20	60
		14										

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85 •

Date 11/30/, 1940 DISCHARGE MEASUREMENT NOTES

Brazos River, at Richmond, Texas.

90 •

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	VELOCITY Mean in section	Area	Mean depth	Width	Discharge
									16846		482	111,170
530		1.4	S	50	58½		1.90					
								1.84	33		20	60
550	⊥	1.9	.90	40	50		1.78					
								.89	22 3	.95	24	20
574		0	vel est ½ of sta 550									
~~LEW~~ 48		End	12:00 m.									111,250
									16,902		creek	.386
526		Wind	med up str.									
												111,636
			W.W.G = 38.14 at 12:35									
			Recorder = 37.90 at 12:40 pm									
			T.G = 37.90									
			OG = 37.88 } at 12:40 pm.									
												~~112,050~~
			Recorder = 37.84 at 11:20									
									oyster cr.			386
												~~112,436~~
												111,636
									16902			111,636

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Date 11/30/, 1940 **DISCHARGE MEASUREMENT NOTES**

Brazos River, at Richmond, Texas.

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	Velocity: At point	Velocity: Mean in vertical	Velocity: Mean in section	Area	Mean depth	Width	Discharge
				Openings as numbered								
on master cross-section												
No 1			Main channel measured.									
					Start 1:00 pm.							
No 2			No flow									
No. 3			No flow									
No 4			No flow									
No 5			No flow									
No 6			No flow									
No 7			No flow									
No 8			No flow									
No 9			No flow									
No 10			No flow									
No 11			No flow									

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Date 11/30, 1940 **DISCHARGE MEASUREMENT NOTES**

Oyster Creek River, at Sugarland, Texas

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Velocity Mean in section	Area	Mean depth	Width	Discharge
			Opening No 23									
			Oyster Creek.									
				2:20 pm								
REW				start		R.P.		10.15 above W.S. at 2:15 pm				
8		0	—	—	—	—	0					
								.20	22	1.85	12	4
20	⊥	3.7	.74	15	72½	44	.40					
			2.96	7	49	.33		.60	89		20	53
40	⊥	5.2	1.04	20	52½	.86	.80					
			4.16	20	62	.73		.96	97		20	92
60	⊥	4.5	.90	30	55	1.22	1.10					
			3.60	25	57	.98		1.07	91		20	97
80	⊥	4.6	.92	30	56½	1.19	1.04					
			3.68	20	51	.88		.90	103		20	93
100	⊥	5.7	1.14	20	53	.85	.76					
			4.56	15	51	.66		.46	97		20	45
120	⊥	4.0	.80	3	62	.12	.16					
			3.20	5	58	.21		.08	24	2	12	2
132		0	—	—	—	—	0				124	
REW			End		245				17,424			386

Meas made from 2nd bridge above Highway bridge

124 R.P. 10.15 ft at 2:45 pm at sta. 60

WWG 38.18 at 3:25

Tape gage = 37.88 at 3:30 pm

No. 6 of 8 Sheets. Comp. by WCD Chk. by TCB

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Date 11/30/, 1940 **DISCHARGE MEASUREMENT NOTES**

Brazos River, at Richmond, Texas

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	VELOCITY Mean in section	Area	Mean depth	Width	Discharge
No 12			No flow									
No 13			No flow									
No 14			No flow									
No 15			No flow									
No 16			No flow									
No 17			No flow									
No 18			No flow									
No 19			No flow									
No 20			No flow									
No 21		Est. 0.5 S.E. probably drain and not flow from Brazo River. (Water clear)										
No 22			No flow									
No 23		Oyster Creek								see meas. sheet No 4		
No 24		No flow										
		End 2:55 pm										

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Date 11/30, 1940 DISCHARGE MEASUREMENT NOTES

Brazos River, at Richmond, Texas.

Dist. from initial point	Angle coefficient	Depth	Depth of observation	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	VELOCITY Mean in section	Area	Mean depth	Width	Discharge

Start 4.50 p.m. GH = 37.88 3:30 p.m.

Sta 13.0 ft. to W.S.

180 ~~48.0~~ 44.3 (48.0 - (1.8 + 1.9) = 44.3

28° 1

Sta. W.S. = 12.0 ft

280 ~~46.0~~ 41.0 (46.0 - (2.5 + 2.5) = 41.0

33° 0 34

30° 1 W.S. = 12.0 ft.

360 ~~46.5~~ 42.3 (46.5 - (1.9 + 2.3) = 42.3

End 5:10 p.m.

T.G. = 37.88 at 5:33 p.m.

Soundings made to determine scour. Soundings will be taken again at these stations at later dates.

D = Drag down stream in feet.

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